Lignite Industry Career Choices

Kent Ellis
Aurora Energy Solutions, LLC
ND Population with a HS Diploma as Terminal Degree

1. 43%
2. 50%
3. 59%
4. 68%
59%
• 27.8%  Bachelors Degree or Higher
• 13.2%  Associates Degree

2016 U.S. Census
HELP WANTED: $600/week
TXT MSG:
“U R FIRED”
RE: MALES

26% of high-school graduates will end up making more money than the average college graduate.

21% of college graduates will make less than the average high-school graduate.

Lester Thurow, Economist
MIT – Sloan School of Management
“The staggering jobless numbers for twenty something workers are no surprise to Lindsey Rhein, 24, of Placentia, Calif. She’s been out of work for nearly four months after getting laid off as a legal assistant for a construction company.”

“She’s applied to over 700 jobs and has gotten only seven interviews, leading nowhere. Even with a master’s degree in forensic psychology and a bachelor’s in sociology, she hasn’t been able to land a sales associate job at Target, and she can’t even get a call back from McDonald’s, where she applied for the fast food chain’s management training program two months ago.”

“The experience has shocked Rhein.”
MATH REALLY COUNTS

In a way, we’ve trapped our students into a self-defeating cycle: the mantra “you can’t get into college without high grades” ensures they will avoid difficult math courses. But once they get into college, they don’t qualify for fields that lead to high-wage jobs; they will instead swell the ranks of students in liberal arts and social sciences.

Susan M. Quattrociocchi, Ph.D
A “D” in Pre-Calculus means you get 70% of this!

\[ \int \frac{1}{\sqrt{x}((\sqrt{x})^2 + 9)} \, dx = \int \frac{1}{(\sqrt{x})^2 + 9} \frac{1}{\sqrt{x}} \, dx \]
An “A” in Art History
MEANS YOU UNDERSTAND
AND CAN APPLY 94% OF THIS
TECHNOLOGICAL LITERACY

“We need engineers desperately . . . technological literacy is no luxury – it’s now basic.”

“People think computers are technology, but computers are only a tiny part.”

Ioannis Miaoulis, Director of Boston’s Museum of Science
Help Wanted:
Starting Salary $54,368
MARKET BASED ECONOMY

Large wage premiums demonstrate that the labor market is signaling that skill is highly valued.
$72,704

Mercer County
Instrument & Control Technician

• Knowledge of flow, level, temperature, pressure, density, and position field devices.

• … and programming ability for/of distributed control systems (DCS) and programmable logic controllers (PLC), including the control devices and network interfaces.
ND Diesel Tech

- High ACT Test Scores
- Top Salaries $115,000
- Tuition Reimbursement
- Company Advancement
Drafting & Estimating Tech.
Electrician

• Work with medium voltage (480, 4160V, 7200V) … circuits in energized and non-energized states.
• … use of programmable logic controllers and systems (PLC’s) …
Logistics
Soil Science
Machinist & Toolmaker

- Right triangle trigonometry, the law of Sines, Cosines and Vectors.
Construction Trades Needed

• Boilermakers
• Carpenters & Millwrights
• Pipe fitters & Plumbers
• Electricians
• Brick masons
• Laborers
• Insulators and Tinners
• Ironworkers
Other Identified Energy Career Areas

- Landmen
- Plant operators
- Heavy equipment operators
- Safety Specialists
- Reclamation
- Welders
Skills Sets in the Energy Industry

- Accountant / Financial Analyst
- Auditor / Lineman
- Plant Operators / Legislative Lobbyist
- Chemist / Biologist / Soil Scientist
- Public Relations / HR
- Safety Director / Attorney
- Surveyors / Explosive Experts
Required Skills For
New Energy Workers

• Math, science, vocational / technical skills
• Focus on workplace safety.
• Strong communication skills.
• Ability to work in like-skill or multi-skill teams.
• Computer literate, especially, PC operating systems, controls systems, and computerized maintenance management systems.
65 years old

“HE SIMPLY RUNS OUT OF WORDS”
APPRENTICESHIPS
MILITARY
TECHNOLOGY
TRAINING
EXPERIENCE
ON THE JOB TRAINING
<table>
<thead>
<tr>
<th>Industry</th>
<th>Rate per 100 Employees</th>
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<tbody>
<tr>
<td>Youth Services</td>
<td>4.2</td>
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<tr>
<td>Construction</td>
<td>3.9</td>
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<tr>
<td>Teaching</td>
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<td>Chemicals</td>
<td>2.1</td>
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<tr>
<td>Electric Power</td>
<td>1.7</td>
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<td>Coal Mining</td>
<td>1.7</td>
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<td></td>
<td>Iron Ore</td>
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<td>Soft Drinks</td>
<td>8.4</td>
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<td>5.3</td>
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<td>Hotel / Motel</td>
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<td>Book Store</td>
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<td>Greeting Cards</td>
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<td>Portrait Studios</td>
<td>2.6</td>
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Table SNR 05  10/20/2011
World of Work

- Math
- Science
- Critical Thinking
- Communications