Governors’ Advisors Energy Policy Institute

June 24 & July 13-15, 2021

NGA Center for Best Practices
Day 4: Energy Workforce, Economic Development, and Recovery

Thursday, July 15
Introduction to the Day

Speaker:
Jessica Rackley, Program Director, Environment & Energy, NGA Center

1:00-1:05 PM ET
## Energy Workforce Trends

<table>
<thead>
<tr>
<th>OCCUPATION</th>
<th>GROWTH RATE, 2019-29</th>
<th>2020 MEDIAN PAY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wind turbine service technicians</td>
<td>61%</td>
<td>$65,230 per year</td>
</tr>
<tr>
<td>Nurse practitioners</td>
<td>52%</td>
<td>$111,680 per year</td>
</tr>
<tr>
<td>Solar photovoltaic installers</td>
<td>51%</td>
<td>$46,470 per year</td>
</tr>
<tr>
<td>Occupational therapy assistants</td>
<td>35%</td>
<td>$62,940 per year</td>
</tr>
<tr>
<td>Statisticians</td>
<td>35%</td>
<td>$92,270 per year</td>
</tr>
<tr>
<td>Home health and personal care aides</td>
<td>34%</td>
<td>$27,080 per year</td>
</tr>
<tr>
<td>Physical therapist assistants</td>
<td>33%</td>
<td>$53,770 per year</td>
</tr>
<tr>
<td>Medical and health services managers</td>
<td>32%</td>
<td>$104,280 per year</td>
</tr>
<tr>
<td>Physician assistants</td>
<td>31%</td>
<td>$115,390 per year</td>
</tr>
<tr>
<td>Information security analysts</td>
<td>31%</td>
<td>$103,590 per year</td>
</tr>
<tr>
<td>Data scientists and mathematical science occupations, all other</td>
<td>31%</td>
<td>$98,330 per year</td>
</tr>
<tr>
<td>Derrick operators, oil and gas</td>
<td>31%</td>
<td>$47,920 per year</td>
</tr>
<tr>
<td>Rotary drill operators, oil and gas</td>
<td>27%</td>
<td>$33,820 per year</td>
</tr>
<tr>
<td>Roustabouts, oil and gas</td>
<td>25%</td>
<td>$39,420 per year</td>
</tr>
<tr>
<td>Speech-language pathologists</td>
<td>25%</td>
<td>$80,480 per year</td>
</tr>
</tbody>
</table>

Topics for Today’s Session

• Which energy sectors are growing and currently hiring workers, and in which parts of the country
• Identifying training and education needs
• How the pandemic and economic downturn impacted energy jobs
• What jobs/sectors offer pay that is comparable to fossil fuel sector jobs
• What can state policymakers and governor’s offices do to create new energy sector employment opportunities
• What are the key regional and local considerations that are important for new workforce/economic development programs and policies
• As the energy sector transitions, how states can ensure that equity and diversity concerns are addressed
Opening Keynote: The Energy Workforce of the Future

Speaker:
Dr. Brian Anderson, Ph.D., Director, DOE National Energy Technology Lab and Interagency Working Group on Coal and Power Plant Communities and Economic Revitalization

Moderator:
Timothy Schoonhoven, Policy Analyst, NGA Center

1:05-1:25 PM ET
The Energy Workforce of the Future

Empowering Workers Through Revitalizing Energy Communities

Interagency Working Group on Coal and Power Plant
Communities and Economic Revitalization

Brian J. Anderson, Ph.D.

Executive Director, Interagency Working Group on Coal and Power Plant Communities and Economic Revitalization
Director, National Energy Technology Laboratory

July 15, 2021
The Interagency Working Group (IWG) was established by Executive Order 14008, Sec. 218, on Jan. 27.

The IWG released an Initial Report with recommendations to catalyze robust economic activity and support workers in America’s energy sector.
Executive Order on Tackling the Climate Crisis at Home and Abroad

Interagency Working Group Goals

- Remediate environmental degradation
- Support energy workers
- Create good-paying union jobs
- Spur economic revitalization
Stakeholder Engagement
Ensuring Impacted Communities are Empowered to Direct Their Own Futures

During stakeholder engagement with impacted communities for the Initial Report, key learnings included:

1. There are no silver bullets.
2. Local community engagement matters.
3. Immediate jobs and a long-term strategy.
4. Job creation and job retention.
5. Invest in workers.
6. Invest in local entrepreneurs and place-based organizations.
7. Infrastructure matters.

### Lasting Community Engagement

- Town Hall Meetings
- Regional Planning
- Federal Advisory Committee
Guiding Principles

Initial Report to the President

- Create good-paying jobs
- Support energy workers by securing benefits and providing opportunity
- Provide federal investment to catalyze economic revitalization
- Prioritize pollution mitigation and remediation
- Adopt a government-wide approach
- Formalize stakeholder engagement efforts
Initial Report to the President on Empowering Workers Through Revitalizing Energy Communities

- Identified **25** priority Energy Communities

- Coal communities identified as immediately challenged

- Additional analyses forthcoming

Figure 2 in the report. The IWG recommends focusing initial federal investments in areas with high concentrations of coal-dependent jobs.
Working Across the Federal Government

$38B
in potential funding

COORDINATE

CATALYZE

TARGET

The Looney Ridge mine in Wise County, VA
Stakeholder Engagement

Authentic, Unfiltered Engagement

- Visit all 25 priority areas.
- Senior officials, roundtable discussions, community tours, public hearings, workshops, and return visits.
- Shape government policies, target investments, and assist communities to access federal resources.
Next Steps

Near-Term Priorities

1. Continue **engaging stakeholders and listening tour**

2. Continue **job-creating investments** in priority Energy Communities, particularly ARP roll out.

3. Enable **easier access to federal support** for Energy Communities

4. Plan for **long-term engagement and ongoing support.** Establish a FACA.

5. Develop **policy recommendations** for President by end of 2021.
Calls To Action

• Share your budget and policy perspectives

• Encourage stakeholders to provide their needs & solutions:
  • Community Engagement
  • Investments
  • Integration
    • across federal govt.
    • vertically fed-state-local
  • Policy
Questions?

Interagency Working Group on Coal and Power Plant Communities and Economic Revitalization
Energy Job Opportunities – Growth Sectors & Emerging Areas

Speakers:

Sandra Purohit, Director of Federal Advocacy, E2

Alyssa Latuchie, Clean Energy Economist, Energy Conservation and Management Division, New Mexico Energy, Minerals and Natural Resources Department

Felicia DePaula, Program Specialist, New Mexico Economic Development Department

Moderator:

Jessica Rackley, Program Director, Environment & Energy, NGA Center

1:25-2:00 PM ET
Good for the Economy.
Good for the Environment.

Clean Energy Workforce

The National Governors’ Association’s (NGA)
Governors’ Advisors Energy Policy Institute

July 15, 2021

Presented by-
Sandra Purohit
Director of Federal Advocacy
Sandra@e2.org
E- WHO?
E2 - national nonpartisan group of over 11,000 business leaders, investors and professionals from all sectors of the economy and across the US.

We advocate for policies that are good for the economy and good for the environment.

6th annual Clean Jobs America Report (and others).
https://e2.org/reports

- clean energy jobs broken down by
- Sector
- State
- Metro Statistical Area in America
- Non-metro rural jobs as well.
FIG. 1 // U.S. CLEAN ENERGY EMPLOYMENT by sector 2020

ENERGY EFFICIENCY: 2,107,174
RENEWABLE ENERGY: 492,891
CLEAN VEHICLES: 273,630
GRID & STORAGE: 137,872
FUELS: 37,036

TOTAL: 3,048,603

Good for the Economy.
Good for the Environment.
<table>
<thead>
<tr>
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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Retail Salespersons</td>
<td>3,659,670</td>
<td>4,317,950</td>
<td>4,448,120</td>
<td>4,442,090</td>
<td>-2.79%</td>
</tr>
<tr>
<td>Clean Energy Sectors*</td>
<td>3,048,603</td>
<td>3,355,419</td>
<td>3,284,600</td>
<td>3,165,050</td>
<td>6.01%</td>
</tr>
<tr>
<td>Registered Nurses</td>
<td>2,986,500</td>
<td>2,982,280</td>
<td>2,951,960</td>
<td>2,906,840</td>
<td>2.60%</td>
</tr>
<tr>
<td>Customer Service Representatives</td>
<td>2,833,250</td>
<td>2,919,230</td>
<td>2,871,400</td>
<td>2,767,790</td>
<td>5.47%</td>
</tr>
<tr>
<td>Commercial Banking</td>
<td>2,065,527</td>
<td>2,063,270</td>
<td>2,067,089</td>
<td>2,076,128</td>
<td>-2.79%</td>
</tr>
<tr>
<td>Elementary and Middle School Teachers</td>
<td>1,976,050</td>
<td>2,064,680</td>
<td>2,032,880</td>
<td>2,043,520</td>
<td>1.04%</td>
</tr>
<tr>
<td>Waiters and Waitresses</td>
<td>1,944,240</td>
<td>2,579,020</td>
<td>2,582,410</td>
<td>2,584,220</td>
<td>-0.20%</td>
</tr>
<tr>
<td>Heavy and Tractor-Trailer Truck Drivers</td>
<td>1,797,710</td>
<td>1,856,130</td>
<td>1,800,330</td>
<td>1,748,140</td>
<td>6.18%</td>
</tr>
<tr>
<td>Engineers</td>
<td>1,673,440</td>
<td>1,730,720</td>
<td>1,700,880</td>
<td>1,665,220</td>
<td>3.93%</td>
</tr>
<tr>
<td>Lawyers</td>
<td>658,120</td>
<td>657,170</td>
<td>642,750</td>
<td>628,370</td>
<td>4.58%</td>
</tr>
</tbody>
</table>
Good for the Economy.
Good for the Environment.
Good for the Economy.
Good for the Environment.
FIG. 11 // U.S. CLEAN ENERGY EMPLOYMENT by industry 2020

Manufacturing: 499,432 Total Jobs
- Energy Efficiency: 290,418
- Clean Vehicles: 110,982
- Renewable Energy: 72,047
- Storage: 15,812
- Grid Modernization: 6,599
- Clean Fuels: 3,575

Professional & Business Services: 620,988 Total Jobs
- Energy Efficiency: 456,853
- Renewable Energy: 104,627
- Clean Fuels: 24,053
- Grid Modernization: 14,500
- Storage: 12,987
- Clean Vehicles: 7,968

Utilities: 15,674 Total Jobs
- Wind: 6,882
- Solar: 4,077
- Geothermal: 1,113
- Bioenergy/CHP: 3,602

Wholesale Trade & Distribution: 287,235 Total Jobs
- Energy Efficiency: 177,644
- Clean Fuels: 46,277
- Renewable Energy: 44,532
- Storage: 8,738
- Grid Modernization: 6,756
- Clean Vehicles: 3,287

Construction: 1,440,441 Total Jobs
- Energy Efficiency: 1,144,276
- Renewable Energy: 222,233
- Storage: 39,304
- Grid Modernization: 34,627

Other Services (Repair and Maintenance/Other): 182,257 Total Jobs
- Clean Vehicles: 108,402
- Energy Efficiency: 37,983
- Renewable Energy: 33,761
- Storage: 1,199
- Grid Modernization: 818
- Clean Fuels: 93
Good for the Economy.
Good for the Environment.
Good for the Economy.
Good for the Environment.

### CLEAN ENERGY JOBS PAY 25% MORE THAN NATIONAL MEDIAN WAGE

#### Clean Energy median wage = $23.87
National median wage = $19.14

<table>
<thead>
<tr>
<th>State</th>
<th>Median Clean Energy Wage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Massachusetts</td>
<td>$29.84</td>
</tr>
<tr>
<td>District of Columbia</td>
<td>$27.56</td>
</tr>
<tr>
<td>California</td>
<td>$27.49</td>
</tr>
<tr>
<td>New York</td>
<td>$27.07</td>
</tr>
<tr>
<td>Alaska</td>
<td>$25.75</td>
</tr>
<tr>
<td>Washington</td>
<td>$25.39</td>
</tr>
<tr>
<td>Connecticut</td>
<td>$25.19</td>
</tr>
<tr>
<td>Maryland</td>
<td>$24.37</td>
</tr>
<tr>
<td>New Jersey</td>
<td>$24.22</td>
</tr>
<tr>
<td>Oregon</td>
<td>$23.91</td>
</tr>
</tbody>
</table>

#### TOP STATES BY CLEAN ENERGY WAGE PERCENTAGE ABOVE STATEWIDE MEDIAN WAGE

<table>
<thead>
<tr>
<th>State</th>
<th>Percentage Above Median</th>
</tr>
</thead>
<tbody>
<tr>
<td>California</td>
<td>29.2%</td>
</tr>
<tr>
<td>Texas</td>
<td>27.6%</td>
</tr>
<tr>
<td>Louisiana</td>
<td>24.9%</td>
</tr>
<tr>
<td>Massachusetts</td>
<td>23.2%</td>
</tr>
<tr>
<td>New York</td>
<td>20.9%</td>
</tr>
<tr>
<td>Oregon</td>
<td>20.9%</td>
</tr>
<tr>
<td>Georgia</td>
<td>19.9%</td>
</tr>
<tr>
<td>Nevada</td>
<td>16.9%</td>
</tr>
<tr>
<td>Tennessee</td>
<td>15.2%</td>
</tr>
<tr>
<td>Arizona</td>
<td>14.9%</td>
</tr>
</tbody>
</table>
Fossil Fuels Jobs and Clean Energy Jobs

FIGURE 3: JOB GROWTH RATES BY ENERGY SECTOR, 2017-2019

Good for the Economy.
Good for the Environment.
Clean Energy Challenges

- **Diversity** -- E2 will be coming out with Diversity report soon and that is something clean energy need to tackle.

- **Workforce Training**: And For years pre-COVID and even now with 300,000 jobs lost, when we survey clean energy businesses, they consistently say that finding skilled labor is a major challenge.

- **Incentive Stability**: Instability in incentives impacts financing, manufacturing, and demand generally.

- **Global Competitiveness** --
  Clean Energy Investment is flowing to Countries with high targets and incentives. Europe and China are eating our lunch. We want more domestic manufacturing and ultimately export of US clean energy technologies into what is estimated to be 27 trillion dollar global market (based on existing global commitment).

Just a few critical federal policies we are seeing in play include...
Key Federal Policies for Clean Energy

- **Clean Energy Tax Credits** -- Longer incentives and for Purchasing and Manufacturing Incentives for Efficiency, Renewables, Grid and Storage, Vehicles etc

- **Workforce training** -- Including stipends for trainees

- **National Clean Energy Accelerator** (National Green Bank) -- to support state green banks and local financing solutions in every state and to address equity

- **A Clean Electricity Std** – for path to 100% clean electricity by 2035.

- **Funding for R&D and deployment programs at DOE.**
THANK YOU

Sandra Purohit
Director of Federal Advocacy
Sandra@e2.org

ADDITIONAL RESOURCES/DETAILS: www.E2.org/Reports

• Clean Jobs America 2021 (Jobs Numbers)— (regional reports and federal district data coming)

• Clean Jobs Better Jobs (Wage Data)

• Build Back Better Faster (Sample Jobs Projection with $100B Federal investment)

• Healthy Soils and the Climate Connection: A Path to Economic Recovery on America’s (Rural Opportunities)

• COMING SOON: Diversity in Clean Energy Report (Aug 2021)
### TARGET INDUSTRY SWOT ANALYSIS

#### Sustainable & Green Energy
- **Strengths**
  - Business retention
  - Workforce recovery
- **Weaknesses**
  - Supply chain recovery
- **Opportunities**
  - Reskilling and retraining
- **Threats**
  - Environmental regulation

#### Aerospace & Defense
- **Strengths**
  - Business incentives
  - Workforce attraction
  - Competitive environment
  - Industry innovation
  - Broadband connectivity
  - Land use policy
- **Weaknesses**
  - Alignment of higher education to industry needs
- **Opportunities**
  - Infrastructure opportunities and challenges
  - Emerging technology adoption
- **Threats**
  - Ensuring equitable access to opportunities within industry

#### Sustainable Agriculture
- **Strengths**
- **Weaknesses**
- **Opportunities**
- **Threats**

#### Global Trade
- **Strengths**
- **Weaknesses**
- **Opportunities**
- **Threats**

#### Cybersecurity
- **Strengths**
- **Weaknesses**
- **Opportunities**
- **Threats**

#### Film & Television
- **Strengths**
- **Weaknesses**
- **Opportunities**
- **Threats**

#### Intelligent Manufacturing
- **Strengths**
- **Weaknesses**
- **Opportunities**
- **Threats**

#### Biosciences
- **Strengths**
- **Weaknesses**
- **Opportunities**
- **Threats**

#### Outdoor Recreation
- **Strengths**
- **Weaknesses**
- **Opportunities**
- **Threats**

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**Overall**

- Comprehensive analysis and integrated narrative to inform strategy development
- Matrix scorecard assessing the strengths, weaknesses, opportunities, and threats of each industry for each COG and for New Mexico
PARTNERSHIP WITH EMNRD
TRENDS FROM STAKEHOLDER FEEDBACK

Competitive Advantage:
- New Mexico remains among the most competitively positioned states in the U.S. for growing the renewables industry.

Education:
- New Mexico’s community colleges have engaged with industry to develop very strong, highly-regarded clean energy technician programs that enable the state to deploy more clean tech.

Infrastructure:
- Infrastructure continues to be a challenge for the state, and if New Mexico does not invest significantly in transmission infrastructure it is likely it will lose its current advantage over other states.
MOVING FROM REPORT INTO ACTION

**Goals:**
- 2 positions centered around Economic and Energy Diversification
- Recruiting and supporting renewable energy companies in NM
- Technical support and educational training for renewable energy companies
- Facilitating degree and apprenticeship programs in the energy sector

**Link between departments**
- Economic Development Department
- Department of Workforce Solutions
QUESTIONS?

Alyssa Latuchie
Clean Energy Economist, Energy Minerals and Natural Resource Department, Energy Conservation & Management Division
Alyssa.Latuchie@state.nm.us

Felicia DePaula
Program Specialist, Economic Development Department
feliciaf.depaula@state.nm.us
Ensuring a Just Energy Transition

Speakers:

Cindy Winland, Principal, Community Transition Planning

Wade Buchanan, Director, Colorado Office of Just Transition, Colorado Department of Labor and Employment

Moderator:

Timothy Schoonhoven, Policy Analyst, NGA Center

2:00-2:30 PM ET
Workforce Development: Education & Retraining

Speakers:

Lisa Waters, Vice President of Human Resources, Schneider Electric

Dan Conant, Founder and CEO, Solar Holler

Moderator:

Amanda Winters, Program Director, Postsecondary, NGA Center

2:30-3:00 PM ET
Schneider Electric in the US

Leading the digital transformation of energy management and automation in homes, buildings, data centers, infrastructure, and industries.

Schneider Electric USA Headquarters
800 Federal St, Boston ONE Campus
Andover, MA 01810 se.com/us

$7.7B in revenues, 2020 ~19,000 employees

Major U.S. sites
Dallas, TX, El Paso, TX Boston, MA;
Nashville, TN; West Kingston, RI; Lake Forest, CA;

300+ microgrids in the U.S.

Net Zero Carbon by 2025

#1 of Global 500 Most Sustainable Corporations - Global Knights 2020

Acknowledged in CDP’s “Global Climate 500 Performance Leadership Index” and “Dow Jones Sustainability Index”
Solar Energy
Decentralized Microgrid
Net zero Building
Electric Vehicles

Electric builds a green future
Labor shortages are causing strains on supply chains.

Extended Unemployment
Extended unemployment benefits rival normal pay, perpetuating a slow return to market.

Aging Workforce
The manufacturing workforce is rapidly aging creating a dire need for rapid job skilling.

Limited Trade School Pipeline
Fewer people are attending trade schools leading to a lack of qualified candidates.

Lack of Childcare
Pandemic-related daycare and school closings have impacted employee decisions to apply for open positions.
The **labor solution**: Partnerships

A local approach to labor through partnerships between the *government*, *private sector*, and *educational institutions* …

… enabling rapid job skilling as well as a steady stream of qualified, talented labor in communities nationwide.

However, until now, labor programs have been:

- **Siloed**
- **Underfunded**
Workforce of the Future - Develop Now

• Through a partnership with the United States government, industry, and colleges/trade schools, a rapid job skilling program could be created near an existing or future manufacturing site.

Work Study Programs in Technical Schools

• A partnership between Schneider Electric, local technical schools and local governments could be formed to finance and incentivize students to complete technical education leading to a steady stream of labor supply in a local area for revitalization.

Expanded Educational Programs for Electricians

• Electricians are a critical, but aging, workforce in the United States. Inspiring and educating electricians is imperative to ensuring that the electrification of the United States can occur to enable the future EV and clean energy landscape.

Updated Curriculum for Trade Schools

• There is a need for increased focus on digital skills in manufacturing jobs. In partnership with trade schools, industry partners can assist with updating the curriculum in the trade schools to best prepare students for the modern manufacturing workforce.
At Schneider Electric, We Take Cyber Security Very Seriously.
Cybersecurity is everyone’s responsibility

Training
✓ Yearly mandatory training for all employees
✓ Dedicated trainings for populations at risk

Awareness
✓ Cybersecurity culture
✓ Tips & Tricks, dedicated intranet, videos, etc…

Global Phishing Campaigns
✓ Monthly basis
✓ Training reinforcement for clickers
TRAINING THE APPALACHIAN SOLAR WORKFORCE

July 2021

SOLAR HOLLER
MINE THE SUN
A WEST VIRGINIA BENEFIT CORPORATION

From the beginning, we set out to do things differently. We’re a benefit corporation, with carbon reductions and labor protections built into our corporate charter—in West Virginia.

In 2013, we built a virtual power plant, when it was still just an idea on a whiteboard.

In 2016 we launched the first solar financing programs in Appalachia, when no one else thought twice about the region.

In 2020, we unionized our installation crews—when just 4% of the clean energy is unionized.
IT TAKES ALL KINDS

Designers

Electricians

Utility Billing Analysts

Salespeople

Warehouse & Logistics

Project Managers

Finance & Legal
Projected Workforce Growth

242,000  
2020

600,000  
2030
WHAT PRIVATE SECTOR NEEDS

SolarAPP
Standardized, streamlined permitting

Digitized State & Utility Processes
3243 Counties, each requiring paper licenses = wasteful paperwork

Support for all kinds of education
Classroom + on-the-job training
OUR TRAINING PARTNERS

West Virginia Division of Labor
Governor’s Guaranteed Workforce Program

IBEW Local 317
Union Training Hall

Solar Energy International
Online & In-Person Training
What Governors Can Do – Policy Solutions

Speaker:
Tom Kropatsch, Deputy Supervisor, Wyoming Oil and Gas Conservation Commission

Moderator:
Jessica Rackley, Program Director, Environment & Energy, NGA Center

3:00-3:30 PM ET
Final Wrap-Up and End of Day Four

3:30-3:35 PM ET
Select Upcoming Opportunities

- **Energy Resilience** Planning and Funding Workshop (July 28-29; Aug 3-4)

- Learning collaborative on new **nuclear generation** (summer & fall 2021)

- **Electricity markets** training and resource guide – educational series (August/September 2021)

- **Legislative Energy Horizons Institute** (Oct. 20-23)

- State support for participation in **GridEx VI** (Nov. 16-17)