Michigan Energy Workforce Development Consortium

MEWDC Membership Summit
July 21, 2016
Oakland Community College
Auburn Hills, Michigan
Meeting Agenda

- Welcome & Meeting Purpose  Deborah Bayer, Oakland Community College

- Introductions & Agenda Review  Tracy DiSanto, DTE Energy
  Stacy Mowrer, Consumers Energy

- Chair’s Report  Tracy DiSanto
  Stacy Mowrer

- Best Practice: University of Wisconsin Stevens Point
  Teacher Certification & Professional Development  Sarah Windjue

  Wisconsin Center for Environmental Studies

- Breakout Sessions – Pick One
  - Careers in Energy Week 2016
  - Energy Industry Fundamentals Implementation

- Lunch
Meeting Agenda Continued

- MEWDC 2016 Updated Strategic Plan
  Tracy DiSanto
  Stacy Mowrer

- Networking Break

- Taskforce Meetings
  - Career Awareness
  - Workforce Planning
  - Education

- Partnership Spotlight: American Petroleum Institute
  Peter Langley, Executive Director
  Associated Petroleum Industries of MI
  Tyra Metoyer, Manager
  American Petroleum Institute

- Wrap Up, Next Steps, and Closing
  - 17th Career Cluster in Energy Implementation
  - MEWDC Funding Opportunities
  Tracy DiSanto
  Stacy Mowrer
Chair’s Report

Tracy DiSanto, DTE Energy
Stacy Mowrer, Consumers Energy
“CREATING A BETTER WORLD REQUIRES TEAMWORK, PARTNERSHIPS, AND COLLABORATION, AS WE NEED AN ENTIRE ARMY OF COMPANIES TO WORK TOGETHER TO BUILD A BETTER WORLD WITHIN THE NEXT FEW DECADES. THIS MEANS CORPORATIONS MUST EMBRACE THE BENEFITS OF COOPERATING WITH ONE ANOTHER.”

SIMON MAINWARING

© Lifehack Quotes
Let’s reflect on our efforts this past year

- Increased our membership
- Awareness campaign increases visibility of consortium
- Successful efforts using Talent Pipeline Management model
- Successful Careers in Energy Week
- Demand survey
The value of partnerships

- MEWDC as part of the national consortium “CEWD” participates in a national demand survey and leverages networks and best practice tools
- Recently attended the Regional Forum and National Energy Education Network (NEEN) Conference
- Provided an update on the industry and new tools available
Industry Game Changers
CEWD Board Revisions 2016

EXTERNAL
- Infrastructure Modernization
- Cleaner Energy Mix
- New Build
- Regulation / Policy Changes
- Physical / Cyber Security

INTERNAL
- Aging Workforce
- Mergers / Acquisitions
- Significant Workforce Decisions
- Adoption of New Technology
- Affordability
Workforce Implications

- How will these Game Changers impact jobs in your company, state and region?
- Which jobs?
Electric and Natural Gas Utility Jobs
Geographic Distribution

2014 TOTAL JOBS

0-1,348 Jobs
1,349-2,248 Jobs
2,249-4,134 Jobs
4,135-6,363 Jobs
6,364-19,768 Jobs
Key Jobs and Education Requirements

- **Lineworkers**: 15%
- **Plant / Field Operators**: 8%
- **Technicians**: 15%
- **Engineers**: 6%
- **All Other Occupations**: 56%

- **HS Diploma, Bootcamp, Certificate, AA or AAS Degree**
- **Certificate, AA or AAS Degree**
- **Bachelors or Masters Degree**

*Get Energy Michigan*
MEWDC Vision and Mission

**Vision:**
The Michigan Energy Industry is adequately staffed with a qualified and diverse workforce to provide safe and efficient energy.

**Mission:**
To identify and act on current and future workforce issues that are crucial to building and sustaining Michigan’s energy industry.
Best Practice: University of Wisconsin Stevens Point Teacher Certification & Professional Development

Sara Windjue, Senior Outreach Specialist Wisconsin Center of Environmental Studies
Wisconsin K-12 Energy Education Program (KEEP)

https://www.youtube.com/watch?v=_q7pLZZmvV4
Wisconsin K-12 Energy Education Program (KEEP)

- Created in 1995
- 4 full-time staff; 2 half-time staff
- 10 graduate level courses
- 17 ad-hoc instructors
- Over 6,300 course participants
- Reaching over 3.5 million students!
Goal

To leverage teacher education to improve and increase energy literacy in Wisconsin's K-12 schools as a means of contributing to statewide energy savings.

Program Scope

- Professional Development & Training
- Green and Healthy Schools
- School to Home
- Communication Resources Recognition
KEEP’s Partners

- Wisconsin Center for Environmental Education
- University of Wisconsin-Stevens Point/College of Natural Resources
- Wisconsin Utilities
- Green & Healthy Schools Wisconsin
Professional Development

- University-credited courses
- 16 hours of contact time
- Scholarships
  - Energy Education in the Classroom
  - Selected Topics in Energy Education
  - Renewable Energy Education in the Classroom
  - School Building Energy Efficiency Education
  - Energy Fair Course
Professional Development

NRES 631 – Selected Topics

Wind Energy Education

Examples include:

Exploring Energy Education Through STEM
Professional Development

Online Courses

- Renewable Energy Education Online (NRES 635)
Curriculum

- Activity guides
- K-12
- Interdisciplinary
- Consistent format
- Comprehensive

KEEP Energy Themes

**We Need Energy** (Awareness & Appreciation)
**Development of Energy Resources** (Sources, End Uses, & Consumption)
**Effects of Energy Resource Development** (Benefits & Challenges; Societal & Environmental)
**Management of Energy Resource Use** (Choices, Efficiency, & Future Outlooks)
Professional Development

Energy Education Certificate through UW-Stevens Point

• Available to practicing K-12 teachers only
• Completes at least 3 KEEP courses
• Evidence of involvement in at least 3 Energy Education initiatives
Preparing students for energy careers

• Secretary’s Commission on Achieving Necessary Skills (SCANS) – Skills related to careers
• Family and Consumer Science (FCS)
• Technology Education and Engineering (TEE)
• Career and Technical Education (CTE)
• Science, Technology, Engineering, and Mathematics (STEM)
Careers in Energy

• Wisconsin Energy Workforce Consortium
• Monthly newsletters
• Energy Action Month/Careers in Energy Week
• WI School Counselor Association Conference
• Student Energy Auditor Training (SEAT)
This month’s Careers in Energy Spotlight is on the field of Technical Design or Technical Engineering. Are your students interested in the utility industry from power generation through transmission and distribution? They may be future designers, coordinators, planners, construction supervisors, project managers, estimators and equipment maintenance technicians, substation test (relay) technicians.

Potential careers in this field may include exciting work in the following areas:

- **Substation Technician**: installs, tests, adjusts and repairs power transformers, loads tap changers, potential transformers, current transformers, high voltage switchgears, battery and charger systems and control equipment used in substations.

- **Distribution Systems Designer**: designs systems for construction and maintenance of natural gas and electric systems.

- **Power Plant Instrument Technician**: analyzes and repairs electrical and instrumentation/controls hardware and software in a power generation plant.

- **Relay Technologist**: ensures safe and effective operation of transmissions, distribution and generation facilities by calibrating, testing, maintaining and repairing protective and auxiliary relays, relay systems and associated communication equipment.

Northeast Wisconsin Technical College (NWTC) provides an Associate degree program for students interested in this energy field. Learn more about the Utilities Engineering Technology Associate degree.

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**Substation Designer, Cody Rye**

*Cody Rye had two dreams growing up:* working in the energy industry like his dad and playing football. And though a car accident when he was five has caused him to use a wheelchair most of the time, Cody has achieved both dreams.

As for his dream of working in the energy industry, after graduating from Northeast Wisconsin Technical College’s (NWTC) Utilities Engineering Technology program Cody now works as a substation designer with Wisconsin Public Service.

Cody says that most people don’t understand just how many jobs there are in the field. After graduation, Cody received six job offers in five months. In fact, according to NWTC, the opportunities in the energy industry are not only varied, but more abundant than in nearly any other field.

Cody’s story illustrates just how robust Wisconsin’s energy industry is and how important it is to continue to educate students throughout their education about the importance of energy as it will continue to play an integral role in all our lives.

To learn more about Cody see page 9 of NWTC’s informational publication and ESPN2’s story on his high school football career.
Career Highlight: Gas Utility Worker

Training in the Gas Utility field has the potential for employment in the following areas:

- Propane Gas Delivery Person
- New Customer Tonic and Cylinder Installer
- Gas Construction Mechanic
- Gas Meter Mechanic
- Gas Clerk Estimator
- Gas Regulator Maintenance Mechanic
- Gas Appliance Repair Mechanic
- Underground Facilities Locator

The Gas Utility Construction and Service program at Northeast Wisconsin Technical College (NWTC) is the only gas program in Wisconsin and one of three in the United States. This program prepares students to install, maintain, and operate natural and propane gas distribution systems used to supply residential, commercial, and industrial customers. Graduates of the Gas Utility Construction and Service program will be able to communicate technical information, operate tools and equipment, join pipe, install propane gas distribution systems, install natural gas distribution systems, and maintain gas distribution systems. See more at: wisitechcolleges.org

A Gas Utility Worker's average starting salary is over $65,000 (FT Median Annual Wage according to NWTC website).

Intercon Construction is a leading energy-related utility contractor based out of Wausauke, Wisconsin. A woman-owned business, InterCon has developed expertise in all areas of underground work, from gas and electric distribution and transmission to horizontal directional drilling. Learn more about the company and employment opportunities at: www.interconwisc.com

Career Highlight: Wind Industry

Many occupations, businesses, and public services (such as utilities) result from the development and use of renewable energy resources. From sizing a wind system to performing routine maintenance, it takes skilled people to support renewable energy systems. There are many dealers, manufacturers, auditors, and maintenance people involved. In general, there are four main areas of careers involved in renewable energy. These include jobs related to system design and manufacturing, siting the location of the system, installing the system, and finally, operating and maintaining the system.

Some career titles of those working in the wind industry are: Utility Engineers, Geophysical Engineers, Concrete/Structural Engineering, Turbine Engineering, Site/Civil Engineering, Microelectronic/Computer Programming, Business Expertise (Financial), Legal Expertise, and Meteorologists.

To learn more about the countless opportunities in the wind industry, visit the American Wind Energy Association (AWEA) or Lakeshore Technical College for training opportunities. This video provides a good preview of Faces of Green Jobs: Wind Energy Provides Stable Middle Class Jobs in America's Heartland.
Student Energy Auditor Training (SEAT)
Information:

KEEP: Wisconsin K-12 Energy Education Program
715.346.4770  www.uwsp.edu/keep
Email: keep@uwsp.edu

Wisconsin Center for Environmental Education
715.346.4973  www.uwsp.edu/wcee
Agenda for Breakout Session:

- Review Events Schedule for the week
- Continue to plan/create a “to do” list for each event
- Communications planning (Governor’s proclamation, media outlets, common messaging, etc.)
Energy Industry Fundamentals
Breakout Session

Facilitated by: Karen Anderson and Deborah Majeski, DTE Energy

Agenda for Breakout Session:

- Review Summary and Gain Clarification on Implementation Plans
- Review Project Planning Templates (CTE & CC)
- Discuss Marketing Strategies
MEWDC Updated Strategic Plan

Tracy DiSanto, DTE Energy
Stacy Mowrer, Consumers Energy

Taskforce Chairs
Amber Fogarty, Consumers Energy
Deborah Majeski, DTE Energy
Tye Owsley, DTE Energy
Revisiting the strategic plan is critical to sustainability

- Executive team evaluated the strategic plan in 1st quarter
- Full consortium reviewed plans and provided feedback in 2nd quarter
- Changes were made and final strategic plan will be available in 3rd quarter
- Taskforces are already working the plans!
Objective: Create awareness of the critical need for skilled energy talent.

Strategies:

- Implement targeted career awareness campaigns to increase the diversity of talent pipelines.
  - Measure of success: Utility workforce hiring statistics indicate improved numbers in the area of diverse hiring.
- Build state awareness of the need for a skilled energy workforce.
  - Measure of success: Company/municipality hiring data showing decreased number of unqualified applicants and improved ability to fill positions via first posting.
Education Taskforce

**Objective:** Implement clearly defined education solutions that link industry recognized competencies and credentials to employment opportunities and advancement in the energy industry.

**Strategies:**
- Close existing skill gaps to ensure a qualified applicant pool of candidates for in-demand jobs.
  - **Measure of success:** Increase in number of applicants passing qualification requirements.
- Implement core curriculum across schools to enable easier transfer of credits and faster graduation of students with needed skills.
  - **Measure of success:** Expand opportunities to potential applicants through a combined learning approach.
- Communicate competency and credentialing requirements of the energy industry.
  - **Measure of success:** 17th Career Cluster in Energy expanded to include multiple occupations.
Objective: Balance the supply and demand for a qualified and diverse energy workforce.

Strategies:
- Validate the existing state workforce plan to verify key in-demand jobs for career awareness and strategic planning purposes.
  - Measure of success: Published energy industry talent demand report.
- Measure workforce development initiatives to determine impact on critical skill and workforce gaps.
  - Measure of success: Statistical estimate/projection of skills gaps in key occupational areas.
MEWDC Member General Responsibilities

- Regularly attend and actively participate in MEWDC meetings
- **Provide input** on overall strategic direction of MEWDC
  Provide input to MEWDC initiatives or potential opportunities
- **Participate** in rollout and implementation of MEWDC activities
- **Contribute** to ongoing operations of MEWDC
- Identification and verification of industry trends and validation of skill requirements, certifications, training programs, and hiring projections
MEWDC Member General Responsibilities continued

- Endorse and align training programs from partners within MEWDC and provide employment opportunities to those trained.
- Assist in improving the image of the industry and introducing young people to stable, high-paying employment and career pathways within Michigan’s energy industry.
- Guide the identification, alignment, and investment of financial and non-financial resources in support of MEWDC.
Taskforce Meetings

Career Awareness
Education
Workforce Planning
**Check your name badge for assigned taskforce**

Facilitators:
Career Awareness – Amber Fogarty, Consumers Energy
Education – Deborah Majeski, DTE Energy
Workforce Planning – Tye Owsley, DTE Energy

To Do:
- Finalize Action Plans
- General Taskforce Meeting
Partnership Spotlight: American Petroleum Institute

Peter Langley, Associated Petroleum Industries of MI
Tyra Metoyer, American Petroleum Institute
America’s Energy Renaissance: Building the Workforce of the Future
“By 2030, one in five Americans is projected to be 65 and over; by 2044, more than half of all Americans are projected to belong to a minority group.”

*United States Census Bureau*
We’ve developed strategies, research, and programs to better understand the challenges and opportunities associated with our future workforce needs and how strategic partners can play an increasing role in our industry.
Employment Opportunities

 Minority and Female Employment in the Oil & Natural Gas and Petrochemical Industries, 2015-2035
Purpose

To quantify African American, Hispanic, and female employment opportunities in the upstream, midstream and downstream sectors of the oil & natural gas industry and in the petrochemical industry through 2035.
Analysis

- Direct employment
- Base year estimates: 2015
- Forecast period: 2015-2035
- Four types of job growth
- Four industry segments
- Nine regions
- Eight occupation categories
  - Baseline detailed occupations
- Two minority groups
- Women
<table>
<thead>
<tr>
<th>Management, Business and Financial</th>
<th>Skilled Blue Collar</th>
</tr>
</thead>
<tbody>
<tr>
<td>General and Operations Managers</td>
<td>First-Line Supervisors of Constr. &amp; Extraction Workers</td>
</tr>
<tr>
<td>Construction Managers</td>
<td>Carpenters</td>
</tr>
<tr>
<td>Engineering Managers</td>
<td>Cement Masons and Concrete Finishers</td>
</tr>
<tr>
<td>Cost Estimators</td>
<td>Paving, Surfacing, and Tamping Equipment Operators</td>
</tr>
<tr>
<td>Accountants and Auditors</td>
<td>Operating Engineers &amp; Other Constr. Equipment Operators</td>
</tr>
</tbody>
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<thead>
<tr>
<th>Professional and Related</th>
<th>Semi-skilled Blue Collar</th>
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<tbody>
<tr>
<td>Architects</td>
<td>Electricians</td>
</tr>
<tr>
<td>Surveyors</td>
<td>Plumbers, Pipefitters, and Steamfitters</td>
</tr>
<tr>
<td>Engineers (Civil, Electrical, Mechanical, Petroleum, Other)</td>
<td>Mobile Heavy Equipment Mechanics, Except Engines</td>
</tr>
<tr>
<td>Architectural and Civil Drafters</td>
<td>Industrial Machinery Mechanics</td>
</tr>
<tr>
<td>Civil Engineering Technicians</td>
<td>Maintenance and Repair Workers, General</td>
</tr>
<tr>
<td>Surveying and Mapping Technicians</td>
<td>Petroleum Pump System Operators, Refinery Operators</td>
</tr>
<tr>
<td>Geoscientists</td>
<td>Crane and Tower Operators</td>
</tr>
<tr>
<td>Geological and Petroleum Technicians</td>
<td>Pump Operators and Wellhead Pumpers</td>
</tr>
</tbody>
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<tr>
<th>Service</th>
<th>Unskilled Blue Collar</th>
</tr>
</thead>
<tbody>
<tr>
<td>Security Guards</td>
<td>Roustabouys, Oil and Gas</td>
</tr>
<tr>
<td>Janitors and Building Cleaners</td>
<td>Helpers, Extraction Workers</td>
</tr>
</tbody>
</table>

| Sales & Related          | |
|--------------------------||
| Sales Representatives, Wholesale & Manuf. | Inspectors, Testers, Sorters, Samplers, and Weighers |
| Welders, Cutters, Solderers, and Brazers | |

| Office & Administrative Support | |
|---------------------------------||
| First-Line Supervisors, Office and Admin. Support | Excavating and Loading Machine and Dragline Operators |
| Bookkeeping, Accounting, and Auditing Clerks | |
| Secretaries and Administrative Assistants | Construction Laborers |
| Office Clerks, General | Fence Erectors |
| Freight, Stock & Material Movers, Hand | |
As interest and training are directed to women and minority groups, the job projections presented here should not be considered ceilings.
WHERE WE ARE

Current industry employment: 1.4 million direct jobs in 2015
Oil and Natural Gas Jobs Pay Well
(average annual wages)

- Oil and natural gas extraction: $161,674
- Petroleum refineries: $131,977
- Pipeline transportation: $117,418
- Oil and gas industry average: $100,088
- Drilling oil and gas wells: $98,601
- Support activities for oil and gas: $86,112
- Oil and gas pipeline construction: $75,999
- U.S. average: $51,296

Minority Employment

About 70% of Hispanic workers and 60% of African American workers in the oil & natural gas and petrochemical industries are employed in blue collar jobs.

Period: 2015
Female Employment

83%
1,153,000

% U.S. Labor Force 47%
% Oil and Gas 17%

Close to half of all women in the industry are employed in professional and management positions (48%).

Period: 2015

July 2016
Nearly 60% of the oil & natural gas and petrochemical labor force was in the West South Central region in 2015.
WHERE WE’RE GOING

Nearly 1.9 million job opportunities through 2035
Sources of Future Job Opportunities

• The oil and natural gas and petrochemical industries are **growing**.

• The oil and natural gas and petrochemical industries will need **replacements** due to turnover and retirements.

• A significant source of job opportunities will arise from **capital investments** in the oil and natural gas and petrochemical industries, particularly in the next few years.

• **Government policies** that incentivize oil and natural gas development can increase job opportunities above and beyond current trends.
About 57% of the total job opportunities over the forecast period are projected to be blue collar jobs.
Job Opportunities for Minorities
Minority employment is projected to account for **707,000** of the total job opportunities through 2035 (38%).

Over 130,000 for African Americans, and 576,000 for Hispanics
The share of minorities employed in the oil and gas and petrochemicals industries is rising—combined minority employment will rise from about one-quarter of the total jobs in 2010 to nearly 40% by 2035.
Job Opportunities for Women
Female employment is projected to account for more than 290,000 of the total job opportunities through 2035 (16%).
### Job Opportunities for Women

<table>
<thead>
<tr>
<th>Occupation Category</th>
<th>Female Total</th>
<th>Female Share</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>290,210</td>
<td>16%</td>
</tr>
<tr>
<td>Management, Business, and Financial</td>
<td>91,183</td>
<td>29%</td>
</tr>
<tr>
<td>Professional and Related</td>
<td>62,376</td>
<td>22%</td>
</tr>
<tr>
<td>Service</td>
<td>5,336</td>
<td>22%</td>
</tr>
<tr>
<td>Sales and Related</td>
<td>6,937</td>
<td>18%</td>
</tr>
<tr>
<td>Office &amp; Administrative Support</td>
<td>91,855</td>
<td>64%</td>
</tr>
<tr>
<td>Skilled Blue Collar</td>
<td>14,214</td>
<td>2%</td>
</tr>
<tr>
<td>Semi-skilled Blue Collar</td>
<td>13,306</td>
<td>4%</td>
</tr>
<tr>
<td>Unskilled Blue Collar</td>
<td>5,003</td>
<td>5%</td>
</tr>
</tbody>
</table>

A significant share of female job opportunities are projected to be in management and professional jobs; female job opportunities are projected to be smallest in blue collar occupations.

Period: 2015-2035
Women make up the smallest shares in blue collar occupations.

Period: 2015-2035

July 2016
The Millennial Workforce

Millennials in the Oil & Natural Gas and Petrochemical Industries

July 2016
To better understand the demographic and workforce characteristics of the Millennial generation compared to previous generations, and to determine their current and future roles in the oil & natural gas and petrochemical industries.
Analysis

- Generation comparisons
- Direct employment
- Base year estimates: 2015
- Forecast period: 2015-2035
- Nine regions
- Eight occupation categories
- Baseline detailed occupations
- Two minority groups
- Women
- Cohort Definitions:
  - Millennials, 1981-2000
  - Gen-Xers, 1964-1980
  - Baby Boomers, 1946-1963
BY COMPARISON

Millennials Compared to Previous Generations
Compared to Baby Boomers and Gen-Xers, Millennials are More Diverse

44% of Millennials in 2015 were Hispanic, African American or another minority group, compared to 33% of Gen-Xers and 22% of Baby Boomers at the time they were first of working ages.
Compared to Baby Boomers and Gen-Xers, Millennials are Better Educated

About 65% of Millennials age 25-34 had at least some college coursework, compared with 56% of Gen-Xers at a corresponding age and 45% of Baby Boomers.

Educational Attainment (shares of population age 25-34)

- Baby Boomers 25-34 in 1980:
  - Less than HS: 40%
  - High School: 15%
  - Some College: 18%
  - College Degree: 6%
  - Advanced Degree: 6%

- Gen-Xers 25-34 in 1998:
  - Less than HS: 32%
  - High School: 12%
  - Some College: 22%
  - College Degree: 6%
  - Advanced Degree: 6%

- Millennials 25-34 in 2015:
  - Less than HS: 26%
  - High School: 9%
  - Some College: 29%
  - College Degree: 26%
  - Advanced Degree: 10%
Compared to Baby Boomers and Gen-Xers, Millennials are Less Likely to be in the Labor Force

Among all Millennials age 18-24, only 65% are in the labor force compared to 73% of Gen-Xers and 74% of Baby Boomers when they were the same ages.

- **Millennial women** who are not in the labor force are much more likely to be in school than women of previous generations.
- **Millennial men** who are not in the labor force are no more likely to be in school, suggesting a higher share of discouraged workers among young Millennial men than in previous generations.
Compared to Baby Boomers and Gen-Xers, Millennials are More Likely to be in Professional, Technical, and Service Occupations

Nearly 50% of working Millennials are employed in professional, technical, and service occupations compared with 33% of Gen-Xers and 30% of Baby Boomers at the same age.
MILLENNIALS IN OIL & NATURAL GAS
Employment by Generation, 2015

2015 Oil & Natural Gas and Petrochemical Industry Employment by Generation

- **Millennials**: 34% of total employment, 475,290 thousand
- **Gen-Xers**: 39% of total employment, 542,900 thousand
- **Baby Boomers**: 27% of total employment, 372,250 thousand

Period: 2015
About one-quarter of millennials currently employed in the oil & natural gas and petrochemical industries are minority workers.
Nearly 63% of all millennials working in the oil & natural gas and petrochemical industries are employed in blue collar occupations.
Millennials’ share of employment in the oil & gas and petrochemical industries is projected to rise to 41% in 2025 and remain near that level over the following decade.
Workforce training is central to this analysis—it is critical to the projected industry growth that keeps the nation at a competitive advantage and provides the energy the nation depends upon.
Takeaways
Takeaways

• There are **significant employment opportunities** in the oil & natural gas and petrochemical industries all across the country.

• **Minority groups and women can take advantage of these opportunities**—most are already willing to work in the industry, they just lack awareness of the available opportunities.

• The **bulk of job opportunities will be in blue collar occupations**, mainly in the upstream sector; white collar positions are also significant.

• **Millennial workers** are already an important part of the oil & natural gas and petrochemical industries’ workforce. Their share of employment will continue to rise as older generations of workers retire.

• **Education and workforce training are critical**; significant improvement is needed in STEM disciplines, and recruitment should focus on transferable skills.
Remaining 2016 Meeting Date

Thursday November 17, 2016