Columbia STEM Teacher Roundtable

Gilda Bocock
Fuel Marketing Manager
About Gilda…

- Hometown Columbia, SC Girl – Rosewood Elementary, Dreher High School, USC Carolina Scholar
- Girl Scout, Arts & Crafts Director Congaree GS Camp, Leader
- Married 38 years, two children
- Chemical Engineer, B.S. in 1979
- Joined Westinghouse in 1981: roles in engineering, project and product management, marketing & sales
- Women in Nuclear local chapter chair, Region II coordinator, US WIN national committee chair, US WIN steering committee
Westinghouse Electric Company

- Founded in 1886
- Responsible for some of the world’s important achievements
  - Alternating Current technology
  - First commercial radio broadcast (KDKA-1920)
  - First industrial atom smasher
  - First U.S.-designed jet engine
  - USS Nautilus nuclear submarine
  - First camera on the moon
  - Commercial nuclear power
  - AP1000 Passive Plant

“If someday they say of me that in my work I have contributed something to the welfare and happiness of my fellow man, I shall be satisfied.”

~George Westinghouse
Westinghouse Electric Company

Westinghouse Electric Company provides fuel, services, technology, plant design, and equipment to utility and industrial customers in the worldwide commercial nuclear electric power industry.

Nearly 50 percent of the nuclear power plants in operation worldwide, and nearly 60 percent in the United States, are based on Westinghouse technology.
Westinghouse Columbia Fuel Fabrication Facility

- Opened 1969
- 550,000 ft² facility (51,500 m²)
- 1156 acre site (4.7 km²)
- UF₆ conversion through fuel assembly fabrication, plus
  - FA component manufacture
  - Core component manufacture
  - Product design and testing
- Over 1200 people on site
- Over 10% of electricity generated in the entire US comes from nuclear fuel made at our plant
Turning Water into Steam

Nuclear Power Plant
- Nothing is burned
- Heat created by splitting atoms (nuclear reaction)
- Heat turns water into steam
- The steam turns the turbine
What’s So Great About Being an Engineer?

• Interesting and important work
• Diversity
• Satisfaction
• Financially rewarding
  – Starting engineer: Upper-$50Ks and up
  – Experienced engineer: $90K and higher
• Job security
Show me the money...

<table>
<thead>
<tr>
<th>Industry</th>
<th>Median Entry Salary</th>
<th>Mean Annual Salary</th>
<th>Top 10 Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biomedical Engineering</td>
<td>$62,010</td>
<td>$89,970</td>
<td>$134,620</td>
</tr>
<tr>
<td>Civil Engineering</td>
<td>$58,763</td>
<td>$89,730</td>
<td>$132,880</td>
</tr>
<tr>
<td>Computer Hardware Engineers</td>
<td>$72,030</td>
<td>$118,700</td>
<td>$172,010</td>
</tr>
<tr>
<td>Software Developers, Systems Software</td>
<td>$70,477</td>
<td>$110,590</td>
<td>$163,220</td>
</tr>
<tr>
<td>Chemical Engineering</td>
<td>$67,868</td>
<td>$105,420</td>
<td>$158,800</td>
</tr>
<tr>
<td>Electrical Engineering</td>
<td>$67,550</td>
<td>$98,620</td>
<td>$149,040</td>
</tr>
<tr>
<td>Environmental Engineering</td>
<td>$59,133</td>
<td>$88,530</td>
<td>$130,120</td>
</tr>
<tr>
<td>Geological / Mining Engineering &amp; Sciences</td>
<td>$60,327</td>
<td>$103,010</td>
<td>$160,510</td>
</tr>
<tr>
<td>Materials Science and Engineering</td>
<td>$68,358</td>
<td>$97,050</td>
<td>$148,840</td>
</tr>
<tr>
<td>Mechanical Engineering</td>
<td>$64,695</td>
<td>$89,800</td>
<td>$131,350</td>
</tr>
<tr>
<td>Nuclear Engineering</td>
<td>$70,497</td>
<td>$108,910</td>
<td>$159,330</td>
</tr>
</tbody>
</table>

1: payscale.com, October 2017
What Qualities Make a Good Engineer?

• A strong sense of curiosity
• Likes to solve problems
• Can develop alternative solutions
• Patience and perseverance
• Common sense
• Intelligent
• Likes to read & write reports/memos
• Likes to talk and make presentations
What Skills Does an Engineer Need?

• Technical knowledge (educational background)
• Integrity
• Communications (oral / written)
• Leadership / Teamwork
• Results orientation
• Adaptability
• Innovation
• Planning
What Education is Needed?

- Bachelor's Degree
  - 4 year undergraduate program
- Master's Degree
  - Minimum of 1 year graduate studies
- Doctorate
  - Minimum of 7 years combined undergraduate and graduate studies
Careers in Manufacturing

• Manufacturing Operations - machine shop, welding, assembly
• Accounting
• Transportation & Logistics
• Maintenance
• Electricians
• Quality Assurance
• Health & safety
Resources for information

- Nuclear Energy Institute (NEI)
- Women in Nuclear (WIN)
- North America Young Generation in Nuclear (NAYGN)
- International Atomic Energy Agency (IAEA)
- Nuclear Regulatory Agency (NRC)
- American Nuclear Society (ANS)
- Center for Nuclear Science and Technology Information (Nuclear Connect)
- Nuclear Advocacy Network (NAN)
- Nuclear Matters
- Clearpath Foundation
- Switch Energy Project
- Pandora’s Promise
- Channels on YouTube