Generation Mix by Dispatch and Capacity

**By Dispatch**

- 2014: Alt. Resources 1%, Coal 50%, Gas 26%, Nuclear 19%, Hydro 3%
- 2019: Alt. Resources 1%, Coal 36%, Gas 28%, Nuclear 31%, Hydro 4%
- 2020: Alt. Resources 1%, Coal 29%, Gas 19%, Nuclear 47%, Hydro 4%
- 2021: Alt. Resources 2%, Coal 25%, Gas 13%, Nuclear 56%, Hydro 4%

**By Capacity**

- 2014: Alt. Resources 1%, Coal 38%, Gas 34%, Nuclear 12%, Hydro 15%
- 2019: Alt. Resources 1%, Coal 29%, Gas 34%, Nuclear 22%, Hydro 14%
- 2020: Alt. Resources 1%, Coal 28%, Gas 27%, Nuclear 31%, Hydro 13%
- 2021: Alt. Resources 1%, Coal 28%, Gas 27%, Nuclear 31%, Hydro 13%

**Balanced Portfolio**

- Non-emitting 60%

- Coal
- Gas
- Nuclear
- Hydro
South Carolina’s Renewables – Act 236

Landmark legislation for the citizens of South Carolina produced by a coalition of Utilities, Cooperatives, Business and Governmental Organizations, Environmentalists, Local Solar Installers, Energy User Groups, Non-Profit Advisors, and the Office of Regulatory Staff.

Goal: To promote the establishment of a reliable, efficient, and diversified portfolio of distributed energy resources for the State.
Five Main Points of Act 236

1. Setting a “value” to solar in Net Energy Metering (NEM)
2. Establishing Distributed Energy Resource (DER) programs to promote Renewables
3. Developing Leasing Protections under The Office of Regulatory Staff
4. Special Program Considerations for Tax Exempts
5. Annual cost recovery caps in place at $12/residential, $120/commercial and $1,200/industrial
Investment Tax Credits (ITCs)

Federal

• 30% Investment Tax Credit
• Scheduled to expire at the end of 2022 with stepped reduction (originally set to expire 12/31/16 until extended)

South Carolina

• 25% Investment Tax Credit
• Capped at $3,500 per year and $35,000 in total
JERRY ZUCKER SOLAR PARK
500kw - 2,014 panels - 3+ acres

Owned and operated by TIG SUN ENERGY III, LLC
A member of The InterTech Group.

In collaboration with

All inquiries to:
TIG SUN ENERGY III, LLC
4538 Jenkins Avenue
North Charleston, SC 29405
843.764.8177
Utility-Scale Programs

• Company Sited Projects
  o Leeds Avenue (500 kW) in North Charleston
  o Otarre in Cayce

• Requests for Proposals
  o Full 40 MW of Solar Farms
  o RFP Issued in August 2015
  o Should be online by end of 2016
Otarre Solar – 2 MW
Lake Murray Dam – Future (Battery Storage)
Renewable Energy at SCE&G

**Biomass Paper Byproduct**
- 55 MW (Kapstone)

**Solar Photovoltaic**
- 6 MW existing (~600 customers)
- 500 kW – Leeds Avenue

**Hydro Plants**
- 221 MW (Saluda, Neal Shoals, Parr, Stevens Creek)

**Wind Research**
- SCE&G Innovation Center Wind Turbine Drive Train Testing Facility at Clemson University Research Institute
Timeline of Major EPA Actions for Electric Generation

- **Criteria Air Pollutants**
  - CSAPR Reinstated
  - 1 Hour SO2 NAAQS
  - Revised Ozone NAAQS
  - Revised PM/NOx NAAQS
  - Compliance with CSAPR

- **Air Toxics**
  - MATS Rule
  - Compliance Extensions

- **Green House Gases**
  - Proposed CO2 NSPS
  - Proposed CO2 ESPS
  - Partial Strike of Tailoring Rule
  - Precompliance Period
  - Application of CO2 BACT
  - Interim Goal Compliance

- **Coal Ash**
  - CCR Rule Published
  - Compliance Phase-In
  - CCR Compliance

- **Cooling Water**
  - Final 316(b) Rule
  - Cooling Water Phase-In with Permit Cycle

- **Effluent Limits**
  - Proposed ELG Rule
  - Effluent Limits Phase-In with Permit Cycle
Coal Fired Capacity

• Active Coal Units
  – Cope
    • (Gas Capable / Volume?)
    • CSX Only
  – Wateree
    • NS & CSX Served
  – Williams
    • CSX Served
    • Mid-Stream Ship Unloading

• Former Coal Units
  – Urquhart 1,2,3 (Converted to Gas)
  – Canadys (Dismantled)
  – McMeekin (Converted to gas)
Coal $/ton Delivered vs Gas $/MBTU Delivered
Breakeven Analysis

Coal Delivered $/ton @ OTC Quality

<table>
<thead>
<tr>
<th>Gas Delivered $/MBTU</th>
<th>$45.00</th>
<th>$50.00</th>
<th>$55.00</th>
<th>$60.00</th>
<th>$65.00</th>
<th>$70.00</th>
<th>$75.00</th>
<th>$80.00</th>
<th>$85.00</th>
<th>$90.00</th>
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</thead>
<tbody>
<tr>
<td>Gas Delivered $/MBTU</td>
<td>$2.86</td>
<td>$3.14</td>
<td>$3.43</td>
<td>$3.71</td>
<td>$4.00</td>
<td>$4.29</td>
<td>$4.57</td>
<td>$4.86</td>
<td>$5.14</td>
<td>$5.43</td>
</tr>
<tr>
<td>12 Month Gas Strip $/MBTU</td>
<td>$2.42</td>
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</tbody>
</table>
Immediate concerns:

• Outages and Start-ups:
  – If a unit is off line, harder to schedule back on
    • Minimum load restrictions (between 65% and 75% of net rating)
    • Start up/maintenance issues have increased
    • Attractive purchased power options
    • Combined Cycle Gas plants provide a large amount of flexibility.

• This leads to:
  – Inaccurate burn forecasts
  – Increased % of spot coal as part of our portfolio
  – Increased Inventories
  – Potential rail congestion into the plants
  – Inbound coal delivery back log
  – Transportation provider penalties
Looking Forward in Time
(Coal Suppliers)

• Coal Procurement Flexibility
  • Multiple loading points on different RR’s
  • Non-Ratable Production? Can it be or how can it be successful over the long term?
  • How do you overcome cash flow issues?
  • Variable quantity options, how variable can you get while maintaining reliability
Looking Forward in Time (Transportation Providers)

- RR ability to move coal on a non ratable schedule
  » No contract minimum guarantee’s
  » Fixed variable rail contract
- Rail car management
  » RR supplied cars?
  » Car sublease agreements between utilities for base amount?
  » Lease cars from the RR / they manage interchangeability between utilities and we pay by trip?
- Import Vessels
  » Does import coal become the balance
  » Do utility owned cycle trains from Charleston to Cope and Wateree make sense?
QUESTIONS?