Sustainable Energy in America 2021

FACTBOOK

BloombergNEF

The Business Council for Sustainable Energy

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U.S. energy overview: Jobs in select segments of the energy sector

Jobs in select energy segments, 2019

<table>
<thead>
<tr>
<th>Thousand of Jobs</th>
<th>Energy efficiency</th>
<th>Natural Gas</th>
<th>Solar</th>
<th>Coal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy efficiency</td>
<td>2,335</td>
<td>122</td>
<td>276</td>
<td></td>
</tr>
<tr>
<td>Solar</td>
<td></td>
<td>345</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coal</td>
<td></td>
<td></td>
<td></td>
<td>16%</td>
</tr>
<tr>
<td>Bioenergy/CHP</td>
<td></td>
<td>30</td>
<td>108</td>
<td></td>
</tr>
<tr>
<td>Wind</td>
<td></td>
<td>115</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nuclear</td>
<td></td>
<td>911</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hydropower</td>
<td></td>
<td>68</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Battery storage</td>
<td></td>
<td>66</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Geothermal</td>
<td></td>
<td>9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pumped hydro</td>
<td></td>
<td>9</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- In 2019 (the last year for which complete data is available), the sustainable, nuclear and storage energy sectors employed an estimated 4.0 million Americans, according to the U.S. Energy and Employment Report. This number is slightly above 2018 levels. Energy efficiency alone supported 2.3 million jobs, while natural gas supported roughly 398,000 jobs and solar 345,000 jobs.

- Including upstream fuel-related jobs notably boosts total employment for fossil-fired generation and bioenergy. In 2019, 69% of the jobs associated with the natural gas sector came from fuel supply (down from 71% in 2018). Coal employed 161,000, with 49% in fuel supply (up from 46% in 2018).

- Energy efficiency jobs related to construction often involve individuals who also do other, non-efficiency related tasks. In fact, 78% of the 2.3 million employees involved in energy efficiency spent the majority of their time on energy efficiency tasks.

- In 2020, according to BW Research, the clean energy sector finished the year with the fewest number of workers since 2015. 429,000 (12% of the nation’s clean energy workforce) remained unemployed by year’s end, making 2020 the first year that clean energy employment saw a decline. 70% of the jobs lost in the clean energy sector had yet to be recovered by year end. At the rate of recovery over the last six months of 2020, the clean energy sector would not reach pre-COVID employment levels for another two and a half years.

- At the state level, 38 states and the District of Columbia continue to suffer double-digit unemployment in clean energy, with four states seeing unemployment of 20% or more.

Source: The U.S. Energy Employment Report, NASEO and EFI. Notes: This data relies on thousands of data points provided via survey. Transmission, distribution and storage jobs not included.
U.S. energy overview: Jobs in electricity generation

Thousands of jobs

- Oil/petroleum: 13,122
- Natural Gas: 86,113
- Coal: 68,115
- Solar: 44,335
- Wind: 38,111
- Nuclear: 38,61
- Hydropower: 36,68
- Other Generation: 36,68
- Bioenergy/CHP: 29
- Geothermal: 9

- U.S. power generators employed approximately 959,000 Americans in 2019 (the last year for which complete data are available). This excludes those involved in the upstream processing of fossil fuels. Among the sectors, solar was the single largest employer in generation, supporting 345,000 jobs. Fossil fuels (coal, gas, and oil combined) was the next largest category at 290,000, followed by wind with 115,000.

- Total U.S. generation-related jobs rose 4% from 2018 to 2019. Gains in almost all sectors outside of coal and nuclear offset the 8,000 job declines in those two. Jobs in the natural gas sector rose by a net 9,000 year-on-year. This largely reflects the growth in natural gas-fired generation in the last two years.

- Solar employees often work part-time in other, non-solar divisions of the same company. Of the 345,000 solar industry employees, around 28% spent the majority of their time employed in other, non-solar sectors.

The Sustainable Energy Workforce

Author: Camille Moore, 2020 BCSE Summer Fellow
## Competencies of the Sustainable Energy Workforce

<table>
<thead>
<tr>
<th>Knowledge</th>
<th>Skills</th>
<th>Abilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>• STEM</td>
<td>• Critical thinking</td>
<td>• Problem sensitivity</td>
</tr>
<tr>
<td>• English</td>
<td>• Active listening</td>
<td>• Oral comprehension</td>
</tr>
<tr>
<td>• Customer service</td>
<td>• Complex problem solving</td>
<td>• Deductive and inductive reasoning</td>
</tr>
</tbody>
</table>
Cooperation is Key

- Educational Institutions (MSIs & HBCUs)
- Labor-Management Organizations
- Workforce Development Boards
- Public Entities
- Public-Private Partnerships (P3s)
- Credential & Certifications
- Data Collection
- Training Centers
- Taskforces
Knowledge can be acquired.
Skills can be developed.
Abilities can be sharpened.
BCSE Snapshot

**Summer Survey of 2020 Members**
- Energy efficiency, natural gas and renewable energy members.
- Balanced responses from across 3 sectors, 1/3 of BCSE membership

Response are from a broad and diverse set of industries
- 53% of respondents have a workforce development policy in place
- 71% of respondents have a diversity and inclusion policy in place

Workforce development and diversity and inclusion policies are distinct issues, with distinct objectives
Workforce Development

Top current workforce development activities
• Apprenticeship or training programs
• Educational partnerships

Top federal government workforce-related programs utilized
• Military veterans
• Department of Labor Apprenticeship program

Top areas for additional federal government support
• Educational partnerships
• Trainings for underrepresented groups
Barriers to Implementation

• Limited staff and financial resources
• Internal awareness, adoption, and employee involvement
• Lack of training tied to real projects
• Lack of qualified and diverse labor pools. Geographic limitations
• Challenge to perform day-to-day job and train for future job
• Pandemic cut off pipeline, need for more virtual/online opportunities
• Finding qualified individuals and diverse candidates
Opportunities

- Advocacy that highlights well-paying clean energy jobs and career paths, especially to displaced and underrepresented communities.
- Knowledge sharing among industries: benchmarking and best practices of companies.
- More virtual trainings and learning opportunities, industry-specific.
- Education programs for children and students.
- Encourage STEM and technical fields.
- 6th-12th grade programs that introduce energy and energy careers.
- Targeted outreach to expand inclusion and diversity of students.