

Energy Utility Diversity Stakeholder Group Report - Submitted January 15, 2020

January 15, 2020

To:

Sen. David J. Osmek, Chair, Energy and
Utilities Finance and Policy

Rep. Jean Wagenius, Chair, Energy and
Climate Finance and Policy

Sen. Erik Simonson, Minority Lead,
Energy and Utilities Finance and Policy

Rep. Chris Swedzinski, Minority Lead,
Energy and Climate Finance and Policy

Re: Report from the Energy Utility Diversity Stakeholder Group

Dear Legislative Leaders:

We are pleased to submit a report prepared in accord with Minnesota Session Laws, 2019, First Special Session, Chapter 7, Article 11, Section 13, which directed the Minnesota Public Utilities Commission to convene a stakeholder group to examine the challenges and opportunities for Minnesota's energy utilities to attract a diverse workforce with the skills needed to advance a 21st century industry and to increase supplier diversity of energy utilities.

Writing this report was a participatory process in which a diverse and highly engaged group of stakeholders shaped the report's overall essence and content. It was important to represent many unique and diverse interests and perspectives offered by the Energy Utility Diversity Group (EUDG). We hope that the legislature will find it useful and we look forward to working together to make progress in this area. We appreciate the opportunity.

Respectfully Submitted,

EUDG Executive Committee

Jose L. Perez, Chair (Hispanics In Energy)

Anita Grace, Co-Vice Chair (Grace Multicultural)

Jennifer Peterson, Co-Vice Chair (Minnesota Power)

Karen DeYoung, Consultant (DeYoung Consulting Services)

Executive Summary

Introduction

Minnesota Session Laws, 2019, First Special Session, Chapter 7, Article 11, Section 13 directed the Minnesota Public Utilities Commission to convene a stakeholder group to examine the challenges and opportunities for Minnesota's energy utilities to attract a diverse workforce with the skills needed to advance a 21st century industry and to increase supplier diversity of energy utilities. The law requires the stakeholder group to issue a report to the Legislature by January 15, 2020 identifying its findings and recommendations for establishing a more diverse workforce and increasing supplier diversity within the energy sector. To that end, the resulting Energy Utility Diversity Group (EUDG) was to address the following provisions:

1. Examine current and projected employment in the energy utility sector;
2. Provide information on possible approaches to assist workers and energy utilities to develop a diverse workforce that has the skills to build, maintain, and operate the electricity system of the future;
3. Review key trends that have shaped employment in this sector and the demographics of the sector, including the underrepresentation of women, veterans, and minorities in employment and leadership;
4. Identify the challenges to replacing retiring workers;
5. Examine the imbalance of available worker skills to utility workforce needs;
6. Identify the challenges and possible approaches to increasing supplier diversity; and
7. Consider whether information regarding workforce and supplier diversity should be included and considered as part of any resource plan filed by a utility with the commission.

The full EUDG met five times with many conference calls and sub meetings in between. Two subcommittee groups were created to specifically address workforce and supplier diversity issues respectively. Subcommittees bore the responsibility of background research in their area of focus, writing and offering recommendations; their summaries were then brought to the full EUDG group for discussion.

This resulting report describes issues and viewpoints discussed by EUDG members as they completed their charge. Stakeholders brought to bear extensive experience, expertise and time, and they worked in good faith to be as complete and accurate as possible and to arrive at constructive observations, findings and conclusions.

Given time and geographic limitations, not all affected stakeholders may have had the ability to participate in all meetings. Also, the report relies largely on secondary source data and stakeholder viewpoints. It was not the result of primary research or fact finding through scientific analysis or adjudication. To the extent any items are identified as “findings,” “conclusions” or like terminology, those terms are used informally, and they were not the result of a scientific or adjudicated process.

Many of the statements in the report may not have been supported by every stakeholder so it may not be the result of unanimity nor consensus on each statement.

Types of Utilities

To ensure a universal and clear understanding of the entities that are the focus of this report, we begin with a brief description of the types of utilities and their contexts. Minnesota Statute §216B.01 defines three different types of utilities, defined by ownership: investor-owned, municipally owned and cooperatively owned. Per the statute, differing ownership structures result in differing types of regulation and governance structures for the utilities.

Further, for purposes of this report and as noted in the statute, there are two general industries, defined by the type of product delivered: *electricity* or *natural gas*.

The governance type of any utility does not determine the geography it may serve. Within Minnesota, there are investor owned, municipal, and cooperative utilities that serve some of the most sparsely populated and rural parts of the state. It was recognized during discussions that the specific demographics of the geographies being served may impact the approaches that might be considered for any utility and that because of these differences, one-size-fits-all approaches would not likely be successful.

Minnesota Energy Utility Overview

Beyond the utility structures indicated above, other energy companies are involved when electric utilities purchase power from independent power producers that own electric generation facilities. These energy companies are not subject to the same regulation the state utilities are; instead, the utility purchasing the power from such energy companies must show that the proposed purchase is just and reasonable.

Minnesota's utilities do more than deliver affordable, reliable electric and natural gas service to homes, businesses, and public institutions across the state. Investor-owned, cooperative and municipal energy utilities also provide economic opportunity to hundreds of Minnesota firms and communities, and tens of thousands of workers. The economic development opportunities created by the utility sector are a public benefit that should be made available on an equitable basis to Minnesotans of diverse backgrounds.

Workforce Diversity

The Workforce Diversity Subcommittee was charged with addressing provisions one through five. After examining the current state of diversity in the electric and gas utilities industries, along with the current workforce needs, the group drafted the following findings and recommendations.

Findings and recommendations

The following findings and recommendations are intended to increase workforce diversity. Long term, it is hoped that these efforts will strengthen and enhance economic development in the communities that utilities serve; providing employment opportunities helps to ensure the viability of those communities.

Findings

- Minnesota energy utilities are organized in three separate categories with unique geographic presence, governance and demographics.
- The energy sector is changing, including a movement from large central station power plants toward renewable and distributed energy resources. Utility customers' preferences for interactions with their energy provider have also changed. These developments require Minnesota's energy utilities to anticipate changes to the sector's workforce and procurement needs, as well. Given these factors, along with Minnesota's changing demographics, tapping diverse communities that have historically been underrepresented in utility and other areas of employment may be a means of addressing these needs.
- Though utilities have conducted outreach efforts, a lack of awareness about the industry, particularly within underrepresented communities, can pose a challenge to recruitment efforts.
- A number of employment barriers may limit the success of efforts to hire more diverse candidates.
- Existing cross-sector partnerships between utilities and industry experts, academic institutions and others provide a model for training and development of diverse populations.
- Shifts in technology are expected to create an increase in technician roles, roles supporting changes to the grid, and other technology and data-focused roles. Therefore, the lack of diversity in the education pipeline for STEM educational programs must also be considered.
- The Center for Energy Workforce Development's (CEWD) projection of retirements and expected attrition can pose a challenge as but also offer opportunities for utilities to seek new workers from diverse populations.
- The drop in industry workforce training programs in the 1980's, and the trend away from technical schools in the 1990's, have contributed to a skills gap issue. This gap is particularly acute in diverse communities, where additional training is needed to build up the talent pipeline.

Recommendations

- **Data collection:** Collecting data allows utilities to know where they currently sit, as well as inform their goals for the future. It is recommended that utilities continue to use required affirmative action plans as a starting place for strategic planning. For utilities that are not required to file demographic information with the State, the affirmative action reporting templates and guidelines could voluntarily be used to help utilities track demographics information.

- **Build on current efforts in engagement, building pipelines, training and hiring practices:** Energy utilities should continue their existing recruitment, training, retention (including professional development, cultural competency, and skill development), and outreach programs and allocate resources for programs to cultivate diversity at all levels.
 - **Emphasize ongoing efforts:** Rather than one-time engagement efforts, there must be an ongoing dialogue between industry stakeholders, educational entities and the communities they serve.
 - **Build pipelines:** Career exposure should start during high school or earlier for students and young people, and employers should establish and maintain relationships with targeted schools and populations and engage consistently and regularly with students over time. This includes educating young people on the energy industry as well as providing tools and programs to gain fundamental knowledge of the industry. Establish programs in middle and high schools where students can explore and learn about the industry and guide students into the post-secondary programs that will provide the education they need to obtain employment in the industry. This should be done while continually tracking and maintaining contact with these young people through industry mentors or other contacts.
 - **Expand training:** It is important to expand training opportunities for diverse populations, including registered apprenticeships, paid internships, and paid fellowships, to help identify and nurture professional skills.
 - **Analysis of hiring requirements and reducing barriers:** Energy utilities should review their existing recruitment and hiring practices to ensure that job-entry requirements are appropriately aligned with the actual requirements of the job. Special attention should be paid to acknowledging and removing existing barriers.
- **Partner with other utilities:** Recognizing that different utilities have different levels of resources and staff capacity, some utilities might work jointly with other utilities to allocate resources and funding to explore innovative outreach and awareness models, including:
 - **New methods of reaching particular diverse groups through existing energy services.** For example, utilities might integrate information about career opportunities into the provision of their services such as energy efficiency upgrades in underrepresented communities.
 - **Coordinated and targeted marketing campaigns to build awareness of the utility industry,** especially within low-income communities, immigrant communities, and communities of color.
 - **Establishing “energy experience centers” located in accessible locations,** including Opportunity Zones, within underrepresented communities in order to ensure access and expose youth and adults to energy technologies and educational opportunities, and to create hubs where interested individuals and businesses could connect with utilities, vendors, and training providers
 - **Expanding and/or replicating community and school-based programs that support STEM learning,** like the CEWD school curriculum or mentoring programs such as the Future Cities Competition, which pairs energy utility professionals with students to

provide STEM tutoring and career pathways guidance. There has been a re-emergence of technical education programs at the high school level. Utilities can further support STEM education by engaging with these facilities.

- **Investment from the State:** Solutions likely will not come from the energy sector alone.
 - **It is important for the State of Minnesota and school districts serving diverse populations to invest in closing achievement and opportunity gaps** and improving retention and graduation rates for racial and ethnic minority students in low-income/under-resourced households, and students from immigrant populations.
 - **Addressing transportation barriers** will likely also need assistance from entities outside the utility sector to help ensure that potential employees have reasonable access to training and jobs.
- **Recognize positive impact of utility ownership:** The impact of diversity efforts in the regulated electric utility sector may be greatest where generation and transmission assets are owned by utilities because third-party owners are not currently held to the same equity and transparency standards. Minnesota's agencies, boards and commissions are encouraged to recognize and weigh the impact of utility ownership on diversity where consistent with their legal authority. The legislature should also consider taking steps to ensure that Independent Power Producers and other beneficiaries of ratepayer-funded subsidies for distributed generation and energy efficiency programs, including Community Solar Gardens, be required to meet the standards as regulated utilities.
- **Partner with non-utilities:** Energy utilities should explore partnering with industry partners, building trades unions, academic institutions, community-based organizations, and workforce agencies to identify and develop career pipelines, while making the training and employment opportunities more accessible to underrepresented populations.
- **Continue this process:** The EUDG can continue their work to gather many stakeholders to discuss challenges, successes, resources and best practices in regards to increasing workforce diversity.

Supplier Diversity

Per the Session Law, the scope of supplier diversity portion of this report is limited to provision six: identify the challenges and possible approaches to increasing supplier diversity.

Among multiple types of utility providers, there are significant differences in size and the geographic location of customers served. There are three (3) providers who have established supplier diversity programs; most utilities do not because they don't have enough resources/personnel to start or manage such programs. Most of the utilities, however, do place a great emphasis on buying from suppliers that are located within their respective service territories. All the utilities recognize the importance of their supplier base being reflective of the communities they serve.

Participation among the utilities (investor owned, municipal, cooperatives) should be voluntary.

Findings and recommendations

Based on their research and discussions, the EUDG identified the following findings and recommendations to increase supplier diversity:

Findings: Challenges to the Utilities

Following are challenges identified by the EUDG that utilities address in their efforts to increase supplier diversity:

- Supplier programs need to be as “diverse” as the communities the utility serves; therefore, the desire to buy local or purchase from the investor owned/cooperative/municipal customer base is as important as increasing opportunities for new suppliers who hold diversity certification(s).
- Creating supplier diversity programs for most utilities presents a challenge given the lack of budget, tracking software, and employee resources. Ultimately, utilities could seek to recover costs incurred to launch and manage a program from rate payers.
- Considering that many utilities do not currently track diverse spend, there is no baseline for these utilities to start from and compare to. Baselines for each utility for increasing opportunities for diverse suppliers should be determined in the initial year(s) before thresholds and goals to increase opportunities can be set for future years.
- Many utilities have limited outreach resources to identify diverse suppliers (see Workforce Diversity section).
- Large amounts of diverse spend are specifically project driven (wind/solar additions) and once projects are completed it’s hard to immediately replace that same level of spend.
- A utility may increase bid opportunities for diverse suppliers (when possible and when identifiable); however, corporate or board policy may require the utility to award to the lowest bidder which will impact whether the utility is able to increase spend. The goals should be based on opportunities to bid and not mandated spend. The diverse contractor must also be compliant with the utility’s internal requirements - such as safety, insurance, and warranty.
- Past purchasing decisions often dictate future purchasing decisions for a utility, where the utility is tied to the previous vendor due to proprietary design or equipment standardization reasons.

Findings: Challenges to Diverse Suppliers

Diverse suppliers, in turn, address their own challenges to meet utilities’ needs.

- Newly established diverse suppliers who have diversity certification(s) are often unable to meet the scale and scope needs for large utilities and need to identify Tier II opportunities with prime contractors in order to gain experience and grow their business.
- Some diverse suppliers may have limited access to capital or outside funding; while others are very large and are not limited in these respects.
- Solicitations are not publicized broadly in diverse communities.

- There is a lack of training or helplines available to explain the process to businesses who are new to the industry or the procurement process.
- There is a lack of encouragement for young, diverse individuals to expose them to the idea of creating their own businesses

Recommendations

Utilities can use a number of strategies to increase supplier diversity:

Work in partnership. Utilities can work in partnership with other entities:

- Those utilities in the state that have existing Supplier Diversity programs can share their list of diverse suppliers with other utilities across state;
- They can work jointly to engage with diverse suppliers; and they can share best practices.
- Community groups can also serve as partners by offering ideas or activities that results in enhanced supplier diversity outcomes.
- Additionally, utilities can solicit information from existing prime contractors on the subcontractors that are used and identify diverse suppliers in process.
- Finally, utilities can ask utility credit card providers to identify diverse suppliers that they are obtaining goods/services from currently.

Introduction

Minnesota Session Laws, 2019, First Special Session, Chapter 7, Article 11, Section 13, directed the Minnesota Public Utilities Commission to convene a stakeholder group to examine the challenges and opportunities for Minnesota's energy utilities to attract a diverse workforce with the skills needed to advance a 21st-century industry and to increase supplier diversity of energy utilities. The law requires the stakeholder group to issue a report to the Legislature by January 15, 2020, identifying its findings and recommendations for establishing a more diverse workforce and increasing supplier diversity within the energy utility sector. Prior to convening this group, the Commission invited leaders from a broad and diverse array of groups and organizations across the State, including Energy utilities (Investor Owned, Co-Ops and Municipalities), African American/Somali, Asian/Hmong, American Indian, Latino, women, veterans, organized labor, trade associations, and academia.

Over 100 individuals representing utilities or other energy-sector and community stakeholders signed up to participate throughout the process; 71 individuals engaged in meetings and providing input for this report. The stakeholder group has been identified as the Energy Utility Diversity Group (EUDG).

The full EUDG met five times with many conference calls and submeetings in between. Two subcommittee groups were created to specifically address workforce- and supplier-diversity issues. Subcommittees bore the responsibility of background research in their area of focus, writing and offering recommendations; their summaries were then brought to the full EUDG group for discussion.

Purpose and Use

EUDG's task has been to respond directly to the Session Law:

1. Examine current and projected employment in the energy-utility sector;
2. Provide information on possible approaches to assist workers and energy utilities to develop a diverse workforce that has the skills to build, maintain, and operate the electricity system of the future;
3. Review key trends that have shaped employment in this sector and the demographics of the sector, including the underrepresentation of women, veterans, and minorities in employment and leadership;
4. Identify the challenges to replacing retiring workers;
5. Examine the imbalance of available worker skills to utility-workforce needs;
6. Identify the challenges and possible approaches to increasing supplier diversity; and
7. Consider whether information regarding workforce and supplier diversity should be included and considered as part of any resource plan filed by a utility with the commission.

By January 15, 2020, the EUDG report must be presented to the chairs and ranking minority members of the House of Representatives and Senate committees with jurisdiction over energy policy and finance; included would be its findings and recommendations for establishing a more diverse workforce and increasing supplier diversity within the energy utility sector.

This report describes issues and viewpoints discussed by members of the stakeholder group. Stakeholders brought to bear extensive experience, expertise, and time, and they worked in good faith to be as complete and accurate as possible and to arrive at constructive observations, findings, and conclusions.

Given time and geographic limitations, not all affected stakeholders may have had the ability to participate in all meetings. Also, the report relies largely on secondary source data and stakeholder viewpoints. It was not the result of primary research or fact finding through scientific analysis or adjudication. To the extent any items are identified as “findings,” “conclusions,” or like terminology, those terms are used informally, and they were not the result of a scientific or adjudicated process.

Many of the statements in the report may not have been supported by every stakeholder, so the report may not be the result of unanimity or consensus on each statement.

Report Structure

This report begins with a level setting by defining the types of utilities in Minnesota and the ways in which they are governed and regulated. This is followed by a discussion addressing each provision of the Minnesota Session Law, including findings and recommendations for the two areas of focus: supplier and workforce diversity.

Types of Utilities

To ensure a universal and clear understanding of the entities that are the focus of this report, we begin by defining the types of utilities in Minnesota, their regulatory status, and their governance structures.

Minnesota Statute §216B.01 defines three different types of utilities, defined by ownership: investor-owned, municipally owned, and cooperatively owned. Per the statute, differing ownership structures result in differing types of regulation and governance structures for the utilities:

Table 1: Different Governance Structures of Utilities

Ownership Structure	Regulatory Status	Governance Structure
Investor-owned utilities (IOU's)	Subject to rate and resource regulation by the Minnesota Public Utilities Commission (MPUC) under Chapter 216B of Minnesota Statutes. Investor-owned utilities may also be subject to the authority of utility commissions of other states for service to customers in those other states. They are also subject to regulation by the Federal Energy Regulatory Commission for rates and matters within the scope of that agency's authority.	• Companies that raise equity capital for infrastructure through investors charge their customers a regulated rate of return on their investment • Governed by boards of directors
Municipal utilities	Regulated by the city council or council-appointed utility commission and thus responsive to the citizens (voters) who are their customers.	• Municipal (city-owned) entities are sometimes referred to as public power, but they are not a public utility, which by statute generally refers to IOUs only. • Governed by either the city council or a local utility commission appointed by the city council. • Municipal utilities may provide some generation but have a variety of means to acquire power, either directly or through a power agency. The utility is then responsible for distribution to customers within its designated service territory. • Numerous state and federal statutory and regulatory requirements apply to municipal utilities.

Cooperative utilities	Regulated and controlled by their members as identified under Chapter 308A	• Cooperative entities are sometimes referred to as public power, but they are not a public utility, which by statute generally refers to IOUs only. • Established through the Rural Electrification Administration in the late 1930s as a primary means of providing electric service and economic development to rural communities. • Nonprofit, member-owned utilities that are governed by a Board of Directors that is locally elected and members of the cooperative utility as set forth in cooperative by-laws. The utility is then responsible for distribution to customers within its designated service territory. • Numerous state and federal statutory and regulatory requirements apply to cooperative utilities.
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Further, for purposes of this report and as noted in the statute, there are two general industries, defined by the type of product delivered: *electricity* or *natural gas*.

All types of electric utilities have the privilege and obligation to serve all customers within a defined service territory under Minn. Stat. 216B.37. Natural gas utilities do not have defined service territories.

The governance type of any utility does not determine the geography it may serve. Within Minnesota, there are investor-owned, municipal, and cooperative utilities that serve some of the most sparsely populated and rural parts of the state. It was recognized during discussions that the specific demographics of the geographies being served may impact the approaches that might be considered for any utility and that because of these differences, one-size-fits-all approaches were not likely to be successful.

Integrated Resource Plans

Only the investor-owned electric utilities and generation-and-transmission (G&T) entities file integrated resource plans with the MPUC.¹ Integrated Resource Planning (also known as IRP or a resource plan), is

¹ Natural gas utilities do not file integrated resource plans. Further, Minnesota statute §216B.2422 grants the MPUC differing authority over integrated resource plans filed by different types of utilities. Specifically, the MPUC

the process by which a utility, the Commission, and stakeholders examine a utility's current and planned electricity generation to meet customers' energy needs for the upcoming 15 years. These plans include forecasts of customers' energy needs, and they are aimed at determining the size, type, and timing of new generation resources that may be required. While IRPs generally do not involve any acquisition of a specific resource, they may be used in certificates of need for any entity requesting to build a large energy facility or, for investor-owned utilities only, in other proceedings to acquire new resources through acquisition or power-purchase agreements (PPAs).

Independent Power Producers

Beyond the utility structures indicated above, other energy companies are involved when electric utilities purchase power from independent power producers that own electricity-generation facilities. These energy companies are not subject to the same regulation as the state utilities; instead, the utility purchasing the power from such energy companies must show that the proposed purchase is just and reasonable.

Community Solar Gardens are an example of an independent power producer. In this unique circumstance, Xcel Energy is required to purchase power from Community Solar Gardens that are not owned by Xcel Energy. Xcel Energy is not required to show that such purchases are just and reasonable, as the rates are set by an administrative process. Xcel Energy is also not responsible for the marketing, customer communications, workforce development, or labor agreements in Solar Gardens developed by other entities.

Minnesota's utilities do more than deliver affordable, reliable electric and natural gas service to homes, businesses, and public institutions across the state. Investor-owned, cooperative, and municipal energy utilities also provide economic opportunity to hundreds of Minnesota firms and communities and tens of thousands of workers. The economic development opportunities created by the utility sector are a public benefit that should be made available on an equitable basis to Minnesotans of diverse backgrounds.

Minnesota's system of energy regulation, which incorporates municipal, cooperative, and regulated private ownership of utilities, is designed to ensure public transparency and control over entities that deliver essential public services.

It is important to keep in mind, however, that there are economic and regulatory constraints on the ability of Minnesota's utility sector to deliver economic opportunity and advance equity. Utilities must seek board approval—and in the case of investor-owned utilities, regulatory approval—to recover the cost of expenditures through rates, and they can be required by their governance, regulation, and the legislature to purchase power from third parties that are not necessarily held to the same standard when it comes to equity and transparency. For example, during its first meeting, the group received a

"shall approve, reject, or modify the plan" of an investor-owned utility, whereas the MPUC's decisions for cooperative and municipal G&Ts "shall be advisory."

detailed briefing from Xcel Energy on the status of the utility’s diversity initiatives, including the workforce that builds and maintains Xcel Energy-owned generation infrastructure.

No equivalent information was available, however, for the companies and energy facilities that generate power for Xcel Energy customers under PPAs or through independent power producers, such as the Community Solar Gardens program. Further, it is not clear that regulators have any authority to require owners of Community Solar Gardens or other ratepayer-supported distributed generation resources to provide information or to make efforts to increase diversity or equity in choice of workforce or suppliers. The potential of Minnesota’s regulated utilities to advance diversity and equity may be limited to the degree that third-party owners are not held to the same standard or to the degree that distributed energy infrastructure is being developed and operated without strong regulatory oversight.

Workforce Diversity

Current State of Workforce Diversity in the Electric and Gas Utility Industries

Employment data by race, ethnicity, gender, and veteran status was not collected as part of this examination. However, Minnesota’s current population is almost 20% minority, and that percentage is projected to grow to almost 25% in the next 15 years.² There was general agreement among EUDG participants that more work is needed to ensure that racial and ethnic minorities and women are adequately represented in the utility workforce. It is also generally understood that more work is needed to increase diversity in leadership, such as corporate boards or governing boards of energy organizations and executive level positions. Some progress is noted, however. Half of the Board of Directors for ALLETE, for example, are women. Also, some racial minorities are present in executive-level management positions of these organizations. It was also recognized that state-wide demographic statistics don’t represent the wide variation in the demographics of various regions of the state. For example, many of the state’s sparsely populated rural regions are largely homogeneous with respect to race. Therefore, increasing racial and ethnic diversity for utilities serving rural populations may depend as much on recruiting diverse citizens to these communities as it does on recruiting diverse workers to this industry. With regard to racial, ethnic, and gender diversity, however, it is apparent that people of color are seriously underrepresented in the energy utility sector’s workforce. This might be remedied by bringing more awareness through partnerships and outreach.

EUDG Definition of Workforce Diversity

EUDG participants understood diversity to mean equal participation for anyone regardless of race, color, religion, sex (including gender identity, sexual orientation, and pregnancy), national origin, age, disability

² Minnesota State Demographer

or genetic information , as defined by the Equal Employment Opportunity Commission.³ In identifying diverse populations, the EUDG went beyond the official government definitions to include veterans, rural populations with limited access to family-supporting job opportunities, and individuals facing other barriers to employment including, but not limited to, a history of involvement in the criminal-justice system, and groups representing communities served by Minnesota’s energy utilities, including ratepayers and communities that host plants and other electric or gas infrastructure.

Changing Workforce Needs

The energy-utility sector is changing. The electric grid is shifting from one that relies on a limited number of large central station power plants to one that incorporates more dispersed renewable energy resources. This transformation away from large central-station power plants and the incorporation of renewable and distributed resources has effects on utility workforce and procurement needs, both today and in the future.

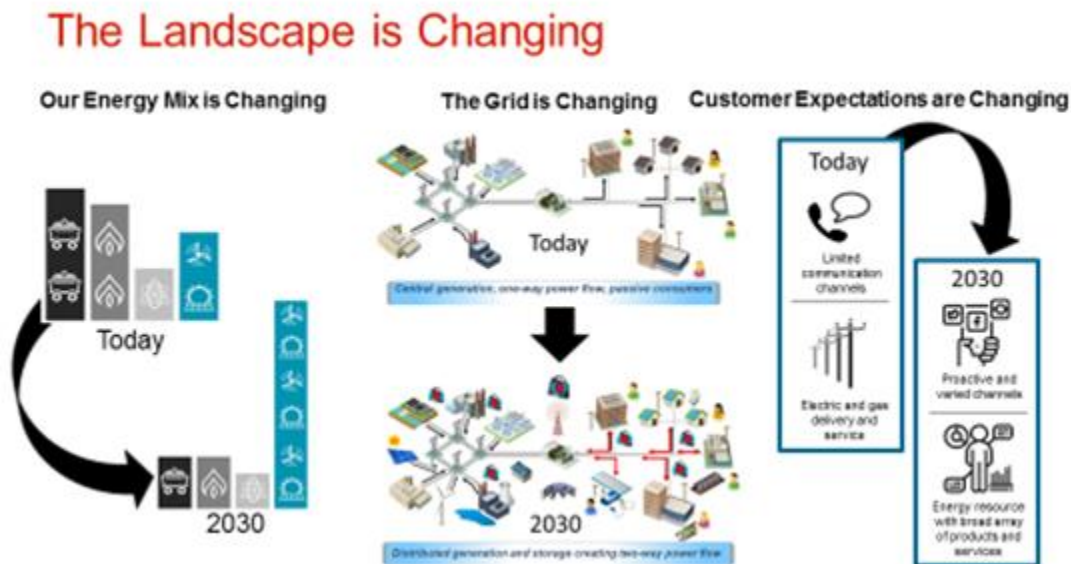
The sector is also seeing a change in how utility customers want to interact with their energy providers. During this report-writing process, utilities indicated that their customers want more proactive service, quicker responses to outages and other needs, as well as the ability to have more control over the kind of energy produced and used. To fulfill these changes, Minnesota’s energy utilities anticipate changes to our workforce needs as well.

No one-size-fits-all solution will help utilities to increase their workforce diversity. As described in the Introduction, utilities have different governance structures that inform their regulatory decisions. Population size and demographics in the communities that utilities serve can vary greatly. Finally, utilities experience different circumstances, such as the number of employees expected to retire in the next ten years, changes in their infrastructure, etc.

At the same time, utilities may be able to collaborate and share approaches that work well, such as using resources (discussed below) to promote energy jobs, and making efforts to build inclusive cultures.

³ U.S. Equal Employment Opportunity Commission <https://www.eeoc.gov/laws/practices/>

Figure 1: The Changing Energy Utility Sector⁴



Provision (1): Current and Projected Employment in the Energy-Utility Sector

Overall, the stakeholder group noted the following about current and projected employment in the utility sector:

- The total number of utility jobs between 2016 and 2026 is not expected to change significantly.
- Utility jobs tend to be stable, but changes are starting to occur to accommodate the growing shift away from older, less efficient coal plants to newer, more efficient and cleaner generation, as well as consumer support for more local efforts utilizing renewable sources.
- The fastest growing energy occupations are in the wind and solar-energy industries. As more cities like Minneapolis adopt building performance rules, energy-efficiency employment could also grow.⁵
- A significant level of turnover of utility employees is expected over the period from 2016 through 2026, although feedback from utilities suggests that many positions related to power-generation operations may be eliminated through attrition of workforce employed at conventional power plants as they retire.

⁴ Xcel Energy, in a presentation to the Electric Utility Workforce Group, August 26, 2019.

⁵ The City of Minneapolis commissioned a workforce assessment with the National Association of State Energy Officials (NASEO) in 2019 to assess challenges and opportunities in the energy contractor fields.

<https://www.naseo.org/data/sites/1/documents/publications/Minneapolis%20Workforce%20Development%20Assessment.pdf>

- Some of the state’s large utilities indicate that they have already passed the “retirement cliff” and that new hires have significantly reduced the average age of employees, whereas other utilities continue to face a wave of retirements.

Despite clean-energy employers’ optimism that Minneapolis energy-efficiency and renewable-energy employment will grow over the next year, finding and recruiting qualified workers in both energy efficiency and renewable energy presents a challenge to Minneapolis employers. The most cited reason for such difficulty is lack of experience, training, or technical skills. Competition, insufficient nontechnical skills (work ethic, dependability, critical thinking), and insufficient qualifications (certifications or education) are other major reasons why employers report hiring difficulty.

Given long-term changes in Minnesota’s demographics, utilities will need to recruit new employees from an increasingly diverse workforce in order to continue providing safe, reliable energy service.

- Some EUDG members believe that Minnesota’s utility sector has not fully tapped the potential workforce within diverse communities that have historically been underrepresented in utility and other areas of employment.
- Low high school graduation rates among some racial and ethnic minority communities present a challenge, and employers that establish relationships over time with students to encourage them to apply for utility jobs may have an advantage in attracting diverse candidate pools. The energy and utility sector can choose to become more involved in the high school system by supporting science, technology, engineering, and math (STEM) programs.
- The demographics applicable to each utility can vary significantly because they each serve a defined geography—for example, a utility filling positions in a rural territory will have demographics different from a utility filling positions in a metro area.
- Some utilities employ much of their workforce outside of Minnesota (because they have service territory and plants in other states) and are therefore subject to different sets of employment laws and regulations in those areas.

In identifying these points, the EUDG was provided with several different sources of workforce data, including the Minnesota Department of Employment and Economic Development (DEED), the Federal Bureau of Labor Statistics (BLS), and other state and federal sources. Detailed data for Minnesota’s utility sector was obtained from the Center for Energy Workforce Development (CEWD).⁶ Because the EUDG lacked the time and expertise to fully analyze these reports, the data are presented only as general base information.

Both DEED and CEWD report that the total number of jobs in the utility industry is expected to increase only slightly, if at all, between 2016 and 2026. As shown in Table 2 below, CEWD projects a minimal change in the total number of workers between 2016 and 2026, with only a net increase of 53 jobs, or

⁶ CEWD is a nonprofit formed by electric and natural gas utilities to identify the need and develop the resources for “a diverse, qualified workforce with the knowledge, skills and ability to adapt and grow along with the [energy] industry.” (For more information, see <http://cewd.org/documents/CEWD-MemberSummary-Final.pdf>.)

0.7% overall. However, as discussed in a subsequent section of this report, the utility industry is in the process of replacing about half of its workers, which presents both challenges and opportunities.

Table 2: Estimated Change in Total Jobs in Minnesota Utilities, 2016-2026⁷

Job Category	2016	2026	Change	% Change
Line workers	1,941	2,025	84	4.3%
Plant/Field Operators	1,065	1,034	-31	-2.9%
Technicians	1,837	1,821	-16	-0.9%
Engineers	1,077	1,107	30	2.8%
Total	5,920	5,987	67	1.1%
Total: All Occupations	7,757	7,810	53	0.7%

As shown in Figure 2, Minnesota's overall labor force growth is expected to slow over the next 10 years because of declining birth rates and out-migration of the domestic population combined with a slowing of immigrant population growth, according to Susan Brower, the Minnesota State Demographer. Further, as shown in Figure 3, this labor shortage is expected to have a larger impact in Greater Minnesota. Greater Minnesota utilities are already finding it a challenge to fill certain positions.

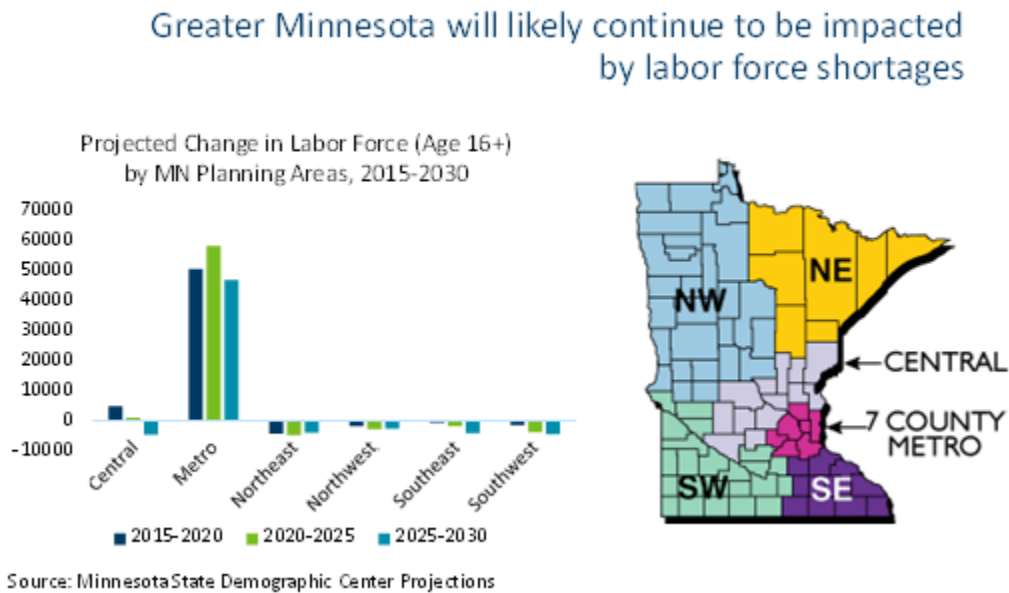
Figure 2: Labor Force Projections⁸



⁷ Center for Energy Workforce Development

⁸ Minnesota State Demographer

Figure 3: Regional Labor Impacts⁹



CEWD is also a resource for data, research, best practices, and workforce information specific to the utility industry. Some members of the EUDG are also members of the CEWD Minnesota consortia. CEWD's purpose is to bring energy companies, contractors, their associations, and energy educators together to attract and retain a diverse, qualified workforce with the knowledge, skills, and ability to adapt and grow along with the industry. Utilities noted that CEWD also has curricula for various levels of school to help students learn more about energy and build a knowledge base to participate in utility careers.

CEWD data provides a deeper look into key utility-job projections within the State of Minnesota. The key utility jobs recognized and surveyed by CEWD include line workers, plant/field operators, technicians, and engineers. Each key occupation includes sub-occupations. While the key categories of utility jobs such as line workers and plant operators have historically shaped this sector, there is a shift to needing more technician roles, roles supporting changes to the grid, and other technology-focused roles.

In planning for their own workforce needs, Xcel Energy recognizes that they need to recruit new workers with new skills not only because they need to fill future positions, but also because the technology is changing so rapidly along with customer expectations that there will be a need to retrain and reskill a portion of the existing workforce. Figure 4 indicates a significant shift in how Xcel Energy projects segments of their future workforce to change. Other members of the EUDG agreed.

For example, a line worker is one of many occupations within the energy and utility sector that is critical to ensuring the consistent, efficient, and safe transmission of energy to customers. Line workers are

⁹ Minnesota State Demographer

employed to assemble, repair, and maintain power-line infrastructure across Minnesota. Such work requires specialized training. To meet demand, electrical utilities have developed apprenticeship programs to develop a talent pipeline to train and retain highly skilled workers to perform line-worker responsibilities. These programs are registered with the Minnesota Department of Labor and Industry (DLI) to ensure they meet standards for quality and safety. DLI maintains information about the diversity of registered apprenticeship program participants. Table 3 shows the current demographics of the 483 Minnesota apprentices in the utilities industry.

Table 3: Statewide MN Registered Apprenticeship Diversity Numbers for Utility Industry¹⁰

	Total	Percentage
Total Line Workers	483	100.0%
Unspecified	132	27.3%
Hispanic	5	1.0%
American Indian	2	0.4%
Asian	14	2.9%
Black	10	2.1%
Other	10	2.1%
Female	15	3.1%
Veterans	37	7.7%

Figure 4: Xcel Energy Projected Job-Skill Changes¹¹



The EUDG also discussed areas in which the energy utility sector may see growth or change. For example, members discussed potential growth in employment of electricians, HVAC technicians, engineers, and data scientists, as well as multilingual workers with cross-cultural competency.

¹⁰ As reported to Minnesota Department of Labor and Industry.

¹¹ Xcel Energy, in a presentation to the Electric Utility Workforce Group, August 26, 2019.

Provision (2): Possible Approaches to Develop a Workforce that Has the Skills to Build, Maintain, and Operate the Electricity System of the Future

Opportunities to develop a diverse energy-utility workforce include the use of various strategies: research and planning, outreach and engagement, recruitment and hiring, and training and development.

Research & Planning

The Center for Energy and Workforce Development maintains the National Strategic Workforce Plan and other tools to help energy utilities attract, train, and hire from diverse demographic groups; this includes youth, veterans, women, and adults with a history of involvement in the criminal-justice system. The EUDG discussed the value of identifying and leveraging existing data and best practices as utility stakeholders develop or grow their workforce diversity efforts.

An important step in any strategic-planning process is data collection and analysis to inform the development of goals and objective setting. Currently, some energy utilities are required to complete and submit affirmative-action plans with the State of Minnesota Department of Human Rights based on Statute 363A.36 and Administrative Rules 5000.3400 to 5000.3600. These plans may provide a starting place for strategic planning. Utilities that are not required to submit affirmative-action plans may collect similar data for their own planning purposes.

Outreach & Engagement

EUDG members generally agreed that most Minnesotans know little about the industry, and the problem may be particularly acute in underrepresented communities, including low-income communities, immigrant communities, and communities of color. Those who work in underrepresented communities reported low levels of awareness, and energy utilities reported challenges in soliciting applications and proposals from a diverse pool of candidates and businesses.

Geography can also be a barrier to engaging potential candidates. While all utilities will seek new employees over time, concerns in Greater Minnesota deserve particular attention, as indicated by data from the State Demographer's Office. Utilities have described difficulties attracting employees to their region. One utility EUDG member from Greater Minnesota described the task as needing to recruit potential employees on three levels: to the industry first, then to the utility, then finally to the community. This can be a challenge in the future, given that population growth, including the growth of diverse communities, has been centered primarily in the Twin Cities metropolitan area as supported by Figure 3 above. Potential ways to recruit potential employees are discussed in the next section.

The low levels of awareness do not appear to be the result of a lack of effort on the part of utilities and other industry stakeholders to promote opportunities in their industries. Most of the utilities, labor unions, and trade associations that participated in the process indicated that their organizations have

undertaken educational and outreach initiatives, including many that specifically target underrepresented groups and communities. At the same time, members recognized that current efforts are a patchwork: lacking broad coordination, unevenly resourced according to the capacity of each organization, underdeveloped connection with students in high school or younger, with limited opportunities to identify and disseminate best practices.

A successful effort to build a more diverse utility workforce could include coordinated campaigns to build awareness of the utility industry, especially within low-income communities, immigrant communities, and communities of color, with an emphasis on young people who are in the process of choosing educational and career paths. Such a campaign could draw lessons from existing initiatives that have made in-roads, including programs sponsored by utilities building trade unions, and community-based organizations, often in coordination with public schools. For example, the Minnesota Energy Consortium Steering Committee recently worked with the Minnesota Department of Education to add Energy as a category in the Career Wheel to encourage more students to consider careers in energy.

Participants suggested several specific ideas for building upon current efforts to coordinate and strengthen public education efforts with students in high school and perhaps younger, including establishing “energy experience centers” in underrepresented communities in order to expose youth and adults to energy technologies and technical educational opportunities, and to create hubs where interested individuals and businesses could connect with utilities, vendors, and training providers.

The EUDG discussed the importance of encouraging STEM curriculum for school-aged youths in order to ensure that Minnesota develops a diverse workforce with the education and technical skills needed to fill utility-industry positions. Community- and school-based programs, such as the Future Cities Competition, currently pair energy-utility professionals with students to provide STEM tutoring and career-pathways guidance.

Recruitment & Hiring

An approach that combines addressing barriers to hiring more diverse candidates, such as educational attainment and lack of access to transportation, and strategic recruitment and hiring techniques could increase utilities’ ability to hire diverse candidates.

EUDG members identified employment barriers that could limit the success of efforts to hire more diverse candidates. The group sees a need to address these barriers to employment: education, transportation, and involvement in the criminal justice system.

Education

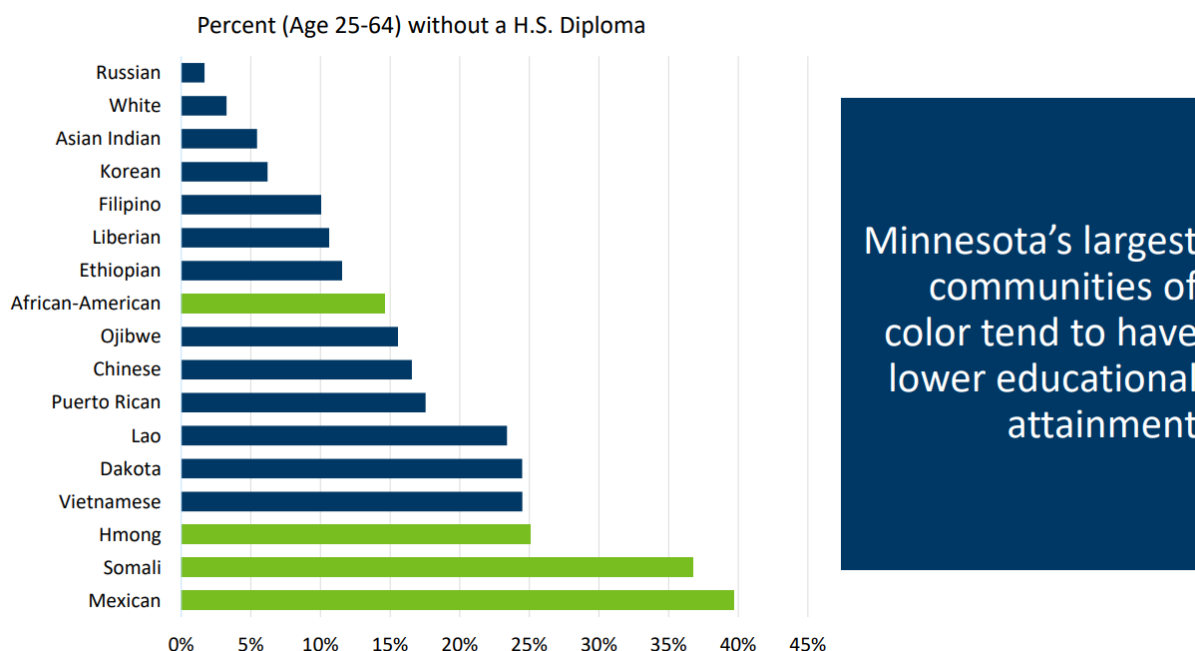
Minnesota has a great education system; however, it does not meet the full needs of members of minority communities. This negatively impacts the energy industry as it seeks to hire the best and brightest workers from diverse communities.

Minnesota energy utilities are challenged by the Minnesota's education crisis facing American Indian, Hispanic, Black, Hmong, and low-income White students. A report released on October 19, 2019, ["Statewide Crisis: Minnesota's Education Achievement Gaps"](#) by the Minnesota Federal Reserve, shows the serious challenge facing not just the energy industry, but all Minnesota industries.

The Minnesota Office of Higher Education issued its own report in 2016 entitled ["Educating for the Future: Baseline Estimates of Educational Attainment."](#) Again, this report also gives a wake-up call on the poor performance in preparing diverse students to achieve Minnesota standards set for graduation from institutions offering a community-college certificate and above. While the average achievement for all Minnesotans is 58%, the report shows a huge gap for different population groups. The highest is Asian at 63% achievement and the lowest is 21% for American Indian. It reports 24% for Hispanic, 35% for Black, and 50% for multiracial.

Figure 5 illustrates the statewide correlation of education and communities of color.

Figure 5: Education and Minnesota's Communities of Color¹²



Clearly, the energy utility sector is directly impacted by the quality and preparation of education for racial and ethnic minorities. And, there are some great best practices that help close the achievement gap such as the one being experienced by Minnesota.

¹² Minnesota State Demographer

A solution is clearly for the Minnesota educational system (K-12 to Ph.D.) to take a hard look at some national best practices and expand their presence in the state. Since this aspect applies to all of Minnesota and all economic industries, it makes sense to have the State lead an effort to substantially improve the education achievement of racial and ethnic minority students in its educational system.

Additionally, some EUDG members observed that the pool of jobs that is available to individuals without a high-school degree or General Educational Development (GED) is small.

Energy companies rely on Minnesota's public schools to deliver a well-prepared and diverse group of candidates, especially in STEM occupations. They rely on the State of Minnesota and school districts that serve diverse populations to make smart investments to close achievement gaps and improve retention and graduation rates for students of color and low-income and immigrant students.

Other Barriers to Employment

Lack of accessible training and transportation was also identified as a key barrier to employment. Investments in public transportation can play an important role in expanding access to employment or training. Without local training programs or transportation, students and other candidates may have limited access. It became clear in our conversations that there are positions in the construction trades and other technical occupations for which public transportation is not a viable option and that effort should be focused on ensuring that otherwise qualified candidates for construction or other technical careers are not excluded simply because they lack a valid driver's license or access to a vehicle. This is a particular challenge for employment on projects or in companies in Greater Minnesota.

While the utility sector would not be able to address these issues alone, solutions could begin with help from other sources to provide assistance in obtaining driver's licenses or helping to clear up legal issues that have caused an individual's license to be suspended. Beyond driver's licenses, potential applicants may need other assistance securing transportation, which could range from a caseworker helping individuals to develop transportation strategies using available resources, to subsidies or loans to help individuals secure vehicles or temporary transportation until he or she can afford a vehicle.

The group also discussed the need to ensure that individuals with past criminal-justice involvement are not being unnecessarily excluded from employment, recognizing important security considerations and legal requirements that energy utilities must meet.

Suggestions to Improve Recruitment

The EUDG suggested a number of possible tactics to recruit job candidates from diverse communities, including:

- Leveraging print, television/radio broadcasting, and online media outlets that target diverse populations to promote job postings;

- Using third-party contractors to ensure job postings reach a diverse pool of candidates via established networks of local career and community-based organizations that serve diverse populations;
- Participating in job fairs in diverse communities, such as at local military bases, community/technical schools, or designated Opportunity Zones;
- Support and partner with organizations that provide career-readiness assistance to under-represented populations; and
- Explore partnerships with organizations that work with immigrant and refugee populations to identify recruitment opportunities.

Partnering these approaches with strategic recruitment and hiring techniques could help energy utilities attract a more diverse workforce without sacrificing skill and expertise. Each utility will have a unique recruiting strategy based upon the differences in skill-set requirements and candidate options in the communities they serve.

Training & Development

Efforts to recruit and retain qualified candidates could include partnerships across industries and sectors, as well as paid internships and registered apprenticeship programs.

Building pipelines is an important strategy for energy utilities to attract and retain highly qualified and skilled employees. Some energy utilities have established partnerships with industry experts and academic institutions to identify and develop training programs. For example, one utility/industry model works by engaging diverse and local high school students—and their parents—with industry mentors in a long-term, holistic approach that focuses on helping them improve their job and education preparation and assisting them in leveraging existing community-support resources.

Some utilities offer paid internship and apprenticeship programs that help to identify and nurture professional skills among diverse youth groups. Both CenterPoint Energy and Xcel Energy have hosted AchieveMpls and Step Up high-school interns, representative of diverse communities in Minneapolis. Xcel Energy also participates in Right Track, another high school internship program.

The stakeholder group also highlighted the transition toward clean energy and new technologies as an opportunity to collaborate across sectors to train diverse populations. For example, information technology and data science offer opportunities for growth and change. Jobs to address these opportunities could come in the form of cybersecurity and electricians that install electric vehicle charging stations in homes and businesses.

Provision (3): Key trends that have shaped employment in this sector and the demographics of the sector, including the underrepresentation of women, veterans, and minorities in employment and leadership

EUDG did not collect employment data for the companies, and it is not able to report on the current state of affairs for the industry's workforce, or the underrepresentation of women, veterans, or minorities in general.

A quick review of the leadership of some of these energy organizations demonstrates very little inclusion of racial and ethnic minorities with few exceptions. Half of ALLETE's board of directors are women, which is an outstanding achievement.

Without data, it is impossible to assess the state of the upward mobility pipeline to examine and consider the challenges and opportunities.

Other Considerations

The Minnesota State Demographer's Office estimates the utility industry's 2018 job vacancy rate at 0.7%, as shown in Table 4, while the average rate for all industries' is 4.9%, which suggests that Minnesota's utilities offer positions that remain highly attractive even in periods of relatively high unemployment.

Table 4: Job Vacancies Minnesota, 2018 Q4¹³

Industry	No. of Job Vacancies	Job Vacancy Rate
Total, All Industries	136,917	4.9%
Agriculture, Forestry, Fishing & Hunting	1,266	5.5%
Mining	71	1.2%
Utilities	102	0.7%
Construction	5,691	4.6%
Manufacturing	12,972	4.0%
Wholesale Trade	3,835	3.2%
Retail Trade	20,890	6.9%
Transportation and Warehousing	6,026	5.6%
Information	1,043	2.0%
Finance and Insurance	4,211	3.1%
Real Estate and Rental and Leasing	1,707	5.0%
Professional and Technical Services	5,766	3.9%
Management of Companies and Enterprises	2,653	3.3%
Administrative and Waste Services	8,293	11.1%
Educational Services	6,452	2.6%
Health Care and Social Assistance	27,431	5.6%
Arts, Entertainment, and Recreation	2,555	5.3%
Accommodation and Food Services	18,479	8.1%
Other Services, EX: Public Admin	5,265	6.3%
Public Administration	2,208	1.7%

The State Demographer noted a direct correlation in education levels and unemployment gaps, and energy utilities have noted some similar trending with statewide workforce demographics. Utilities are managing significant changes in the role of their workforce as they shift from labor-intensive and geographically concentrated conventional power plants to more dispersed renewable generation that requires lower levels of operations and maintenance staffing.

Employment trends in this sector are the result of many factors:

- Education levels to skill sets (both historical and the future changing skills)
- Job opportunities
- Geographic location
- Domestic migration out of rural Minnesota
- Slowing international immigration

¹³ Minnesota State Demographer

The industry employs a number of skilled labor or craft positions, such as line workers and plant workers, which may constitute the majority of workers in an organization. Because of the historical gender makeup of these positions, the industry as a whole has a predominantly male workforce.

As discussed in a previous section, the EUDG believes that not all communities have been aware of, or have known how to pursue, opportunities in the utility sector, which may have contributed to what are believed to be relatively low levels of participation by people of color, women, and other historically underrepresented groups. As the labor market tightens and our populations become more diverse, it is more important than ever to provide exposure of the energy industry to populations of workers who may not be aware of the opportunities that are available to them.

The lack of diversity in the educational pipeline must be considered. For example, Dakota County Technical College currently has the only accredited line-worker program in the Twin Cities metro area. The first four men of color to graduate from this program did so in the summer of 2019. This result happened because of concerted efforts to reach students who were on the margins. The hope for the future is that such results will become commonplace and no longer noteworthy. So, one recommendation would be to increase these types of programs to increase diversity in the line worker occupation.

The EUDG recognizes the need to inform and provide access to underrepresented populations regarding the education and training that is required to be qualified for a position in the industry. Exposure should start before potential workers are making decisions about post-secondary education along with direct exposure to positive role models in the industry. Role models can not only generate interest, but also serve as direct lines of contact to employers.

According to CEWD, the utility-industry workforce has changed significantly over the last decade and is benefiting from more than a decade of workforce initiatives to develop and hire workers into critical jobs. As industry hiring has increased and retirements have begun to stabilize, a younger and more diverse workforce is facing the need for a higher level of skills than ever before. This transformation will drive strategic change in everything from education to recruiting, hiring, and retention.

Although retirements have caused significant changes for the energy workforce in the past, CEWD's 2017 Gaps in the Energy Workforce Survey shows that nationally, about 12% of the workforce is ready to retire at any point, and overall retirements are forecast at a little over 2% a year for the next 10 years. That is below the percentage of employees who will leave for other reasons and validates the trend toward "normal" retirement rates for the industry.

According to CEWD, millennials make up almost 30% of the overall utility workforce and 40% of the engineering and line-worker positions. This younger workforce is driving an increase in nonretirement attrition, particularly among those with fewer than five years of service. Studies of millennials in the workplace indicate they are less hesitant to change jobs than their older counterparts. In an industry where it takes years to become fully competent in highly skilled jobs, and in a country where the current

unemployment rate is below 4%, companies must rethink their employment value propositions in order to attract and retain new employees as well as effectively transfer the knowledge of those who leave.

Nationally, the energy workforce is also becoming increasingly diverse, reflecting an increased focus on diversity and inclusion efforts. For example, veterans now make up about 11% of survey respondents' current workforce, which is an increase from 8% in 2014. Similarly, racial and ethnic minorities now make up 26% of the workforce, up from 22%. However, the percentage of women in the utility workforce has shown only a slight increase from previous surveys and, at 24%, remains at half the levels of women's participation in the U.S. workforce.

Critical to this challenge is balancing workforce needs with reductions in labor budgets, as companies' internal and external cost pressures continue in the industry. External factors drive company priorities and, subsequently, their budgets. Each company must determine what it can afford in the way of workforce strategy.

Provision (4): Challenges to Replacing Retiring Workers

Table 5 below shows that CEWD projects a significant level of retirements along with expected attrition of employees for any reason (resignation, layoff, termination, etc.) in Minnesota utilities between 2016 and 2026 in these Key Occupation Employment areas:¹⁴

Table 5: Estimated Attrition and Retirements in Minnesota Utilities, 2016–2026¹⁵

Job Category	2016	2026	Change	Attrition and Retirements	% Attrition and Retirements
Line Workers	1,941	2,025	84	754	39%
Plant/Field Operators	1,065	1,034	–31	583	55%
Technicians	1,837	1,821	–16	1,057	58%
Engineers	1,077	1,107	30	522	48%
Subtotal	5,920	5,987	67	2,916	49%
Total: All Occupations	7,757	7,810	53	3,974	51%

There will be challenges in finding new workers, but there are also opportunities. For example, with the challenge of transferring knowledge and skills to new workers comes the opportunity of considering whether there are better ways to accomplish some tasks and using different skills of new workers. Further, as utilities promote jobs, more people may learn about the energy industry.

These anticipated retirements and attrition rates point towards a sense of urgency to develop a diverse group of workers with the skills needed for the 21st-century energy system.

¹⁴ Does not include IT, accounting, or certain other employment categories.

¹⁵ Center for Energy Workforce Development

Provision (5): Imbalance of Available Worker Skills to Utility Workforce Needs

Available data used

There are a variety of sources discussing employment in the energy industry. For purposes of this discussion, the EUDG has reviewed information from the following sources

- “The 2019 U.S Energy & Employment Report” by the National Association of State Energy Officials (NASEO) and Energy Futures Initiative (EFI)¹⁶
- The “Minnesota Energy Efficiency Workforce Gap Analysis” February 2019 report prepared by the Center for Energy and Environment (CEE)¹⁷
- The report “Transforming the Nation’s Electricity System: The Second Installment of the QER, January 2017, Chapter V: The Electricity Workforce: Changing Needs, New Opportunities”¹⁸
- The Minnesota Department of Employment and Economic Development (DEED), which provides data for companies to use for Affirmative Action Plans required by Minnesota Statute 363A.36 using the latest available census data, in this case from 2010.¹⁹

These data sources illustrate common findings in the following areas, which are further detailed below:

- The necessary training needed to have qualified workers.
- The skills gap of the overall available workforce and demographics.

Training needed to have qualified workers

Each of the reports referenced in the previous section (Available Data Used) noted training and apprenticeships as a need for employment in energy utility jobs.

¹⁶ This report explores in detail employment in the energy industry broken out into 5 energy sectors; fuel, electric power generation, transmission, distribution and storage, energy efficiency, and motor vehicles. It includes expected employment, difficulty hiring and demographics. The information in this report is mainly from the transmission, distribution and storage sector.

<https://www.naseo.org/data/sites/1/documents/publications/USEER-2019-US-Energy-Employment-Report1.pdf>

¹⁷ This report focuses on careers in energy efficiency and looks at employment trends in this industry. It also includes data on the aging workforce and difficulties with hiring and diversity in the energy industry.

<https://www.mncee.org/MNCEE/media/PDFs/MN-Energy-Efficiency-Workforce-Gap-3-1-19.pdf>

¹⁸ This report explores the employment in the energy industry, required training and skills, demographics in the industry, and reviews the challenges of recruiting and hiring new employees.

https://www.energy.gov/sites/prod/files/2017/01/f34/Chapter%205%20The%20Electricity%20Workforce%20Changing%20Needs,%20New%20Opportunities_0.pdf

¹⁹ This data includes the labor-force availability by area in the state of Minnesota and by job. The labor-force availability looks at the entire labor force by job classification and the percentage of males/females and whites/minorities in that labor force. For this report, only jobs typically hired by energy utilities were included.

<https://mn.gov/deed/data/data-tools/affirmative-action-statistics/>

Each report references training. The drop in industry workforce-training programs in the 1980s, and the trend away from technical schools in the 1990s, are part of the skills-gap issue, and the CEE reports that “student retention remains an issue in training programs.”

The EUDG discussed the importance of building a talent pipeline that begins when students are in high school or possibly earlier in their education. The EUDG also talked about the importance of expanding training opportunities for diverse populations. Without access to training, workers are less versatile. Apprenticeships may be one opportunity to shift from static training programs.

Skills gap and demographics

The reports discuss the lower number of women and minorities in the workforce compared with national averages. They highlight hiring difficulties resulting from skills gaps, such as lack of experience, training, or technical skills; the lack of access to STEM and other technical programs; and the lack of accessibility of utilities to a portion of the workforce.

Electricity and related industries employ fewer women and minorities than the national average, but have a higher proportion of veterans. Only 5 percent of the boards of utilities in the United States in 2015 include women, and approximately 13 percent of board members among the top 10 publicly owned utilities were African American or Latino. Underrepresentation in or lack of access to science, technology, engineering, and mathematics educational opportunities and programs contribute to the underrepresentation of minorities and women within the electricity industry. (page 5-3 of the Energy.gov report)

This underrepresentation decreases the number of qualified workers, making these positions more difficult to hire.

Statistical data from the Minnesota Department of Employment and Economic Development (DEED) show the labor availability for the state of Minnesota, the Twin Cities area, and Greater Minnesota for jobs typically employed by energy utilities. Additional metropolitan statistical data is available from their website. One difference to note between these two statistical sources: DEED figures are based on the 2006–2010 American Community Survey and are therefore more than a decade old.

These data show that the percentage of underrepresented workers available in the workforce was fairly low, especially in technical areas such as construction and installation occupations, with overall availability of less than 10% for minorities and less than 3% for women. The figure dropped to less than 5% for people of color in greater Minnesota. The CEE report echoes the data shown in the DEED statistics and expresses concern at the lack of diversity in the energy-efficiency industry and notes that unions and apprenticeships offer training and access to the workforce pipeline. Current data from Minnesota’s Department of Labor and Industry indicate that, as of July 2019, people of color accounted for 19% of registered apprentices, and women accounted for 7%. More than 90% of Minnesota’s 12,000 registered apprentices work in construction and installation occupations. (See Employment and Economic Development Workforce Availability data in the Appendix.)

The information in the Appendix is not specific to utilities, so drawing conclusions for the utility industry from this information is difficult. Still, utilities are included in the data and the information is helpful to

understand the context in which Minnesota utilities operate. For example, the information indicates that, for Minnesota as a whole, 10.36% of the labor force was classified as minority between 2006 and 2010, while only 6.5% of workers in management occupations and 6.75% of workers in construction and extraction occupations were minority workers. Women represented 43.01% of the labor force, but made up 34.56% of management occupations and only 2.98% of workers in construction and extraction occupations.

The information also confirms that there are differences in demographics across Minnesota. While the percentage of women is fairly consistent, there were fewer workers classified as minority in Greater Minnesota (5.0%) than in the Twin Cities (13.2%). This information helps support the conclusion that each utility will need to tailor individual recruitment strategies to successfully attain a diverse candidate pool for the positions they are posting.

Findings and recommendations

On the basis of the discussions detailed above, the EUDG identified the following findings and recommendations to increase workforce diversity. Long term, it is hoped that these efforts will strengthen and enhance economic development in the communities that utilities serve; providing employment opportunities helps to ensure the viability of those communities.

Findings

- Minnesota energy utilities are organized in three separate categories with unique geographic presence, governance, and demographics.
- The energy utility sector is changing, including a movement from large central-station power plants toward renewable and distributed energy resources. Utility customers' preferences for interactions with their energy provider have also changed (e.g., customers want more proactive service, quicker responses to outages and other needs). These developments require Minnesota's energy utilities to anticipate changes to the sector's workforce and procurement needs, as well. Given these factors, along with Minnesota's changing demographics, tapping diverse communities that have historically been underrepresented in utility and other areas of employment may be a means of addressing these needs.
- Though utilities have conducted outreach efforts, a lack of awareness about the industry, particularly within underrepresented communities, can pose a challenge to recruitment efforts.
- A number of employment barriers may limit the success of efforts to hire more diverse candidates: job awareness, education/training, transportation, and criminal-justice system involvement.
- Existing cross-sector partnerships between utilities and industry experts, academic institutions, and others provide a model for training and development of diverse populations.
- Shifts in technology are expected to create an increase in technician roles, roles supporting changes to the grid, and other technology and data-focused roles. Therefore, the lack of diversity in the education pipeline for those educational programs that would support those

emerging roles (i.e., STEM, information technology, skilled field technician, and data and analytics) must also be considered.

- CEWD's projection of retirements and expected attrition can pose a challenge but also offers opportunities for utilities to seek new workers from diverse populations. However, utilities will need to balance the need to fill positions along with the need to retrain and reskill the current workforce in the changing environment.
- The drop in industry workforce-training programs in the 1980s, and the trend away from technical schools in the 1990s, have contributed to a skills-gap issue. This gap is particularly acute in diverse communities, where additional training is needed to build up the talent pipeline. Elements that may contribute to the gap include lack of experience, training, or technical skills and lack of access to STEM and other technical programs.

Recommendations

- **Data collection:** Collecting data allows utilities to know where they currently sit as well as informing their goals for the future. The requirements for some utilities to file affirmative-action plans and employment-demographics information with the State helps ensure that energy utilities are making good-faith efforts to employ a diverse workforce. It is recommended that these utilities continue to use these affirmative-action plans as a starting place for strategic planning. For utilities that are not required to file demographic information with the State, the affirmative-action reporting templates and guidelines could voluntarily be used to help utilities track demographics information in a consistent way with the reporting utilities.
- **Build on current efforts in engagement, building pipelines, training and hiring practices:** Energy utilities should continue their existing recruitment, training, retention (including professional development, cultural competency, and skill development), and outreach programs and allocate resources for programs to cultivate diversity at all levels.
 - **Emphasize ongoing efforts:** Rather than one-time engagement efforts, there must be an ongoing dialogue between industry stakeholders, educational entities, and the communities they serve. There may be skills gaps where the potential workforce is not engaged.
 - **Build pipelines:** Career exposure should start during high school or earlier for students and young people, and employers should establish and maintain relationships with targeted schools and populations and engage consistently and regularly with students over time. This includes educating young people on the energy industry as well as providing tools and programs to gain fundamental knowledge of the industry. Establish programs in middle and high schools where students can explore and learn about the industry and guide students into the postsecondary programs that will provide the education they need to obtain employment in the industry. This should be done while continually tracking and maintaining contact with these young people through industry mentors or other contacts.
 - **Expand training:** It is important to expand training opportunities for diverse populations, including registered apprenticeships, paid internships, and paid

fellowships, to help identify and nurture professional skills. Utilities may choose to support the efforts of MN Energy Center of Excellence or other programs to include Energy Systems on the “career wheel” that schools use to discuss careers with students.

- **Analysis of hiring requirements and reducing barriers:** Energy utilities should review their existing recruitment and hiring practices to ensure that job-entry requirements are appropriately aligned with the actual requirements of the job. Special attention should be paid to acknowledging and removing existing barriers. For example, if it is found that otherwise qualified candidates are excluded for construction or other technical careers because they lack a valid driver’s license or access to a vehicle, utilities should consider alternative solutions to engage those candidates.
- **Partner with other utilities:** Recognizing that different utilities have different levels of resources and staff capacity, some utilities might work jointly with other utilities to allocate resources and funding to explore innovative outreach and awareness models, including:
 - **New methods of reaching particular diverse groups through existing energy services:** For example, utilities might integrate information about career opportunities into the provision of their services, such as energy-efficiency upgrades in underrepresented communities
 - **Coordinated and targeted marketing campaigns to build awareness of the utility industry,** especially within low-income communities, immigrant communities, and communities of color, with an emphasis on young people who are in the process of choosing educational and career paths
 - **Establishing “energy-experience centers” located in accessible locations,** including Opportunity Zones, within underrepresented communities in order to ensure access and expose youth and adults to energy technologies and educational opportunities, and to create hubs where interested individuals and businesses could connect with utilities, vendors, and training providers
 - **Expanding and/or replicating community and school-based programs that support STEM learning,** such as the CEWD school curriculum or mentoring programs such as the Future Cities Competition, which pairs energy-utility professionals with students to provide STEM tutoring and career-pathways guidance. There has been a re-emergence of technical education programs at the high school level. Some high schools are developing their own career and education facilities. Utilities can further support STEM education by engaging with these facilities.
- **Investment from the State:** Solutions are unlikely to come from the energy utility sector alone.
 - It is important for the State of Minnesota and school districts serving diverse populations to invest in closing achievement and opportunity gaps and improving retention and graduation rates for racial and ethnic minority students in low-income/underresourced households, and students from immigrant populations.
 - **Addressing transportation barriers** will also need assistance from entities outside the utility sector to help ensure that potential employees have reasonable access to training and jobs.

- **Recognize positive impact of utility ownership:** The impact of diversity efforts in the regulated electric-utility sector may be greatest where generation and transmission assets are owned by utilities, because third-party owners are not currently held to the same equity and transparency standards. Minnesota’s agencies, boards, and commissions are encouraged to recognize and weigh the impact of utility ownership on diversity where consistent with their legal authority. The legislature should also consider taking steps to ensure that independent power producers and other beneficiaries of ratepayer-funded subsidies for distributed-generation and energy-efficiency programs, including Community Solar Gardens, be required to meet the same standards as regulated utilities.
- **Partner with nonutilities:** Energy utilities should explore partnering with industry partners, building trade unions, academic institutions, community-based organizations, and workforce agencies to identify and develop career pipelines, while making the training and employment opportunities more accessible to underrepresented populations.
- **Continue this process:** The EUDG can continue their work to gather many stakeholders to discuss challenges, successes, resources, and best practices with regard to increasing workforce diversity.

Supplier Diversity

Provision (6): Challenges and possible approaches to increasing supplier diversity

Per the Session Law, the scope of supplier diversity portion of this report is limited to one charge: identify the challenges and possible approaches to increasing supplier diversity.

EUDG Definition of Supplier Diversity

For the context of this report, EUDG participants defined “Diverse Suppliers” to include the following types of businesses:

- **Minority-Owned Businesses:** A business at least 51% owned and controlled by a minority group member(s) of one of the following ethnicities: African American, Asian-Indian American, Asian-Pacific American, Hispanic American, Native American
- **Women-Owned Businesses:** A business at least 51% owned and controlled by one or more women
- **Veteran-Owned Businesses:** A business at least 51% owned and controlled by one or more veterans or service-disabled veterans
- **LGBT-Owned Businesses:** A business that is at least 51% owned and controlled by one or more LGBT individuals

- **Small Economically Disadvantaged Businesses:** A small business that is at least 51% owned and controlled by one or more individuals who are both socially and economically disadvantaged; for a publicly owned business, at least 51% of its stock must be owned by one or more individuals of the following ethnicities: African Americans, Hispanic Americans, Asian-Pacific American, Subcontinent Asian Americans and Native Americans.
- **HUBZone Businesses:** As defined by the Small Business Administration, a small business that (a) is located in a historically underutilized business zone; (b) is owned, controlled, and operated by one or more U.S. citizens; and (c) for which at least 35% of its employees reside in a HUBZone
- **Disability-Owned Enterprises:** A for-profit business that is at least 51% owned, managed, and controlled by a person with a disability, regardless of whether or not that business owner employs person(s) with a disability.

Utilities that have existing supplier diversity programs track the spending in two ways: (1) money that is paid directly to Diverse Suppliers (Tier I spend); and (2) money that is paid to a prime contractor who then pays a subcontractor who is a Diverse Supplier (Tier II spend). A prime contractor is defined as a supplier that is awarded a direct contract from a utility.

Utilities can utilize numerous methods to identify Diverse Suppliers, including obtaining supplier information through the following sources:

- National Minority Supplier Development Council and Regional Affiliates
- Women’s Business Enterprise National Council and Regional Affiliates
- National Veteran’s Business Development Council
- National LGBT Chamber of Commerce
- Federal government registration sites such as SAM.GOV
- Ethnic Chambers of Commerce

Background

As indicated previously, there are multiple types of utility providers (“utilities”) in the State of Minnesota, including investor-owned, cooperatives, and municipal and rural electric associations. Among these, there are significant differences in size and the geographic location of customers served. Three providers have established supplier-diversity programs; most utilities do not because they don’t have enough resources/personnel to start or manage such programs. Most of the utilities, however, do place a great emphasis on buying from suppliers that are located within their respective service territories. All the utilities recognize the importance of having their supplier base reflect the communities they serve.

Participation among the utilities (investor owned, municipal, cooperatives) should be voluntary.

Findings and recommendations

On the basis of the discussions detailed above, the EUDG identified the following findings and recommendations to increase supplier diversity:

Findings: Challenges to the Utilities

Following are challenges identified by the EUDG that utilities address in their efforts to increase supplier diversity:

- Supplier programs need to be as “diverse” as the communities the utility serves; therefore, the desire to buy local or purchase from the investor owned/cooperative/municipal customer base is as important as increasing opportunities for new suppliers who hold diversity certification(s).
- Creating supplier diversity programs for most utilities presents a challenge given the lack of budget, tracking software, and employee resources. Smaller utilities may not be able to justify the addition of staff and needed resources to develop a program in the same manner as the largest utilities. Ultimately, utilities could seek to recover costs incurred to launch and manage a program from rate payers.
- Considering that many utilities do not currently track diverse supplier spend, there is no baseline for these utilities to start from and compare to. Baselines for each utility for increasing opportunities for diverse suppliers should be determined in the initial year(s) before thresholds and goals to increase opportunities can be set for future years.
- Many utilities have limited outreach resources to identify diverse suppliers (see Workforce Diversity section).
- Large amounts of diverse supplier spend are specifically project driven (wind/solar additions), and once projects are completed, it’s hard to immediately replace that same level of spending.
- A utility may increase bid opportunities for diverse suppliers (when possible and when identifiable); however, corporate or board policy may require the utility to award to the lowest bidder, which will impact whether the utility is able to increase spending. The goals should be based on opportunities to bid and not mandated spending. The diverse contractor must also be compliant with the utility’s internal requirements—such as safety, insurance, and warranty.
- Past purchasing decisions often dictate future purchasing decisions for a utility, where the utility is tied to the previous vendor because of proprietary design or equipment standardization.

Findings: Challenges to Diverse Suppliers

Diverse suppliers, in turn, address their own challenges to meet utilities’ needs.

- Newly established diverse suppliers who have diversity certification(s) are often unable to meet the scale and scope needs for large utilities and need to identify Tier II opportunities with prime contractors in order to gain experience and grow their business.
- Some diverse suppliers may have limited access to capital or outside funding, while others are very large and are not limited in these respects.
- Solicitations are not publicized broadly in diverse communities.

- There is a lack of training or helplines available to explain the process to businesses who are new to the industry or the procurement process.
- There is a lack of encouragement for young, diverse individuals to expose them to the idea of creating their own businesses

Recommendations

Utilities can use a number of strategies to increase supplier diversity:

Work in partnership. Utilities can work in partnership with other entities:

- Those utilities in the state that have existing Supplier Diversity programs can share their list of diverse suppliers with other utilities across state.
- They can work jointly to engage with diverse suppliers and share best practices.
- Community groups can also serve as partners by offering ideas or activities that results in enhanced supplier diversity outcomes.
- Additionally, utilities can solicit information from existing prime contractors on the subcontractors that are used and identify diverse suppliers in process.
- Finally, utilities can ask utility credit-card providers to identify diverse suppliers from which they are obtaining goods/services currently.

Appendix A: Workforce Availability

The Minnesota Department of Employment and Economic Development (DEED) provides data for the labor force availability by area in the state of Minnesota and by job. The most recent available DEED statistics for Minnesota, which covers 2006–2010, show that the percentage of underrepresented workers available in the workforce was fairly low, especially in technical areas such as construction and installation occupations, with overall availability of less than 10% for minorities and less than 3% for women. This information includes, but is not specific to, utilities.²⁰

Minnesota Department of Employment and Economic Development Workforce Availability Data

	Minnesota						
COC	Occupation	SOC	Labor Force	Percent of Total Labor Force			
				Male	Female	White	Minority
001-992	Total Civilian Labor Force		988,762	56.99%	43.01%	89.64%	10.36%
001-043	Management Occupations	11-0000	134,148	65.44%	34.56%	93.50%	6.50%
050-095	Business and Financial Operations Occupations	13-0000	110,915	42.81%	57.19%	90.82%	9.18%
100-124	Computer and Mathematical Occupations	15-0000	77,964	73.55%	26.45%	82.62%	17.38%
130-156	Architecture and Engineering Occupations	17-0000	30,261	86.45%	13.55%	90.07%	9.93%
160-196	Life, Physical, and Social Sciences Occupations	19-0000	195	74.36%	25.64%	100.00%	0.00%
260-292	Arts, Design, Entertainment, Sports, and Media Occupations	27-0000	6,865	41.39%	58.61%	96.09%	3.91%
370-395	Protective Services Occupations	33-0000	11,830	79.31%	20.69%	76.52%	23.48%
420-425	Building and Grounds Cleaning and Maintenance Operations	37-0000	55,075	70.57%	29.43%	77.23%	22.77%
470-496	Sales and Related Occupations	41-0000	28,317	66.71%	33.29%	94.59%	5.41%
500-593	Office and Administrative Support Occupations	43-0000	323,299	23.42%	76.58%	89.74%	10.26%
620-694	Construction and Extraction Occupations	47-0000	57,401	97.02%	2.98%	93.25%	6.75%
700-762	Installation, Maintenance, and Repair Occupations	49-0000	55,801	97.21%	2.79%	92.72%	7.28%
770-896	Production Occupations	51-0000	25,340	81.67%	18.33%	90.83%	9.17%
900-975	Transportation and Material Moving Occupations	53-0000	71,351	95.68%	4.32%	90.95%	9.05%

	Minneapolis - St. Paul Metropolitan Statistical Area						
COC	Occupation	SOC	Labor Force	Percent of Total Labor Force			
				Male	Female	White	Minority
001-992	Total Civilian Labor Force		647,835	56.6%	43.4%	86.8%	13.2%
001-043	Management Occupations	11-0000	100,390	64.7%	35.3%	92.4%	7.6%
050-095	Business and Financial Operations Occupations	13-0000	86,055	43.9%	56.1%	89.5%	10.5%
100-124	Computer and Mathematical Occupations	15-0000	63,805	74.2%	25.8%	80.6%	19.4%
130-156	Architecture and Engineering Occupations	17-0000	20,755	86.5%	13.5%	88.0%	12.0%
160-196	Life, Physical, and Social Sciences Occupations	19-0000	75	60.0%	40.0%	100.0%	0.0%
260-292	Arts, Design, Entertainment, Sports, and Media Occupations	27-0000	5,435	41.1%	58.9%	95.2%	4.8%
370-395	Protective Services Occupations	33-0000	7,610	81.5%	18.5%	72.9%	27.1%
420-425	Building and Grounds Cleaning and Maintenance Operations	37-0000	29,950	71.8%	28.2%	66.0%	34.0%
470-496	Sales and Related Occupations	41-0000	20,270	65.1%	34.9%	93.1%	6.9%
500-593	Office and Administrative Support Occupations	43-0000	204,075	25.4%	74.6%	86.4%	13.6%
620-694	Construction and Extraction Occupations	47-0000	30,665	96.5%	3.5%	91.3%	8.7%
700-762	Installation, Maintenance, and Repair Occupations	49-0000	29,840	96.8%	3.2%	89.3%	10.7%
770-896	Production Occupations	51-0000	13,490	82.2%	17.8%	87.2%	12.8%
900-975	Transportation and Material Moving Occupations	53-0000	35,420	96.0%	4.0%	87.5%	12.5%

²⁰ <https://mn.gov/deed/data/data-tools/affirmative-action-statistics/>

Duluth-Superior Metropolitan Statistical Area							
COC	Occupation	SOC	Labor Force	Percent of Total Labor Force			
				Male	Female	White	Minority
001-992	Total Civilian Labor Force		38,294	56.28%	43.72%	95.14%	4.86%
001-043	Management Occupations	11-0000	4,235	68.60%	31.40%	93.86%	6.14%
050-095	Business and Financial Operations Occupations	13-0000	3,470	43.05%	56.95%	97.41%	2.59%
100-124	Computer and Mathematical Occupations	15-0000	1,305	75.40%	24.60%	93.10%	6.90%
130-156	Architecture and Engineering Occupations	17-0000	1,050	82.38%	17.62%	98.10%	1.90%
160-196	Life, Physical, and Social Sciences Occupations	19-0000	50	60.00%	40.00%	100.00%	0.00%
260-292	Arts, Design, Entertainment, Sports, and Media Occupations	27-0000	155	41.93%	58.07%	100.00%	0.00%
370-395	Protective Services Occupations	33-0000	645	77.52%	22.48%	88.37%	11.63%
420-425	Building and Grounds Cleaning and Maintenance Operations	37-0000	3,030	73.76%	26.24%	92.74%	7.26%
470-496	Sales and Related Occupations	41-0000	1,179	63.95%	36.05%	99.15%	0.85%
500-593	Office and Administrative Support Occupations	43-0000	14,399	22.99%	77.01%	94.65%	5.35%
620-694	Construction and Extraction Occupations	47-0000	748	95.99%	4.01%	95.99%	4.01%
700-762	Installation, Maintenance, and Repair Occupations	49-0000	3,808	97.11%	2.89%	98.29%	1.71%
770-896	Production Occupations	51-0000	740	90.54%	9.46%	95.95%	4.05%
900-975	Transportation and Material Moving Occupations	53-0000	3,480	95.54%	4.46%	94.26%	5.74%

Mankato Metropolitan Statistical Area							
COC	Occupation	SOC	Labor Force	Percent of Total Labor Force			
				Male	Female	White	Minority
001-992	Total Civilian Labor Force		17,442	54.45%	45.55%	95.16%	4.84%
001-043	Management Occupations	11-0000	1,878	61.40%	38.60%	97.34%	2.66%
050-095	Business and Financial Operations Occupations	13-0000	1,299	42.19%	57.81%	95.38%	4.62%
100-124	Computer and Mathematical Occupations	15-0000	905	64.09%	35.91%	92.82%	7.18%
130-156	Architecture and Engineering Occupations	17-0000	415	93.97%	6.03%	98.79%	1.21%
160-196	Life, Physical, and Social Sciences Occupations	19-0000	0	0.00%	0.00%	0.00%	0.00%
260-292	Arts, Design, Entertainment, Sports, and Media Occupations	27-0000	185	45.94%	54.06%	100.00%	0.00%
370-395	Protective Services Occupations	33-0000	510	81.37%	18.63%	91.18%	8.82%
420-425	Building and Grounds Cleaning and Maintenance Operations	37-0000	930	66.67%	33.33%	91.94%	8.06%
470-496	Sales and Related Occupations	41-0000	335	73.13%	26.87%	98.51%	1.49%
500-593	Office and Administrative Support Occupations	43-0000	6,668	22.06%	77.94%	94.68%	5.32%
620-694	Construction and Extraction Occupations	47-0000	1,132	97.79%	2.21%	95.14%	4.86%
700-762	Installation, Maintenance, and Repair Occupations	49-0000	1,153	95.14%	4.86%	97.40%	2.60%
770-896	Production Occupations	51-0000	708	76.70%	23.30%	93.64%	6.36%
900-975	Transportation and Material Moving Occupations	53-0000	1,324	93.96%	6.04%	95.84%	4.16%

Rochester Metropolitan Statistical Area							
COC	Occupation	SOC	Labor Force	Percent of Total Labor Force			
				Male	Female	White	Minority
001-992	Total Civilian Labor Force		33,482	57.21%	42.79%	92.89%	7.11%
001-043	Management Occupations	11-0000	3,054	64.64%	35.36%	95.74%	4.26%
050-095	Business and Financial Operations Occupations	13-0000	2,725	47.67%	52.33%	90.82%	9.18%
100-124	Computer and Mathematical Occupations	15-0000	4,085	75.76%	24.24%	86.66%	13.34%
130-156	Architecture and Engineering Occupations	17-0000	1,484	90.23%	9.77%	86.52%	13.48%
160-196	Life, Physical, and Social Sciences Occupations	19-0000	15	100.00%	0.00%	100.00%	0.00%
260-292	Arts, Design, Entertainment, Sports, and Media Occupations	27-0000	335	38.81%	61.19%	100.00%	0.00%
370-395	Protective Services Occupations	33-0000	290	82.76%	17.24%	65.52%	34.48%
420-425	Building and Grounds Cleaning and Maintenance Operations	37-0000	2,130	77.47%	22.53%	86.39%	13.61%
470-496	Sales and Related Occupations	41-0000	530	77.36%	22.64%	96.22%	3.78%
500-593	Office and Administrative Support Occupations	43-0000	11,740	19.16%	80.84%	96.59%	3.41%
620-694	Construction and Extraction Occupations	47-0000	2,148	98.37%	1.63%	96.98%	3.02%
700-762	Installation, Maintenance, and Repair Occupations	49-0000	1,912	97.38%	2.62%	93.20%	6.80%
770-896	Production Occupations	51-0000	654	85.47%	14.53%	100.00%	0.00%
900-975	Transportation and Material Moving Occupations	53-0000	2,380	93.28%	6.72%	89.49%	10.51%

	Greater Minnesota (Excludes all counties in metropolitan statistical areas)						
COC	Occupation	SOC	Labor Force	Percent of Total Labor Force			
				Male	Female	White	Minority
001-992	Total Civilian Labor Force		218,113	58.6%	41.4%	95.0%	5.0%
001-043	Management Occupations	11-0000	21,157	68.6%	31.4%	97.0%	3.0%
050-095	Business and Financial Operations Occupations	13-0000	15,067	36.8%	63.2%	95.4%	4.6%
100-124	Computer and Mathematical Occupations	15-0000	6,361	68.8%	31.2%	94.0%	6.0%
130-156	Architecture and Engineering Occupations	17-0000	5,788	85.0%	15.0%	96.0%	4.0%
160-196	Life, Physical, and Social Sciences Occupations	19-0000	51	100.0%	0.0%	100.0%	0.0%
260-292	Arts, Design, Entertainment, Sports, and Media Occupations	27-0000	695	44.2%	55.8%	98.6%	1.4%
370-395	Protective Services Occupations	33-0000	2,330	73.4%	26.6%	79.6%	20.4%
420-425	Building and Grounds Cleaning and Maintenance Operations	37-0000	16,910	68.1%	31.9%	89.9%	10.1%
470-496	Sales and Related Occupations	41-0000	5,189	71.1%	28.9%	98.2%	1.8%
500-593	Office and Administrative Support Occupations	43-0000	73,862	19.1%	80.9%	95.4%	4.6%
620-694	Construction and Extraction Occupations	47-0000	20,258	97.7%	2.3%	95.3%	4.7%
700-762	Installation, Maintenance, and Repair Occupations	49-0000	16,644	98.2%	1.8%	97.0%	3.0%
770-896	Production Occupations	51-0000	8,579	79.91%	20.09%	94.56%	5.44%
900-975	Transportation and Material Moving Occupations	53-0000	25,222	95.8%	4.2%	94.3%	5.7%

Appendix B: Stakeholder Participants

The following stakeholders participated in at least one meeting that discussed the report content. Participants who attended the kick-off meeting only are not listed. Leadership roles are listed first, followed by participants in alphabetical order.

José Pérez, Hispanics In Energy (Chair, EUDG)

Anita Grace, GRACE Multicultural (Co-Vice Chair, EUDG)

Jennifer Peterson, Minnesota Power (Co-Vice Chair, EUDG)

Ben Passer, Fresh Energy (Chair, EUDG Workforce Diversity Subcommittee)

Jamez Staples, Renewable Energy Partners (Co-Vice Chair, EUDG Workforce Diversity Subcommittee)

Michelle Dreier, Electrical Association (Co-Vice Chair, EUDG Workforce Diversity Subcommittee)

MJ Horner, Xcel Energy (Co-Vice Chair, EUDG Workforce Diversity Subcommittee)

John Pacheco, Latino Chamber (Chair, EUDG Supplier Diversity Subcommittee)

Jim Garness, Xcel Energy (Vice Chair, EUDG Supplier Diversity Subcommittee)

Adam Tromblay, Nobles Cooperative Electric

Akisha Everett, University of Minnesota Energy Transition Lab

Amber Lee, CenterPoint Energy

Amy Decaigny, ALLETE

Ana Vang, Minnesota Power

Andy Morris, Council of Asian Pacific Minnesotans

Anne Hunt, Office of Enterprise Sustainability MN Department of Administration

Basil Ajuo, Minnesota Africans United

Betty Jo Kiesow, Dakota Electric Association

Bill Black, Minnesota Municipal Utilities Association

Brady Steigauf, Center for Energy and Environment

Bree Halverson, Blue Green Alliance

Brian Meloy, Stinson LLP

Brian Winkelaar, International Brotherhood of Electrical Workers

Bridget Dockter, Xcel Energy

Bruce Gerhardson, Otter Tail Power

Bryan Glines, CenterPoint Energy

Cecilia Lettner, Xcel Energy

Chris Anderson, Minnesota Power

Cindy Schue, Great River Energy

Corey Hintz, Dakota Electric

Cynthia Radtke, North Central Minority Supplier Diversity Council

Emma Schoppe, CenterPoint Energy

Erica Larson, CenterPoint Energy

Felipe Illescas, MN Council on Latino Affairs

George Watson, Mattson Consulting

Grania Mckiernan, Xcel Energy
Greg Rausch, Otter Tail Power
Heather Olson, North Central Minority Supplier Diversity Council
Heather Westra, Prairie Island Indian Community
Henry Torres, Value of Five
Jenny Glumack, Midwest Renewable Energy Association
Jessica Fyhrie, Otter Tail Power
Jessica Looman, MN State Building and Construction Trades Council
John Aiken, MN Department of Labor
Jose Nino, Hispanics In Energy
Kate O'Connell, MN Department of Commerce (*The Minnesota Department of Commerce played a supportive role in helping to clarify regulatory issues and other tasks, but does not take a position at this time on any specific recommendations in the report.*)
Kent Sulem, Minnesota Municipal Utilities Association
Kevin Pranis, Laborers' International Union of North America, MN & ND
Kimberly Dunning, CenterPoint Energy
Laura Krollman, ALLETE
Leslie Philmon, MN Department of Labor and Industry
Lisa Orpen, Great River Energy
Liz Lucente, MN Solar Energy Industries Association
Machy Vu, HOPE Community Academy
Mariesa Sun-Saenz, US Cuba Artist Exchange
Markeeta Keyes, City of Minneapolis
Maychy Vu, HOPE Community Academy
Melissa Stachovich, MN Rural Electric Association
Michael Birchard, Inver Hills Community College & Dakota County Technical College
Monica Villasenor, SHPE
Nakhia Morrisette, Solar Energy Industries Association
Paula Mastel, Great River Energy
PaZong Thao, MN Department of Administration
Raj Rajan, University of Minnesota Institute on the Environment
Riley Conlin, Stoel Rires LLP
Rob Scott-Hovland, Missouri River Energy Services
Rosa Tock, Minnesota Council on Latino Affairs
Rose Patzer, Minnesota State Energy Center of Excellence
Sarah Arnold, Women's Business Development Center
Stephanie Herrera, SAH & Associates
Steve Downer, Minnesota Municipal Utilities Association
Susanne Straus, Minnkota Power Cooperative
Syd Briggs, Steele-Waseca Co-op Electric
Thomas Herr, Hmong Village
Wayne Dupuis, Fond du Lac Band of Lake Superior Chippewa