



U.S. DEPARTMENT OF
ENERGY

The Energy Workforce In a Time of Transition

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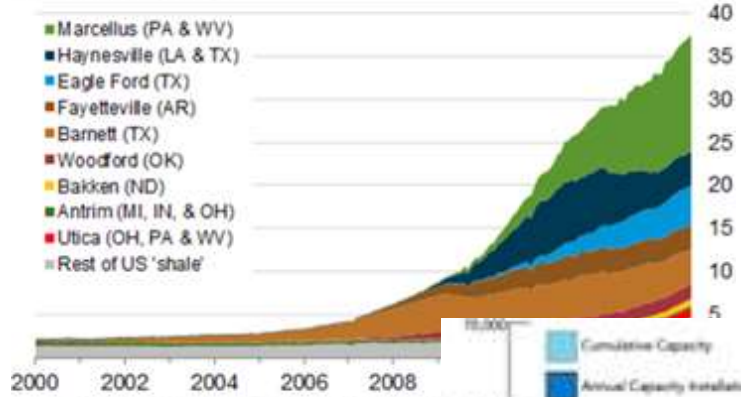
The Energy Workforce in a Time of Transition

1. Landscape
2. Federal Government Resources and Workforce System
3. Our Challenges and Opportunities



The Energy Revolution

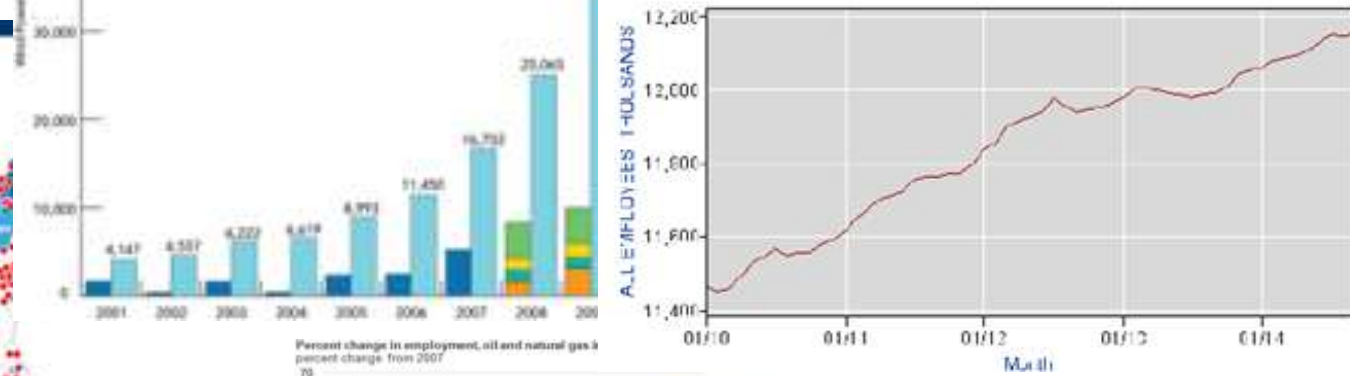
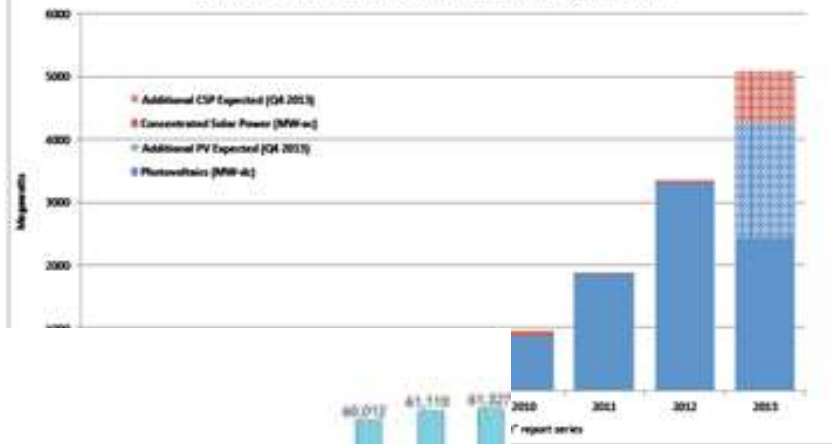
Monthly dry shale gas production
billion cubic feet per day



Sources: EIA derived from state administrative data through September 2014 and represent EIA's official survey data. State abbreviations indicate primary.



Annual Solar Power Capacity Installations, 2005-2013



NATIONAL SOLAR JOBS CENSUS 2013



Some key takeaways

- Contradictory trends.
 - Rapid growth in some areas, declines in other, e.g. solar and gas vs coal.
 - Increases in fuel and electrical efficiency are flattening demand while supplies are growing, e.g. oil supplies up while CAFÉ standards rise.
 - Changes in fuel sources, efficiency standards and distribution systems are stressing utility models and stranding assets.
 - In 2015 U.S. becomes the world's largest producer of oil and gas, but prices drop in lowest levels in 15 years and 100,000 oil and gas workers are laid off.
- An aging energy workforce at a time of rapid technology changes.
 - CEWD projects 55% of utility workforce to retire in next decade.
- Our energy infrastructure is overstressed at a time when it needs greater resilience.
 - Since 1980, the United States has sustained 144 weather disasters whose damage cost reached or exceeded \$1 billion (\$1 trillion total).
 - 7 of 10 costliest between 2004-12.



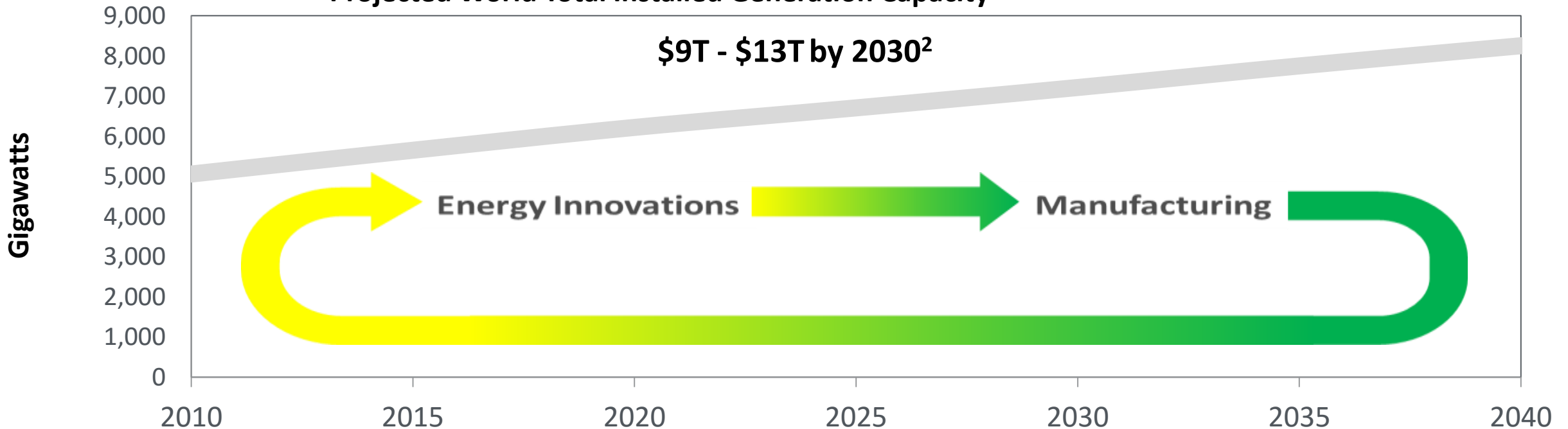
Our Energy Jobs' Challenge and Opportunity

- EIA's employment analysis of the CPP showed virtually no difference between employment growth from 2015-2030 with or without CPP, 142.5M-159.3M.
- In our QER, in April, 2015, DOE noted:
 - Energy sector will increase by 1.5 million new jobs from 2015-2030 and
 - More importantly between 2015 and 2020, we will need to fill 2 million jobs in the energy sector as a result of:
 - Retirements,
 - Infrastructure growth and repair, and
 - Changing energy technologies driven by both markets and regulations
- Similarly we face a generational opportunity to rebuild US manufacturing capacity and its ecosystem, driven by low energy prices.
 - 800,000 new manufacturing jobs added in last five years.
 - “High shale gas recovery and low prices could impact United States manufacturing industries by adding one million workers, and reduce natural gas expenses by as much as \$11.6 billion annually through 2025.” PwC
 - New investment in chemical-related manufacturing could result in 17,000 direct manufacturing using ethane as a raw material and over 395,000 related jobs.

DOE Clean Energy Manufacturing Vision

For the U.S. to be the world leader in translating cutting edge science, technology innovation, and market solutions in energy technologies and energy efficiency into high-impact manufacturing, enabling substantial economic growth, energy security, and accelerated innovation.

Projected World Total Installed Generation Capacity¹



1. Energy Information Administration: <http://www.eia.gov/forecasts/ieo/world.cfm>
2. Bloomberg New Energy Finance

The Skills Working Group

Mission, areas of focus, and sustainability of interagency collaboration on skills

February 4, 2015

Skills Working Group Members

- Departments of Labor, Education, Commerce, Health and Human Services, Agriculture, Housing and Urban Development, Veterans Affairs, Transportation, **Energy**, Defense, Justice, Interior, and Social Security Administration, Small Business Administration
- White House National Economic Council, Office of Management and Budget



Skills Working Group: Areas of Focus

- 1 Technology Innovations:** increase access to agency data, information, and resources relating to skills
- 2 Registered Apprenticeship:** contribute to the President's goal to double the number of apprentices
- 3 Interagency Pilots:** model approaches for imploding stovepipes; increase skills coordination in targeted communities
- 4 Upskilling/Career Pathways:** increase the skills of millions of low-wage, frontline workers so they can advance to higher-paying jobs



Registered Apprenticeship

Presidential Goal: grow the number of Registered Apprentices in the U.S. to 750,000 within five years.

- Registered Apprenticeship is a proven model for moving people into the middle class, with average annual pay of \$50,000 for apprenticeship graduates.
- The President has set a goal to double the number of apprentices over the next 5 years, from 375,000 to 750,000. A key part of the goal is to increase under-represented populations in apprenticeship, including women and people of color.

Goal for Skills Working Group

Increase the number of apprentices by 75,000. Federal agencies will use grants, procurement, policy, guidance, stakeholder engagement, and human resources/personnel actions to achieve at least 20% of the Presidential goal.

Current and Planned Actions to Pursue

- **Targeting federal resources to pay for apprenticeship programs.** GI Bill benefits used to subsidize employer-sponsored Registered Apprenticeship. Federal Work Study and Pell Grant resources used to subsidize apprenticeship wages and training. These and other resources are organized in an online Federal Resources Playbook released by DOL last month.
- **Leveraging agency purchasing power in job creation to incentivize apprenticeship.** DOT funded projects for transportation/infrastructure construction, manufacturing, operations. DOE funded environmental clean up projects. Expand DOD military apprenticeships.
- **Using existing authorities to increase number of under-presented populations in Registered Apprenticeship.** DOD SkillBridge initiative enables transitioning service members to enroll in civilian apprenticeship programs six months prior to separation. HUD Section 3 program provides opportunities for low-income individuals to enroll in apprenticeship programs involved in HUD assisted development projects.
- **Increasing outreach to business.** Business USA and other business-facing efforts at Commerce and other agencies.
- **Exploring more federal government apprenticeships.** DOE Lab Fellows program to explore Registered Apprenticeship model for STEM occupations. All agencies with OPM to explore Registered Apprenticeship within personnel and internal human capital and talent development strategies.



Interagency Pilots

Align systems to achieve sustainable collaboration and address skills challenges in targeted places.

- Imploding stovepipes across systems and funding streams provides opportunity to increase employment outcomes for millions of Americans, including TANF & SNAP recipients, veterans, residents of HUD-funded housing, and others.
- Administration place-based efforts targeting federal resources and coordination in high-need communities provide an opportunity to specifically increase coordination around skills.

Goals for Skills Working Group

Model approaches for sustaining systems alignment in 5-10 places. Establish interagency pilots in select places to test various sustainability models and improve conditions in places facing significant economic challenges.

Current and Planned Actions to Pursue

- **Increasing alignment with workforce and skills development systems.** **USDA, DOL** are working together to test approaches to connect SNAP E&T with local workforce systems, including a pilot with a subsidized employment component in *Detroit* and with potential linkage to a **DOE** project in Detroit on energy and manufacturing job creation. **DOT, Ed, DOL** are working together on career pathway pilots in highway and transit modes. **HUD, DOL** are working together on Section 3 program pilots and the JobsPlus demonstration, which requires formal PHA/WIB partnerships. **Commerce** is leading a Regional Learning Exchange that will pilot place-based economic/workforce development collaboration in select locations.
- **Enhancing collaboration in target communities of need.** **DOE** is leading an effort on energy jobs for low-income individuals in *SW Louisiana*. **DOE, VA, DOD, DOL** are coordinating around jobs for veterans in *Pittsburgh*. **DOL, USDA, DOE, Commerce** are coordinating around jobs for dislocated coal miners in the *Eastern Kentucky Promise Zone* and linked to the new White House and Commerce led POWER effort on energy transition communities. The **White House** is leading an enhanced coordination effort around IT hiring in the *Philadelphia Promise Zone* as part of the Tech Hire initiative.



Upskilling/Career Pathways

24 million workers have low skills, impeding advancement and wage gain.

- Upskilling presents opportunity to increase wages for millions of Americans while creating entry-level openings and career pathways for new entrants to the labor force.
- 24 million workers have low skills preventing them from moving up and earning more. TANF & SNAP recipients, persons with disabilities, opportunity youth, and more stand to backfill entry-level positions and benefit from career pathways.

Goals for Skills Working Group

Target 3 million low skilled older youth and adults for upskill and backfill opportunities. Three million frontline workers want to improve their skills but cannot because there is no opportunity or they face other barriers.

Double the number of states that build career pathway systems. Strengthen the capacity of at least 30 states and regions to design and implement career pathways policies and systems.

Current and Planned Actions to Pursue

- **Identifying, expanding, and replicating employer best practices.** White House, Ed, DOL, VA are partnering to identify employer best practices on upskilling; and to expand such practices via convenings, grants, and technical assistance.
- **Expanding career pathways collaborations.** Ed, DOL, HHS career pathways partnership has expanded to include DOT related occupations in a range of transportation modes and career pathways in solar and wind with DOE.
- **Extending career pathways approach into large-scale systems.** USDA is encouraging career pathways models in the SNAP E&T program and through its \$200 million state E&T pilots. HHS is focusing on career pathways through the TANF Policy Academy for states and new round of Health Profession Opportunity Grants (HPOG).
- **New career pathways resources.** Career pathway expansion opportunities in WIOA and new & proposed investments.
- **Coordinate technical assistance.** Agencies are coordinating technical assistance activities to states and other grantees.
- **Opportunities for agency employees.** SSA is developing a series of upskilling opportunities for employees, as well as identifying programs that provide opportunities for citizens interested in Federal employment to enhance their skills and obtain exposure to Federal employment.

THANK YOU!

