NCSL Workforce Discussion

June 28, 2023
Hope Morrow
Manager
Workforce and Economic Development Programs
Current U.S. Labor Force Standing

Job openings rate, selected industries, April 2013–April 2023

Civilian labor force participation rate, seasonally adjusted

Click and drag within the chart to zoom in on time periods

Shaded area represents a recession as determined by the National Bureau of Economic Research.

U.S. Fertility Rates Below Replacement Rate – 1960 to 2020
U.S. vs. Idaho Generational Demographics
## Workforce Distribution – *Education vs. Occupation*

### Employment Outcomes of STEM Graduates

<table>
<thead>
<tr>
<th></th>
<th>1 of 4</th>
<th>1 of 10</th>
<th>3 of 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>have a STEM job</td>
<td>27.6%</td>
<td>10.2%</td>
<td>62.2%</td>
</tr>
<tr>
<td>have a STEM-related job</td>
<td>7.8%</td>
<td>7.8%</td>
<td>66.8%</td>
</tr>
<tr>
<td>do not work in STEM at all</td>
<td>69.6%</td>
<td>82.2%</td>
<td>30.2%</td>
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</table>

**ALL DEGREES**

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<tr>
<td>have a STEM job</td>
<td>26.5%</td>
<td>10.5%</td>
<td>63.5%</td>
</tr>
<tr>
<td>have a STEM-related job</td>
<td>9.5%</td>
<td>9.5%</td>
<td>70.5%</td>
</tr>
<tr>
<td>do not work in STEM at all</td>
<td>63.9%</td>
<td>80.5%</td>
<td>25.6%</td>
</tr>
</tbody>
</table>

**ADVANCED DEGREES**

**Primary Source:** National Center for Education Statistics (NCES) Baccalaureate and Beyond Longitudinal Study. Manual review and aggregation of data from...
- 2008 cohort in 2009, 2012, and 2018
- 2016 cohort in 2017 (awaiting release of 2020 data)

**Secondary Source:** Quantifying Inclusive Diversity in the Nation’s STEM Workforce, Idaho National Laboratory

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### Offramps From STEM (1 Year After Graduation)

- **46.9% (~156K)** Working or Studying STEM
- **42.4% (~141K)** Working or Studying Non-STEM
- **10.7% (~35K)** Left STEM, School & Workforce

**Computing**
- 60.4% | 32.3% | 8.7%

**Engineering**
- 60.4% | 32.3% | 8.7%

**Science**
- 33.9% | 53.9% | 12.2%
Advanced Nuclear – *Accelerating Regional Growth*

- **DOME**: NRIC | TEST BED
- **LOTUS**: NRIC | TEST BED
- **HERMES**: KAIROS | TEST REACTOR
- **PROJECT PELE**: DoD & BWXT | MICRO
- **MARVEL**: DOE | MICRO
- **AURORA**: OKLO | MICRO
- **MCRE**: Southern Co. & TerraPower | EXPERIMENT

**Timeline:**
- **2024**: DOME, LOTUS
- **2025**: MARVEL
- **2026**: HERMES
- **2027**: PROJECT PELE
- **2028**: AURORA
- **2029**: MCRE, SMR-160
- **2030**: VOYGR, NATRIUM

**Future Projects:**
- **Xe-100**: X-ENERGY & DOW | SMR
- **VTR**: BEYOND 2030

**Institutions:**
- HOLTEC
- NuScale
- SMR
- TERRAPOWER
- GE
Advanced Nuclear Deployment – Two Workforce Pathways

The U.S. would need ~375,000 additional trained workers with technical and nontechnical skill sets to construct and operate 200 gigawatts of advanced nuclear.

- Trades & Construction (Temporary)
- Industry Employment ( Permanent)

~100B ADDED TO THE ECONOMY BY 2030
~140k DIRECT JOB-YEARS BY 2030
~60k INDIRECT JOB-YEARS CREATED FROM CONSTRUCTION AND OPERATION ACTIVITIES
~114k AVERAGE INCOME OF JOB-YEARS CREATED

Jobs created from new nuclear power plant construction by 2030
# Vogtle Root Causes and Systemic Issues

## Root causes lead to…

<table>
<thead>
<tr>
<th>Root causes</th>
<th>Systemic issues</th>
<th>Lagging indicators</th>
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<tbody>
<tr>
<td>Incomplete design</td>
<td>1. Extensive rework / remediation</td>
<td>Schedule slippage</td>
</tr>
<tr>
<td>Inadequate level of detail in Integrated Project Schedule / inflexible timelines; poor project controls system</td>
<td>2. Supply chain delivery issues (for modules)</td>
<td>High CPI (hours worked / hours earned ratio), low productivity</td>
</tr>
<tr>
<td>Inadequate quality assurance / control practices; improper documentation standards</td>
<td>3. Low individual productivity</td>
<td></td>
</tr>
<tr>
<td>Poor risk assessment</td>
<td>4. High levels of attrition and absenteeism</td>
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<tr>
<td>Limited design constructability</td>
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<tr>
<td>Shortage of experienced labor</td>
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<tr>
<td>COVID-19 pandemic</td>
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- **Within project leadership control**
- **Outside of project leadership control**
Idaho National Lab – Accelerating Regional Growth

2,853 Total Anticipated Openings (through FY-26)
How are we managing these needs?

- Recognizing the regional nature of the future of advanced energy
- Creating the Idaho Workforce Training Center
- Expanding community college partnerships
  - Removing transfer pathway barriers
- Increasing exposure to the energy industry (jobs & general knowledge)
- Creating an industrywide team: Idaho Advanced Energy Consortium
  - Go after available grants/funds
  - Plan for mutual advanced energy goals
Battelle Energy Alliance manages INL for the U.S. Department of Energy’s Office of Nuclear Energy. INL is the nation’s center for nuclear energy research and development, and also performs research in each of DOE’s strategic goal areas: energy, national security, science and the environment.