

**WORLD  
ENERGY  
COUNCIL**

**FUTURE ENERGY  
LEADERS**

# **HUMAN CAPITAL: EQUITY AND SKILLED PERSONNEL FOR CURRENT AND FUTURE ENERGY DEVELOPMENTS**



# **FEL-100 HUMAN CAPITAL TASKFORCE REPORT**

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**OCTOBER 2016**

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# **1. EXECUTIVE SUMMARY**

## FEL HUMAN CAPITAL (HC) TASKFORCE OVERVIEW

The Future Energy Leaders (FEL) HC taskforce has carried out the work presented in this report to understand current critical issues impacting the attraction, development and retention of talent in the energy sector, and to develop a strategic approach to ensure that a sufficiently capable workforce is available to tackle the existing and emerging challenges in the energy sector.

The taskforce has focused its work on four key categories of Human Capital aspects considered as critical to face these challenges: Talent, Diversity, Skills Mismatch and Social Perception. After analyzing and evaluating current reports, articles and papers to extract valuable information regarding the taskforce's four work streams, a Human Capital Issues Monitor has been developed to detect what issues are on the top of the FEL's agenda regarding human capital matters, by analyzing their degree of impact, uncertainty and urgency.

Based on the outputs of the above activities, the taskforce has developed a set of recommendations for senior energy leaders on critical priorities and actions to be taken within the four work streams. The research has also been enriched from interviews with Ms. Marie-José Nadeau and Ms. Pirjo Jantunen, the first World Energy Council (WEC) Chairwoman and FEL-100 Chairwomen, respectively, gaining insights on the importance of gender diversity in the energy sector.

## HUMAN CAPITAL ISSUES MONITOR: KEY FINDINGS

To collect the views of the FEL-100 community on Human Capital issues, the taskforce has developed the HC Issues Monitor by implementing the methodology used by the WEC to develop its annual World Energy Issues Monitor. The survey used to create it was comprised of 36 issues across the taskforce's four categories of study mentioned above.

### Key findings

1. **General interest of the FEL-100 Community on human capital issues and a call for reaction.** Of the 36 issues surveyed, 35 were ranked with mid- to high-impact, and only one issue was ranked with low impact. Also, all issues were ranked with a high urgency level, which means that the FEL-100 community believes that the energy sector should react to these issues in the short- to medium- term.
2. The top four of eight **critical uncertainties** on the HC Issues Monitor (shown in dark orange in figure below) include Innovation, Entrepreneurship, Glass Ceiling and

Digitalisation. The bottom four (shown in light orange in figure below) include Business Acumen, Corporate Reputation, Female Executive Leadership and Women in Science, Technology, Engineering and Mathematics (STEM) roles.

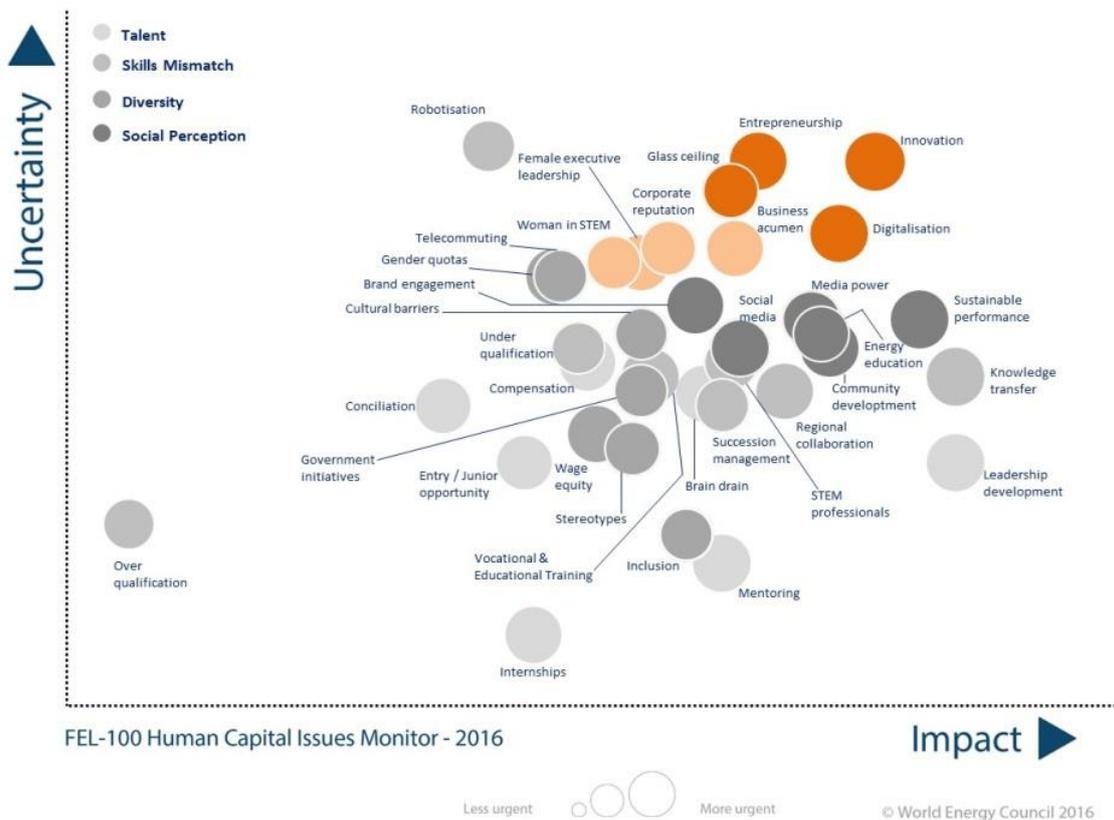
- a. **“Digitalisation”** (Skills Mismatch category) is defined as the competing effect on employment dynamics caused by the generation of new business models, products and associated technical jobs but also the cutback of medium skilled jobs on the other. It relates to the replacement of how work is done today with more efficient and effective means in the future<sup>1</sup>. Although the FEL-100 community feels this can bring advantages to the world’s energy sector and have a high impact, there is uncertainty as to the specifics of this including the impact on workplaces, careers and lives. It can be seen as a warning sign that changing dynamics can increase uncertainty, maybe even provoke fear around job security.
  
- b. The dimensions of **“Innovation”** and **“Entrepreneurship”** (Talent category) relate to the capacity and willingness of individuals and businesses to develop and introduce new approaches and strategies to tackle challenges in the energy sector, while ensuring competitiveness and economic growth. Current challenges include the new climate framework drawn by the Paris agreement ([COP21](#)) and the volatility of commodity prices. The significance of having the right talent to tackle such challenges is recognized by the FEL-100 community by the high impact rating of this issue, but current availability and perceived associated risk results in equally high uncertainty rating.
  
- c. **Gender diversity issues** (Diversity category), such as **“Female Executive Leadership”**, **“Women in STEM roles”**, and **“Glass Ceiling”** have high uncertainty with a mid- to high-impact for the FEL-100 community. This indicates that the FEL-100 community understands the significance of these issues but is uncertain as to the full impact. The research by the taskforce, as outlined in the Context Analysis section of this report, indicates that there is a positive correlation between women participating in decision-making positions and financial performance of companies<sup>2</sup>. It is therefore important energy leaders recognize that this dimension includes social and economic benefits – there is opportunity for the energy sector as a whole to have increased awareness of the benefits. FELs are also concerned on the progress of concrete actions, new ideas, policies, better communication

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<sup>1</sup> International Labour Organization (2014), “Skills Mismatch in Europe”, [Link](#)

<sup>2</sup> International Labour organization (2015), “Women on boards. Building the female talent pipeline”. [Link](#)

or marketing plans which enable and encourage a higher participation of women in STEM positions.



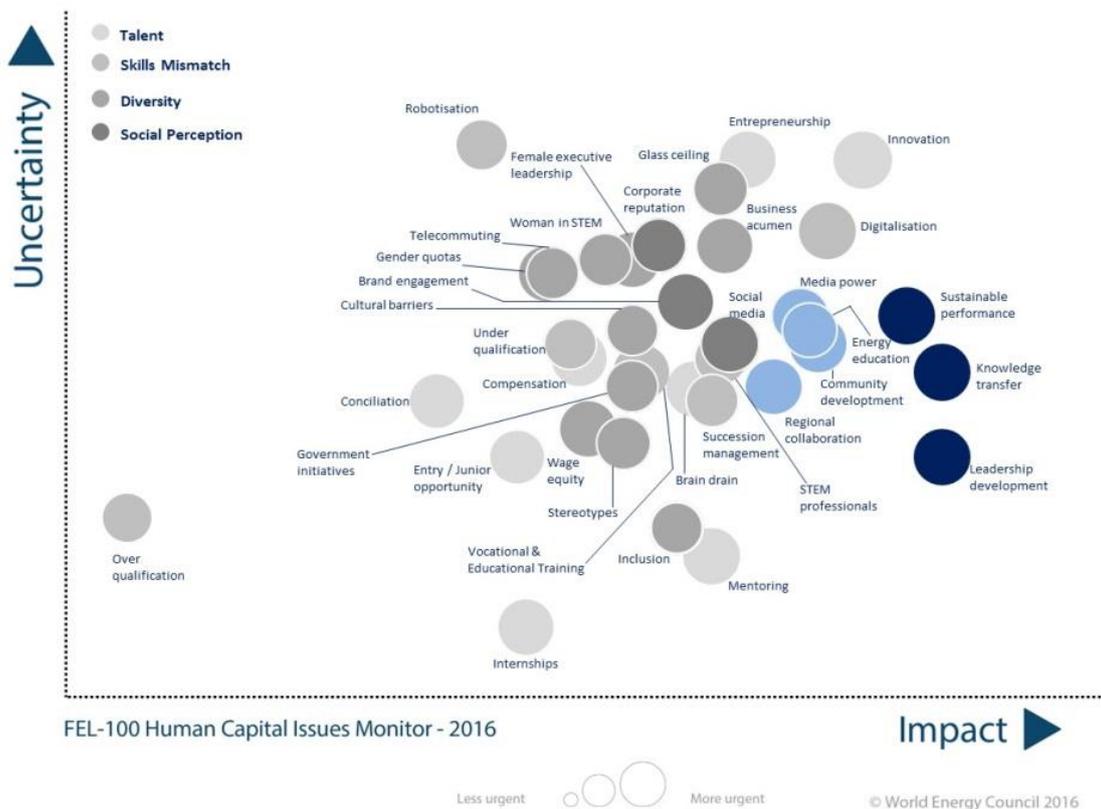
**Critical uncertainties:** what keeps future energy leaders awake at night?

3. The top three of seven **action priorities** on the HC Issues Monitor (shown in dark blue in figure below) are Sustainable Performance, Knowledge Transfer and Leadership Development. The bottom four (shown in light blue in figure below) include Media Power, Energy Education, Community Development and Regional Collaboration.

- a. **“Leadership Development”** (Talent category), is a powerful means by which organizations can attract and retain talent – this is reflected in the placement of this dimension as the highest impact of the HC Issues Monitor. Being involved in decision making, mentoring programs and having progressive work opportunities are highly appreciated features for young, talented employees. Programs or career plans to promote leadership skills are essential to enable future energy leaders to tackle the current and upcoming world energy challenges.

- b. The dimension of “**Knowledge Transfer**” (Skills Mismatch category) relates to the transfer of knowledge and skills from senior employees to young professionals, to minimize the impact of loss as senior employees leave the workforce. It is clear for FELs that age diversity is a critical tool to protect the industry from skills mismatch risks: bridging the generation gap, finding ways to motivate both senior and junior staff, developing systems to enable knowledge transfer and enhancing idea generation by complementing industry experience with fresh perspectives. These are all elements that global energy companies should be dealing with in order to support talent development in the workforce.
- c. The position of “**Sustainable Performance**” (Social Perception category), indicates that energy industry action on social and environmental issues has a big impact on stakeholder perceptions. The FEL-100 community high impact view of this issue is not surprising given acceptance of climate change and the recent global agreements that resulted from COP21, undoubtedly bringing more attention to sustainable performance. Given the direct impact the energy industry has on the environment, there is clearly a place for the industry to be proactively and aggressively focusing on sustainable performance.
- d. “**Inclusion**” and “**Mentoring**” are the issues with the lowest uncertainty and a medium/high impact, consequently they must be also considered as high priority actions on the energy leader’s current agenda. An **inclusive professional environment** where all individuals are treated fairly and respectfully is a must for FELs. Every company and organization need to make sure their best and brightest people are contributing to the organization’s long-term growth and success, no matter their gender, age, ethnicity, religion, nationality, sexual orientation or culture. The FEL-100 community reinforces the idea that ‘business as usual’ must evolve and the contribution that a diverse mix of employees with the same opportunities can make the difference to addressing the future challenges of the sector in a more innovative way.

- e. **Mentoring programs** are an opportunity to address that existent talent scarcity in our sector and the knowledge gap apparent because of the aging workforce. Implementing such programs and enabling partnerships between senior and junior employees to share expertise will catalyze the learning process of the less experienced with a great positive impact for the business.



**Action priorities:** what keeps energy leaders busy at work?

## FINAL RECOMMENDATIONS

The final recommendations for senior energy leaders within the four work streams of the taskforce are:

### **RECOMMENDATION 1: DEVELOP A LONG-TERM STRATEGY FOR TALENT MANAGEMENT IN THE ENERGY SECTOR, WITH A FOCUS ON LEADERSHIP DEVELOPMENT, INNOVATION AND ENTREPRENEURSHIP**

Ref	Action
1.1	Companies should create a strategic workforce planning model to attract and manage talent, identifying the skills needed for their industry in the near- and, mid-term future.
1.2	Governments and companies should collaborate to boost innovation and entrepreneurship in the energy sector.
1.3	Companies should develop and implement mechanisms that ensure the safeguard and transfer of knowledge for the next generation, and implement mechanisms to pass essential knowledge and expertise from third-party contractors to permanent employees.
1.4	Companies should create an employee value proposition to attract and retain talent, and establish programs to promote leadership development.
1.5	Universities should reconsider their traditional way of learning and become business incubators, matching skill development with business or governmental expertise.

### **RECOMMENDATION 2: DEVELOP PROGRAMS TO ENSURE A DIVERSE WORKFORCE IN ENERGY COMPANIES AND INTERNATIONAL ORGANIZATIONS, WITH SPECIAL FOCUS ON GENDER BALANCE**

Ref	Action
2.1	Governments and companies should encourage the advancement and mentorship of women into senior leadership roles.

<b>2.2</b>	Countries must provide support mechanisms to attract and retain female labor in the energy workforce through the development of solid educational programs.
<b>2.3</b>	Governments must establish policies to promote a heterogeneous and balanced workforce, which will contribute to removal of cultural barriers to gender equality.
<b>2.4</b>	Companies must recognize and communicate the benefits of diversity, such as enhanced innovation and competitiveness, and as a smart recruitment practice.

**RECOMMENDATION 3: REMOVE UNCERTAINTIES AROUND THE IMPACT DIGITALISATION IS HAVING ON THE INDIVIDUAL AND REQUIRED SKILLS IN THE FUTURE**

<b>Ref</b>	<b>Action</b>
<b>3.1</b>	Organizations should take proactive steps to reduce uncertainty that digitalisation can have on individuals and their jobs, by identifying required skills.
<b>3.2</b>	In anticipating the required skills in a digitalised future, energy companies should work with academia and vocational education institutions to tailor education to the future needs of businesses.
<b>3.3</b>	Organizations should reduce the knowledge gaps and ensure a smooth transition of knowledge in a fast evolving digitalised world, by encouraging mentoring, job rotations and training programs.

**RECOMMENDATION 4: IMPLEMENT MUTUALLY BENEFICIAL SUSTAINABLE PERFORMANCE INITIATIVES AND ENGAGE STAKEHOLDERS DURING THE JOURNEY**

<b>Ref</b>	<b>Action</b>
<b>4.1</b>	Organizations should take proactive steps to positively impact economic, environmental and social issues.
<b>4.2</b>	Organizations should create programs to educate the public and increase awareness of the energy sector.
<b>4.3</b>	Organization should implement initiatives that create value for the company and the community.
<b>4.4</b>	Organizations should generate engagement initiatives internally and externally with stakeholders to positively impact corporate reputation.

## **2. INTRODUCTION**

## ENERGY OUTLOOK AND THE NEED FOR HUMAN CAPITAL

According to the U.S. Energy Information Administration (EIA) report titled *International Energy Outlook 2016*, world energy consumption will increase from 549 quadrillion British thermal unit (Btu) in 2012 to 629 quadrillion Btu in 2020 and then to 815 quadrillion Btu in 2040; this equates to a 48 percent increase from 2012 to 2040 and a 1.4 percent increase each year<sup>3</sup>. Figure 1 below, taken from the EIA report, illustrates this. Fossil fuels will continue to supply more than three-quarters of world energy use in 2040, with natural gas expected to grow the fastest. Coal use will plateau in the mid-term as China shifts from energy-intensive industries to services, and worldwide policies to limit coal use intensify. By 2030, natural gas is expected to surpass coal as the world’s second largest energy source.

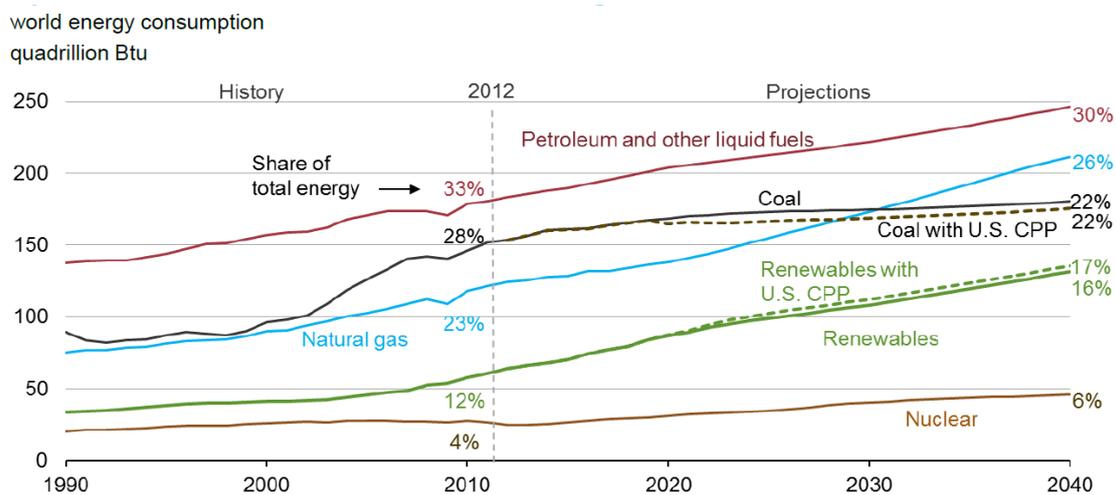


Figure 1: International Energy Outlook 2016

In order for the energy sector to meet these expectations and deliver on future goals, invested capital must be optimally directed and efficiently managed. The energy industry must also attract, develop and retain capable and talented people to take on the duty of delivering energy in a safe, reliable and sustainable manner. Strategic human capital management is crucial to ensure skilled personnel for current and future energy developments.

The term “Human Capital” can be defined as “The skills, knowledge, and experience possessed by an individual or population, viewed in terms of their value or cost to an organization or country”<sup>4</sup>. This concept has evolved to include attracting, developing and retaining the right people to solve today’s complex problems. Although there is

<sup>3</sup> EIA (May 2016), “International Energy Outlook 2016”. [Link](#)

<sup>4</sup> *OxfordDictionaries.com*, Oxford Dictionaries (2013), "Human Capital"

evidence of progress in the energy sector regarding human capital management, development and motivation, the FEL Human Capital Taskforce (FEL HC taskforce or taskforce) believes that gaps remain which could have a global impact.

## OBJECTIVE OF THE TASKFORCE

The Future Energy Leaders Program (FEL-100 or FEL community) of the World Energy Council (WEC) introduced a new taskforce in 2016 titled *Human Capital: equity and skilled personnel for current and future energy developments*. The objectives of this taskforce are to understand the critical issues impacting the attraction, development and retention of talent in the energy sector, and try to develop a strategic approach to ensure that a sufficiently capable workforce is available to tackle the existing and emerging challenges in the energy sector. The work of the taskforce might also serve as a valuable input for the WEC's future work programs.

The taskforce has focused its work on four key categories of Human Capital issues which are critical to facing current and future challenges in the energy sector. These categories, deemed the four work streams of the taskforce, and areas of focus within each are as follows:

1. **Talent** - To map the critical talent necessary to deliver projects across the value chain of the energy sector, and compile best practices across regions to attract, develop and retain talent.
2. **Diversity** - To address the benefits of providing a diverse workforce, with a focus on gender diversity, and identify solutions to encourage more females to work and develop a successful professional career in the energy sector.
3. **Skill Mismatch** – To detect mismatches between workers seeking jobs and the skills employers actually want in the short and long term to avoid an energy workforce crisis, warning about a breakdown between the energy sector and the education required to staff it.
4. **Social Perception** - To understand the perspectives and opinions of industry professionals on the energy sector outlook and its direct relation with the sector's ability to attract, develop and retain talent.

## METHODOLOGY OF THE TASKFORCE

In 2016, to meet the taskforce's objective and gather a wide array of contributions and views, the following activities have been done:

1. Analysis and evaluation of current reports, articles and papers to extract valuable information regarding the taskforce's four work streams.

2. Development of a Human Capital Issues Monitor (HC Issues Monitor) with the aim of detecting what issues are on the top of the FEL’s agenda regarding human capital matters and analyzing their degree of impact, uncertainty and urgency.
3. Interviews with Ms. Marie-José Nadeau and Ms. Pirjo Jantunen, the first WEC Chairwoman and FEL Chairwoman respectively, to gain insights on the importance of gender diversity in the energy sector.

Based on the outputs of the above activities, the taskforce has developed a set of recommendations for senior energy leaders on critical priorities and actions to be taken within the four work streams. The results have also been delivered to the FEL community during the World Energy Congress in Istanbul in October 2016.

### **MEMBERS OF THE TASKFORCE**

The members of the 2016 FEL HC taskforce are as follows:

<b>MEMBER</b>	<b>COUNTRY</b>
<b>Javier Jiménez (Leader)</b>	Spain
<b>Padma Tata (Co-Leader)</b>	Canada
<b>Tina Frew</b>	New Zealand
<b>Ana Hernández</b>	Uruguay
<b>Noura Y. Mansouri</b>	Saudi Arabia
<b>Florian Thaler</b>	Austria
<b>Wan Ching Low</b>	Malaysia
<b>Mauricio Utreras</b>	Chile
<b>Anna Illarionova (Mentor)</b>	Russia

# **3. CONTEXT ANALYSIS**

## 3.1. TALENT

In today's increasingly complex environment, talent management, which may be defined as "...an organization-wide, holistic strategy for hiring, training, and retaining top performing employees"<sup>5</sup>, is a challenge in all industries, and the energy sector is no exception. The talent shortage that has challenged the energy industry for over two decades still persists<sup>6</sup>, requiring a crucial change in approach. Energy industries are now awakening to the understanding that talent management must be a top priority for the success of their businesses.

Nearly 50 percent of the workforce in the energy sector plan to retire within the next 10 years<sup>7</sup>; this will result in a large gap of required experience and knowledge, especially due to a lack of skilled workers able to replace those who retire. Complex technical skills are necessary to be competitive in the Fourth Industrial Revolution<sup>8</sup>, and although graduates in Science, Technology, Engineering and Mathematics (STEM) may be on the rise, this training on its own is not sufficient.

As we enter the Fourth Industrial Revolution (which is "characterized by a range of new technologies that are fusing the physical, digital and biological worlds, impacting all disciplines, economies and industries, and even challenging ideas about what it means to be human"<sup>9</sup>), there are challenges ahead for the sustainability of the whole labor market. The FEL HC taskforce considers that some of the specific talent management issues that the energy sector faces include: skills mismatch, a significant gender gap, an aging workforce (aggravated by inconsistent succession management), a limited number of young people entering the sector, and volatile global energy markets which contributes to peaks and troughs for supply and demand on the energy sector workforce. These issues should be taken into account when addressing the energy industry deficit of talent and implementing talent management strategies.

Traditionally, the energy industry has adopted an ad hoc approach to talent issues rather than long-term strategic planning. Strategic action could have mitigated the current crisis where we see significant shortages, inflated salaries, the overuse of third party contractors and widespread poaching.

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<sup>5</sup> Medved, JP. Blog Capterra (2016), "What is talent management and how is it different from HR?". [Link](#)

<sup>6</sup> KPMG (2015), "When one crisis meets another: Focusing on talent for the long term". [Link](#)

<sup>7</sup> Arthur J. Gallagher & Co. (2014), "Recruiting & Retention Opportunities for the Energy Industry in a Changing Environment". [Link](#)

<sup>8</sup> World Economic Forum (2016), "The Future of Jobs. Employment, skills and workforce strategy for the Fourth Industrial Revolution". [Link](#)

<sup>9</sup> World Economic Forum (2016), "The Fourth Industrial Revolution, by Klaus Schwab." [Link](#)

The challenge of fluctuating oil prices, for instance, has led the energy sector to deal with talent management using short term strategies. As an example, the cycle of high and low oil prices has forced the industry to attract talent and hire during peak oil prices when there are more projects and investments, and then lay off workers during low prices when business is slower and projects are slashed or pending. This short-term reactionary measure taken by companies is certainly not sustainable from a workforce perspective. Therefore, talent management must be based on long-term solutions, including both global and specific measures for the necessities of each particular industry and company. According to an extensive study conducted by KPMG on the talent crisis in the energy sector, there are some key talent tools that companies should focus on when defining their long-term talent strategy<sup>4</sup>:

1. Strategic workforce planning model: Being able to anticipate and manage change is a requirement for the survival of a company. Knowing this, identifying the key skills required by a company is the first step to avoid skill mismatch and talent shortages. Moreover, this would provide the company with the information needed to design a model that actively engages and develops talent by providing training, mentoring and skills development for future needs.
2. Analytics: Companies using well designed analytics to measure the value of existing talent management initiatives will benefit from efficacy when developing their talent strategy. These tools are highly useful in assisting decision-makers by providing information for identifying gaps in skills, planning succession and improving the overall performance of the company.
3. Third-parties: Rethinking approaches to manage third party vendors more actively would allow companies to benefit from flexibility but also maximize investment. For instance, employing proactive measures to ensure key knowledge disseminated to suppliers is retained by transferring from contractors to permanent employees.
4. Knowledge: Safeguarding knowledge to ensure that the next generation is able to utilize the experience of more senior workers is essential for companies to manage talent. Knowledge management implies capturing knowledge of the business and organizing it for the future use. In this sense, technology appears as the pivotal instrument for this process. Mentoring and peer-to-peer programs are some examples of how this could be done.
5. Employee value proposition: Every company should aspire to attract and retain the best employees. Nevertheless, the current competitive environment poses

major challenges for the energy sector, thus being crucial to rethinking the employee value proposition. Initiatives, such as defining an objective that connects with the generation's value system, provide non-monetary incentives which are of enormous importance for millennials.

As it has been said, a long-term talent strategy is required to address the talent crisis in the energy industry. A strategic workforce planning model for the energy sector must comprise some basic areas, accompanied by the measures needed to achieve its goals. This would enable energy industries to successfully address the talent gap through a long-term, coherent and complete strategy. Pivotal areas that should be included in strategic workforce planning to address the talent gap are discussed below.

### *Dealing with Skills Mismatch*

As it will be analyzed in a subsequent section, skills mismatch creates not only talent gaps and shortages but also overqualified workers which have economic and social costs. The problem of skills mismatch highlights how important it is for energy companies to define their strategic workforce planning model, including identifying the required skills and talents that their potential workers should achieve.

To successfully prevent talent scarcity, public-private partnerships are a beneficial model. A continuous collaboration between energy industries and public institutions is the first step to define a map of required skills. This would then complement the training programs that each particular company might implement to ensure knowledge sharing and knowledge transfer.

### *Recruitment and Talent Attraction*

Today, workers in energy industries have moved from more traditional, singular career paths to more diversified career paths<sup>10</sup>. This means that the energy industry faces a major challenge: attracting graduates with talents not only in STEM but with other backgrounds and profiles.

It is argued that there are competitive career options that attract potential talent in the energy sector, such as IT companies and the computer science industry. To become competitive in talent attraction, energy companies should promote initiatives that make the sector attractive for young students and that combat widespread prejudices and clichés. Initiatives could include: (i) sponsoring scholarships, prizes, and afterschool programs that enhance education; (ii) sponsoring business-school conferences and job fairs; (iii) developing relationships with universities and training

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<sup>10</sup> Universum (2015), "Talent Attraction in the Energy Industry". [Link](#)

institutes; and (iv) sponsoring programs to promote interest in the energy industry in high schools. What is more, these initiatives would facilitate the recruitment process as they are focused on attracting students before getting into college.

When designing a strategy for attracting ideal employees it is important to keep in mind that, at present, the traditional benefit offerings (health insurance, life insurance, disability insurance and a retirement program) are not enough, especially for the millennial generation. In the study conducted on talent attraction<sup>10</sup>, engineering students looking to enter the energy industry (specifically oil and gas, renewables and nuclear energy) ranked their career goals as follows: (1) work-life balance, (2) job security and stability, (3) creativity and innovation, and (4) competitiveness and intellectual challenge. Figure 2 below illustrates these results.

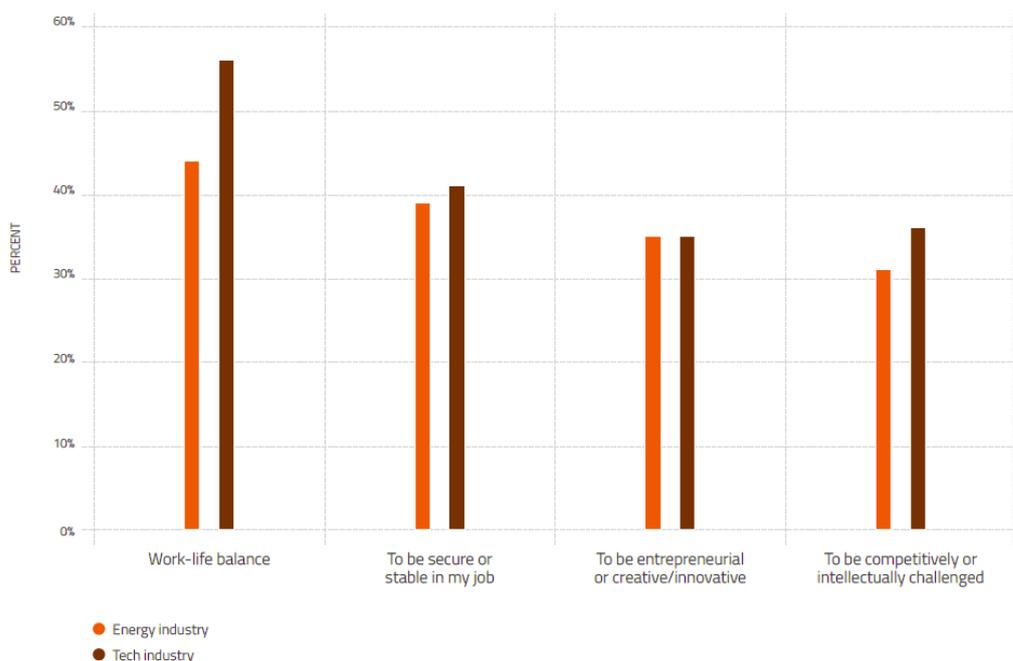


Figure 2: Engineering student talent attraction survey, career goals

According to this study, in the majority of countries surveyed, work-life balance is the top priority. In defining work-life balance, graduates were looking more for how work and personal life can blend seamlessly and less on flexible hours and telecommuting. Figure 3 below shows which are the most important career goals for engineering students seeking to start a career in the energy industry.

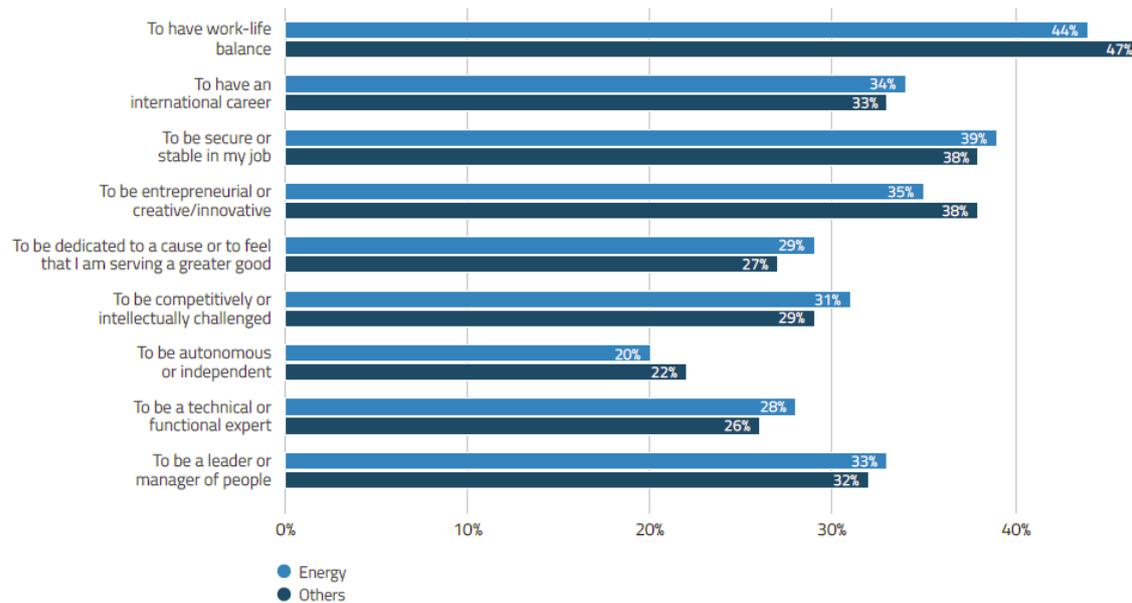


Figure 3: Engineering student survey, career goals entering the energy industry

It is still important to acknowledge that each worker will have their own goals and career aspirations. For that reason, to attract a diverse workforce to the industry, companies must define different career growth plans which are flexible enough to fulfill workers’ needs, boost their particular talents, and foster more rapid growth for those employees who are willing to do so.

### *Talent Retention and Knowledge Transfer*

Retaining talent is critical for energy companies and is one of the greatest challenges for this sector given the current talent shortage. Furthermore, in order for the companies to gain the greatest benefits from investing in training programs for their employees, the commitment of these ones to the enterprise in the long-term is a major issue. Some strategies that could help retain talent in energy companies are:

1. Long-term incentives and increased training and development to ensure knowledge transfer between older and younger generations.
2. Enhanced work-life balance such as flexibility in schedules, casual dress, paid time off, sabbatical leave, child care, employee assistance programs, concierge services and vacation bank. Modern technology also helps in facilitating such initiatives.

3. Total reward statements to stay competitive and ensure employee retention such as rewards package, attractive compensation and benefits bundles, insurance programs, and retirement savings.

Ultimately, energy companies must proactively develop innovative and appealing incentives because in the current competitive environment, retaining talent while ensuring the safeguard and transfer of knowledge is a crucial matter for a consistent business growth strategy.

### *Developing and Managing Employees*

Life is a continuous learning process and this applies to a professional career also. Companies that develop and strengthen employees' talents would stimulate, challenge and make employees go the extra mile boosting the company as a whole. And at the beginning of a Fourth Industrial Revolution, energy companies must anticipate talent needs and provide specific training programs for maximizing the technological revolution, creating a pool of skilled workers in the new technologies.

Assessing the workforce periodically is a key action to be conducted by a company. Providing meaningful feedback in a constructive manner promotes worker competitiveness and brings to light new ideas. It will also serve as a guide for workers to focus on and improve their performance, while ameliorating work environment and boosting communication as well.

Designing and implementing proper management practices is vital to improve employee productivity. Managing teams implies not only resolving day-to-day challenges but also making the most out of the different department's synergies, and coordinating and being efficient with the resources available. For this purpose, leadership and strong communication skills are the must-have qualities of excellent managers.

Ultimately, building a strong corporate culture is important and if done well, employees can be the greatest ambassadors of the company brand. In this regard, while there is a recruitment focus on the "technical task", the development, evaluation and management of employees should be broad and integrated in the whole structure of the company. This would allow, for instance, detection of overlapping roles and valueless activities, boosting the productivity and efficiency of the workers and saving costs.

## 3.2. DIVERSITY

The FEL HC taskforce believes that to be competitive and succeed in the marketplace, companies have to attract and retain the best talent, since it is a core driver of sustainable and long-term economic growth. In this regard, the workers’ gender, race or religion, are not indicators of either their talent or competence. Bringing together the a diverse group of people, with different backgrounds, thinking styles, sexual orientations, abilities, cultures and ethnicities, and ensuring their ‘seat at the table’ will undoubtedly lead to a more innovative environment.

In the energy sector, “business as usual” is not an option anymore and innovation requires businesses to re-examine the way they operate. Part of this change is valuing the contributions that a diverse mix of employees can make, helping the company to minimize the risks associated to a more singular way of facing challenges. In this regard, some companies are applying the Equity, Diversity, Inclusion (EDI) principle<sup>11</sup> (figure 4) so they can benefit from increased productivity. By applying the EDI principle the organizations recognize the value of a diverse workforce.



Figure 4: The EDI proposition

A major aspect of diversity in the workplace is gender balance. The McKinsey Global Institute conducted a study where it considered a “full-potential” scenario in which women would participate in the economy identically to men. The study found that it would add up to \$28 trillion<sup>12</sup>, or 26 percent, to annual global GDP in 2025 compared

<sup>11</sup> Courtesy of OUT-Standing. [Link](#)

<sup>12</sup> McKinsey Global Institute (2015), “The power of parity: how advancing women’s equality can add \$12 trillion to global growth”. [Link](#)

with a “business as usual” scenario. This impact is roughly equivalent to the size of the combined US and China economies today. The Institute’s research links gender equality in society with gender equality in work, since the latter is not possible without the former. The three key drivers that cause the potential GDP boost are:

1. Women do not participate in the labor force in the same numbers as men; increasing the labor-force participation of women would account for 54 percent of potential incremental GDP.
2. Women work fewer hours than men (in the labor force) because many are in part-time jobs; this could be driven partly by choice and partly by their inability to do fulltime work given family and home-based responsibilities. Closing this gap would generate 23 percent of the GDP opportunity.
3. Women are disproportionately represented in lower productivity sectors such as agriculture and insufficiently represented in higher productivity sectors such as business services. Shifting women into work in higher productivity sectors on par with the employment pattern of men would contribute to another 23 percent of the total GDP opportunity.

There is also evidence of a positive correlation between women’s participation in decision making positions and financial performance of companies. The International Labour Organization (ILO) provides data which show that Fortune 500 companies with representation of three or more women on their boards significantly outperformed those with low representation by 84 percent on return on sales, by 60 percent on return on invested capital, and by 46 percent on return on equity<sup>13</sup>. Inclusive and gender balanced boards are able to bring diverse perspectives to the table, understand customer preferences better, ensure greater due diligence, and as a result make better decisions. The presence of women on boards reinforces a company’s culture and public image of diversity and inclusion, allowing companies to retain and cultivate their best talent at all levels. Despite this evidence, women continue to be underrepresented on boards worldwide- only 19 percent of board seats globally are occupied by women and less than 5 percent of the CEOs of the world’s largest corporations are women<sup>14</sup>.

The positive association between gender equality in senior positions and firm performance is significantly stronger in sectors that employ more women in the labor force. Specifically, for a firm in an industry in the top quartile in terms of female

<sup>13</sup> International Labour organization (2015), “Women on boards. Building the female talent pipeline”. [Link](#)

<sup>14</sup> International Labour organization (2015), “Women in Business and Management: Gaining Momentum Global”. [Link](#)

intensity, having one more woman on the board or in senior management, while keeping the size of the board unchanged, is associated with about 20 basis points higher Return On Assets (ROAs)<sup>15</sup>.

Pay equity is also an important tool for companies to advance women into leadership positions. An equitable pay system allows companies to retain the best talent, boost participation of women in the workforce, and build a positive company image. But regarding this matter, there is still a long way to go: globally, the gender pay gap is estimated to be at 22.9 percent and at the current rate and it would take over 70 years to bridge it<sup>16</sup>.

Energy companies have generally not been very successful in increasing the female portion of their workforce, with the current share of women estimated around 15 percent. In addition, the gender wage gap (average difference between men and women’s aggregate hourly earnings) stands at 31 percent. The energy industry also reports a more dramatic decline of female employees at senior level positions at around 11 percent<sup>17</sup>. At the CEO level, women still remain profoundly underrepresented. In the *Industry Gender Gap Report* published by the World Economic Forum (WEF) in January 2016, which comprises 1.5 million employees represented by energy companies surveyed, there were no female CEOs. The percentage of women in the energy workforce in 2020 is expected to rise slightly, but far away from a true gender balance<sup>18</sup> (refer figure 5).

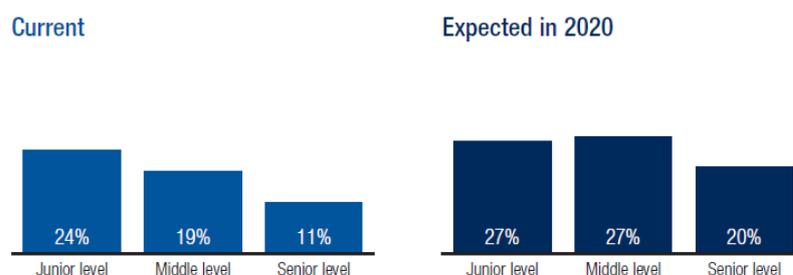


Figure 5: Women in the energy industry

Focusing on certain energy sources, the importance of addressing the oil and gas industry gender gap, for example, cannot be underestimated when females currently make up less than 10 percent of the industry’s workforce. The sector is caught in a personnel conundrum that is not going to get better any time soon unless drastic

<sup>15</sup> International Monetary Fund Working Paper (2016), “Gender Diversity in Senior Positions and Firm Performance: Evidence from Europe”. [Link](#)

<sup>16</sup> International Labour Organization (2015), “Pay Equity”. [Link](#)

<sup>17</sup> World Economic Forum (2016), “The Industry Gender Gap”. [Link](#)

<sup>18</sup> World Economic Forum (2016), “The Future of Jobs”. [Link](#)

changes are implemented to correct this imbalance. The industry has traditionally been male dominated and has attracted limited numbers of females into its fold – although it has slowly opened up to greater female participation since the 1970s. According to the *Hays Oil and Gas Global Salary Guide*, in 2012 only 7.8 percent of the global oil and gas workforce was female, a slight increase on the 7.1 percent figure a year earlier, but still a dismal performance<sup>19</sup>. The same reality is true for board-level positions. A study conducted in November 2013 by Price Waterhouse Cooper (PWC) found that women occupy only 11 percent of seats on the board of directors of the world’s 100 largest listed oil & gas companies. The only sector with a poorer record by that time was the mining industry.

The Power and Utilities (P&U) sector is also in the midst of a massive transformation, and needs new ideas and innovative approaches in order to progress on gender parity. In 2015 there were 300 women serving on the boards of the top 200 global utilities, representing only 14 percent of total board members. Twenty-four of these women were board executives, representing just 5 percent of total board executives<sup>20</sup>.

Gender diversification isn’t just important from an equal opportunity perspective. Energy industries are already confronted with a major talent shortage—especially in science and engineering related fields—that will only worsen as baby boomers, who make up a large share of the existing workforce, retire over the next 10 years. This is why the industry needs to create a truly level playing field.

Nevertheless, there are numerous examples of success in promoting women in the energy industry which state that women’s competencies must be recognized and developed in order to enhance their presence in positions with higher-paying opportunities and for upper echelons of the organizations in which they work.

The FEL HC taskforce fully supports those international forums where companies may share best practices to ensure that women are welcomed in the workforce, and where they can jointly analyze the specific gender barriers within the company in order to remove them through targeted action. These initiatives include education, positive hiring practices, and ensuring that women have the fair opportunities to develop their careers through tailored trainings, mentoring and networking. Options as flexible work schedule, parental leave, telecommuting or services in the work place that parents can better balance their careers and family responsibilities, are initiatives which are already being promoted in many organizations worldwide.

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<sup>19</sup> Gulf Intelligence (2015) “How to Advance Women in the Global Oil & Gas Industry?”. [Link](#)

<sup>20</sup> EY (2015), “Women in Power and Utilities Index 2015”. [Link](#)

General and/or boardroom quotas for women have been also widely debated in recent years. Supporters of quotas argue that legislated quotas are essential to gain sufficient momentum to increase diversity. The quotas are expected to be helpful in achieving long term positive effects by slowly changing perceptions and providing mentors and role models to potential women leaders. On the contrary, quota critics also note that legislated quotas may inadvertently stigmatize women as their board appointments may be perceived as “tokenistic”<sup>21</sup>.

It is also essential that energy companies improve their effectiveness in communicating externally about the various career prospects for women. To raise awareness of professional opportunities there must be a clear focus on boosting education and outreach campaigns that introduce the energy industry to all ages, from primary and secondary school level through to undergraduate and graduate level.

Companies may also benefit from mentoring programs that promote guidelines on the value of diversity as an underlying culture of the organization, and impart knowledge on how to manage a more diverse workforce and how to attract, retain and promote female talent. These mentoring programs, for both men and women, can be relevant for shaping an environment within the broader employee base for women to successfully lead.

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<sup>21</sup> The New York Times (2014), “Boardroom Quotas Won’t Help Women”. [Link](#)

### 3.3. SKILLS MISMATCH

Skills mismatch is a key challenge across the entire labor market and hence also in the energy sector. Skills mismatch is a complex phenomenon affecting a broad audience ranging from individuals, companies, and entire economies and societies. It refers not only to skill gaps and shortages, but also to skills exceeding job requirements<sup>22</sup>. Empirical evidence suggests<sup>23</sup> that in far too many cases, workers' skills are not well matched with their current jobs resulting in substantial economic and social costs.

Skills mismatch is an all-encompassing term that relates to various types of imbalances between skills offered and skills needed in the world of work<sup>24</sup>. Figure 6 illustrates graphically how contextual factors like demographics, technology and work organization are defining skill acquisition versus skill requirement. The matching of those two dimensions can be imperfect, or in other words a mismatch, and this has a knock on effect to growth and productivity.

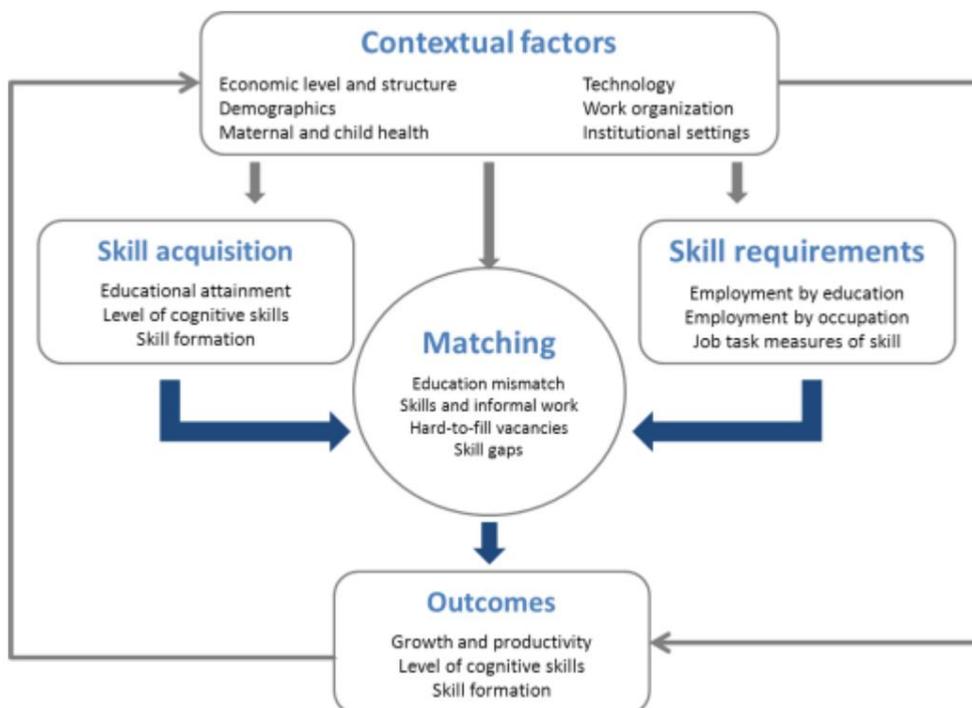


Figure 6: Economic context and Skill Mismatch<sup>25</sup>

<sup>22</sup> European Centre for the Development of Vocational Training (2010), "The skill matching challenge". [Link](#)

<sup>23</sup> OECD. [Link](#)

<sup>24</sup> International Labour Organization Statistics Brief (2014), "Skills mismatch in Europe". [Link](#)

<sup>25</sup> Presentation to the G20 Working Group on Human Resource Development by the ILO, OECD, UNESCO and World Bank (2013). [Link](#)

Changing dynamics like globalization, demographic change, digitalization and automation make the need for adequate skills matching an even harder endeavor; skill profiles are in permanent flux and need to adapt and adjust permanently. This poses a special risk to youth as the transition from education and employment becomes more difficult if the right policies are not in place<sup>26</sup>.

Skills gaps and mismatches have increased in many sectors and regions and are a serious concern. This acts as a drag on employability, growth, competitiveness and individual wellbeing. As an example, nearly 40 percent of companies in Europe report difficulty in finding staff with the right skills including digital skills<sup>27</sup>. These difficulties may be the result of years of economic crisis, but probably also because of the rapidly evolving work patterns in the digital economy<sup>28</sup>.

As a result, anticipating skill trends to support evidence based decision- and policy-making can provide tremendous added value in reducing the skill mismatch and hence the economic and social costs that come with it. Most of the academic and policy analyses on mismatch so far have largely focused on qualification rather than skills because of data availability and ease of measuring<sup>29</sup>. The concept of ‘skill’ though is larger than the pure academic or vocational qualification.

Skill mismatch has been linked to partial and asymmetric information, transaction costs and unresponsive education and training systems<sup>30</sup>. Efficient job placement services and further training opportunities (beyond initial schooling) should therefore be priorities for policymakers, and more so if job availability is scarce. The same is true for social dialogue to strengthen linkages between education and training systems and the labour market.

Collecting information and evaluating the burning issues surrounding skills mismatch via the HC Issues Monitor will help to focus the attention to the right areas and help policy and decision makers to derive the right measures to tackle and reduce this problem.

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<sup>26</sup> Infosys (2016), “Amplifying Human Potential - Education and Skills for the Fourth Industrial Revolution”. [Link](#)

<sup>27</sup> European Commission (July 2014), “EU skills panorama 2014”. [Link](#)

<sup>28</sup> Council of the European Union (2016), “Note: Connecting education, the labour market and society”.

<sup>29</sup> OECD. [Link](#)

<sup>30</sup> International Labour Organization Statistics Brief (2014), “Skills mismatch in Europe”. [Link](#)

It is unrealistic to assume that labor markets can work without any temporary skills imbalances but skill mismatch that is difficult to resolve or is even structural leads to real economic and social losses<sup>31</sup>.

Skill mismatch also happens when workers are over-skilled for their current jobs, in other words they are capable of handling more complex tasks and their skills hence are underused or - under - skilled for their current jobs, i.e., they lack the skills generally needed to do the job<sup>32</sup>.

Over-skilling can be problematic as it may lead to skills loss and a waste of the resources that were used to acquire these skills in the first place. In addition, over-skilled workers tend to earn less than workers who are well-matched to their jobs and tend to be less satisfied at work. This situation generates more employee turnover, which is likely to affect an organization's productivity. Under-skilling is also likely to affect productivity and slow the rate at which more efficient technologies and approaches to work can be adopted<sup>29</sup>.

Skills mismatch in any job can be only a temporary phenomenon i.e., sometimes the demand for skills takes time to adjust to the fact that there is a larger pool of highly skilled workers accessible. Skill mismatch risk is equally present between age groups, geographies and gender. Timing, education cycles and the anticipation of future needs play a key role in improving the skill mismatch<sup>29</sup>.

Of particular relevance for the energy labor market are the highly specialized skill sets that are getting deployed in many, if not most, areas of energy. In relation to the topic of skill mismatch special attention goes to deploy the right STEM skill set to the place where it is needed the most and at the right time. The earlier mentioned changing dynamics, especially those in the remit of technology like digitalization, automatisisation and robotisation, make the STEM skill matching a moving target. That starts with the anticipation of futures skills to avoid a shortage of STEM professional by providing the right feedback loop and stimulus to academic and vocational training institutions in order to keep the work force supply steady. As a matter of fact, STEM occupations in Europe are expected to grow by 14 percent by 2020, compared with 3 percent for other occupations, yet the supply of workers with education qualifications in STEM subjects is projected to fall<sup>33</sup>.

In many countries the labour market has seen success through Vocational Education and Training (VET). Vocational education prepares professionals for a specific trade in a

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<sup>31</sup> European Centre for the Development of Vocational Training (2010), "The skill matching challenge". [Link](#)

<sup>32</sup> OECD. [Link](#)

<sup>33</sup> European Commission (2015), "Skills Panorama. Analytical highlights".

tailored manner to the needs of the respective business sector. VET courses are typically shorter and more practical than higher education ones and have an industry and trade focus, including in-company training programs. The turnaround of VET courses from a particular need to the ready graduate is relatively fast.

Several other tools, policies and practices can be also deployed to reduce the skill mismatch:

1. Skills policies that support employees in making better use of their skills (by assisting them to understand their own skill profile and contrast and compare that with the skill set required by their role and/or aspired future roles).
2. Mechanisms that help managers to identify effective work and organizational practices (job rotation, mentoring, promoting innovation and adopting technologies and practices that make the best use of the existing skills base).
3. Training and education can also contribute to tackle skills mismatch, especially under-skilling. Numerous studies show that training can be complementary to changing demands for skills<sup>34</sup>.

Having a clear agenda on skills will be essential to keeping the talent/skill pipeline full and, more importantly, to help youth in the transition from education to employment. There is real potential for a growing divide between ‘haves’ and ‘have-nots’ in terms of skills requirements. The Fourth Industrial Revolution already brings severe risk of rising inequality, so efforts should be made to pre-emptively create a more robust transition from education to employment<sup>35</sup>.

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<sup>34</sup> OECD. [Link](#)

<sup>35</sup> Infosys (2016), “Amplifying Human Potential - Education and Skills for the Fourth Industrial Revolution”. [Link](#)

### 3.4. SOCIAL PERCEPTION

The phrase “perception is reality” is based on the concept that what people perceive is usually what they believe. Perception influences the choices people make and their underlying motivations. On the topic of human talent in the energy sector, a deep dive into social perceptions to understand what they are and how to influence them is a worthy endeavor for any energy leader to make.

In the energy sector in particular, trust matters. Energy is something that is vital to our way of life and impacts people all over the world, thus it is in the interests for energy companies to be trustworthy<sup>36</sup>. Research by global communications marketing firm Edelman identified a number of specific attributes which build trust in the energy industry including: stakeholder engagement, corporate responsibility in the form of ethical business practices, reliability, delivering environmental improvements, being a good corporate citizen and cost, all of which are underscored by public opinion and media coverage. It would be fair to say that trust covers a broad range of topics and that energy companies need to look beyond the bottom dollar if they are to remain at the forefront of the industry.

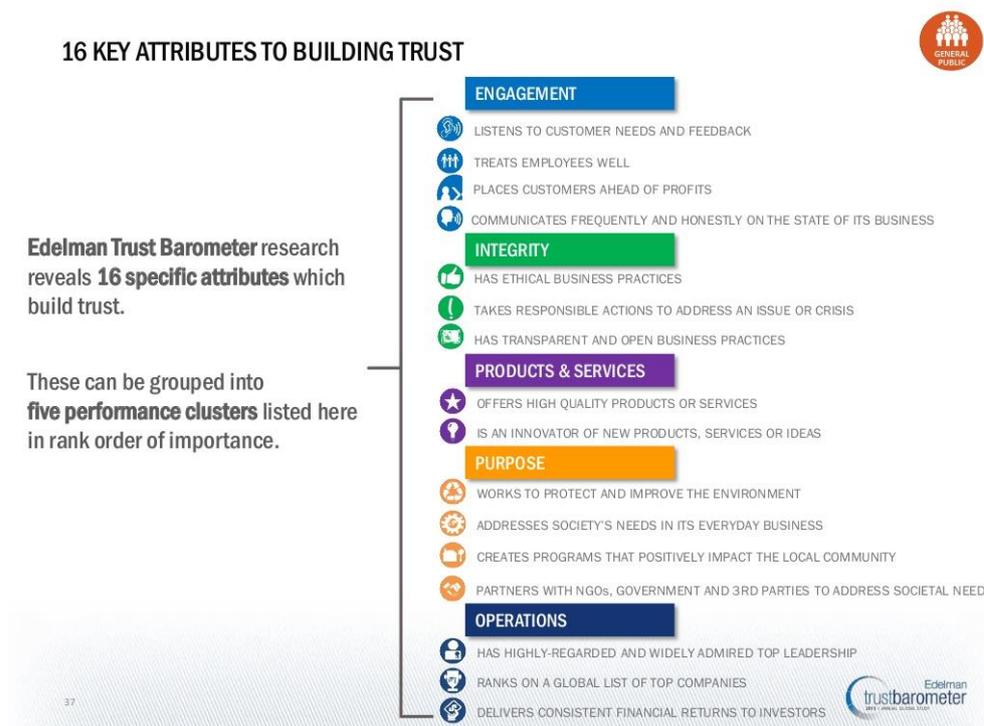


Figure 7: 2014 Edelman Trust Barometer: Global Energy Findings<sup>37</sup>

<sup>36</sup> Edelman (2014), “Trust in Energy”. [Link](#)

<sup>37</sup> Edelman Trust Barometer (2014), “2014 Edelman Trust Barometer Global Energy Industry Results”. [Link](#)

Stakeholder engagement is an interesting topic. Edelman’s findings showed it has a significant impact on trust. The research of global human capital consulting firm Aon Hewitt has consistently found that companies with higher staff engagement levels have better talent, operational, customer and business outcomes, with a 5 percent increase in employee engagement being linked to a 3 percent increase in revenue growth the subsequent year<sup>38</sup>. The concept of talent being linked to growth is further evidenced by the significant positive correlation found between GDP growth and available labor in figure 8. It is clear that the ability to attract, retain and maintain an engaged workforce is a source of competitive advantage. Edelman’s research also found that of the most trusted influencer of brand engagement were employees; over and above company CEOs, activist consumers, academics and media spokespersons<sup>36</sup>. Knowing this, understanding the impact of social perceptions on employee engagement in the energy sector is an important element to focus on.

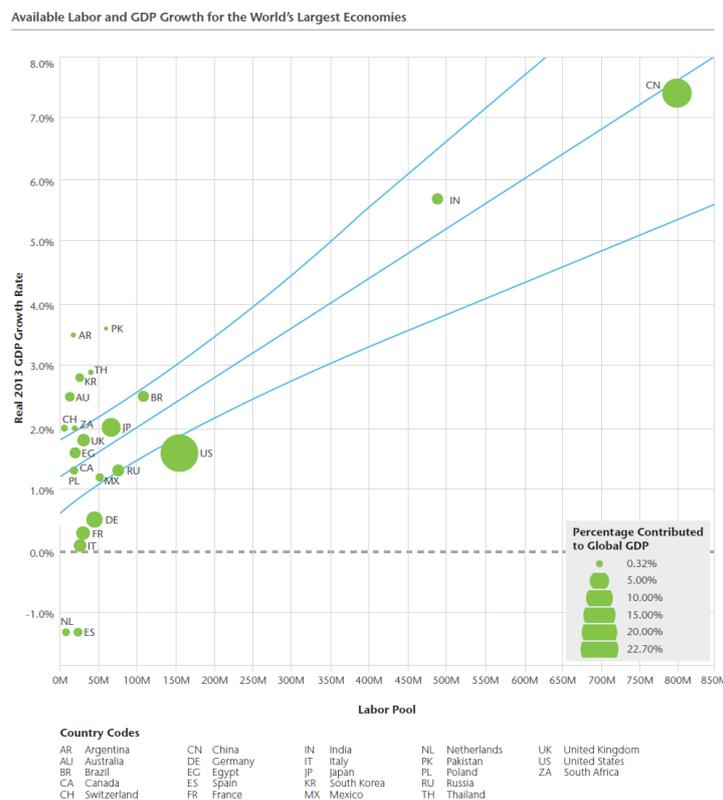


Figure 8: Aon Hewitt: 2013 Available Labor and GDP growth

Despite the significance of employee engagement on business performance and trust, it would be remiss to not consider more closely the role of media in influencing social perceptions of the energy industry. An informed public is found to have substantially higher trust in the energy sector than that of the general public and this perception

<sup>38</sup> Aon Hewitt (2015), “2015 Trends in Global Employee Engagement Report”. [Link](#)

gap creates opportunity for energy leaders to engage in constructive, clear and transparent ways.

We live in a world where there is 24/7 news and ability for numerous stakeholders to make public comments with global reach in a matter of seconds. In order to be well placed, energy leaders should consider the options available to them to engage with the public and enhance trust. The oil & gas industry has responded to increasing global connectivity by increasing communication; polling shows that by sharing information about environmental protection activities and job creation measures, public trust and reputation is improving. Public trust in the oil and natural gas industry has been on the increase and saw improvement from a low of 38.6 percent in 2006 to 48.5 percent in 2012<sup>39</sup>. A specific example of a company using social media to engage with the public is a New Zealand company, Z Energy, who hold regular “Ask Mike” sessions via Facebook and Twitter. During the sessions, members of the public are able to ask CEO, Mike Bennetts, any question they like; this provides opportunity to close the perception gap by informing the public. The use of social media is clearly a growing phenomenon that warrants the attention of energy leaders as a medium to influence and inform social perceptions of the industry.

Corporate reputation goes hand in hand with trust and it is something that stakeholder relationships are built on. Reliability has already been cited as a key enabler of trust in the energy industry and there are numerous examples of where security of supply, or worse, disasters, erode hard earned trust and impact reputation. The 2011 Japan earthquake which triggered the Fukushima incident resulted in a significant reputation hit to the nuclear energy sector due to the release of radioactive material; the 2014 Edelman Trust Barometer showed a significant resulting decrease in trust in the Japan energy sector<sup>36</sup>.

Corporate Social Responsibility (CSR) remains an area of opportunity for the energy industry having received a 2014 Global Industry RepTrak Pulse Ranking of 62.3 (figure 9), placing it 19<sup>th</sup> among 24 global industries<sup>40</sup>. Being a good corporate citizen can show up in lots of ways but a few particularly cited include community and environmental contributions. Edelman survey findings show that renewables are more trusted than the overall energy industry and the oil and mining sectors the least so<sup>36</sup>. Combine feedback such as this with the evident climate change movement underway, and it becomes clear that innovation and the delivery of environmental improvements in the energy sector is essential for the enhancement of trust.

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<sup>39</sup> Society of Petroleum Engineers (2013), “Public Perception of the Oil and Gas Industry. The Way Ahead”. [Link](#)

<sup>40</sup> Reputation Institute (2014), “CSR Guiding Public Perception of the Global Energy Industry. Industry RepTrak Multi-Country Brief: Energy Stakeholders: General Public”.

Making a positive contribution to communities is now almost a mainstream expectation of a company demonstrating good corporate citizenship. Global lighting company Phillips leads by example in this regard with its annual Cape Town to Cairo road show, not only providing energy efficient lighting solutions but being a champion of UN Millennium Development Goals (MDGs) with a focus on reducing child mortality and improving maternal health through the provision of education and facilities<sup>41</sup>. As per the Edelman findings, the creation of programs which positively impacts local communities is an enabler of trust and influencer of social perception.

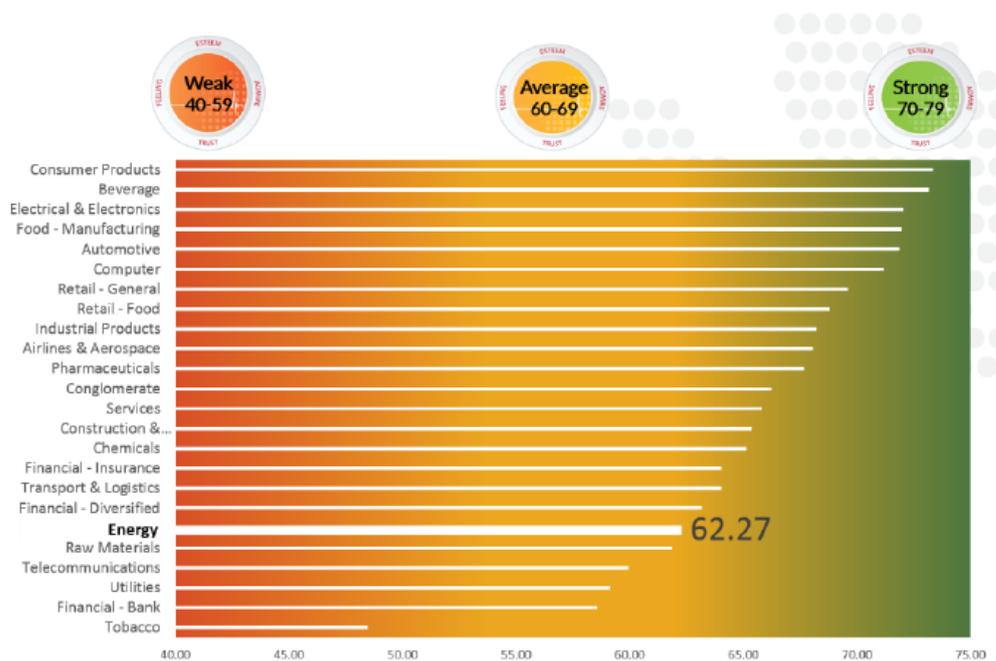


Figure 9: 2014 Energy Industry RepTrak Pulse Ranking

People start to form opinions and preferences from a young age based on their experiences, culture and the information they process. Decisions influencing career choice are inevitably informed by these same earlier experiences, so adolescent education presents an opportunity for the energy industry. The Society of Petroleum Engineers (SPE) recognise and act on this with its Energy4me education program, seeking to engage children and educators in the energy industry through the provision of events, education material and support<sup>42</sup>. The provision of work experience is also a means of raising awareness and influencing career choices such as done in the New Zealand based Primary Industry Training Organization (ITO) with its Trades Academy and Gateway programme, providing high school students with a mix of theory and practical work experience opportunities in the primary sector<sup>43</sup>. Programs such as

<sup>41</sup> Phillips. (2015), "Phillips Cape Town to Cairo Roadshow 2015". [Link](#)

<sup>42</sup> Society of Petroleum Engineers (2016). [Link](#)

<sup>43</sup> Primary ITO (2016). [Link](#)

Energy4me and Gateway provide adolescent education opportunity in a way that enables a more informed career choice; it would certainly seem an area to invest in to maximise talent interest and development.

There are clearly a range of factors which influence trust and social perception, however organizations operate in unique environments and a useful methodology many companies use to understand those social perception issues most crucial to them is a materiality assessment. Materiality is a principle of defining topics that matter most to an organization and their stakeholders<sup>44</sup>. Communications company AT&T conducts a regular materiality assessment, engaging stakeholders to capture views on what is most important for the company; this has enabled them to have real clarity on how to focus resources, reporting and communications<sup>45</sup>. Utilisation of this practice is one framework that could be applied by energy companies to identify and understand the most critical social perception issues to focus on.

It would be fair to conclude that social perception is certainly worth understanding further given its influence on trust, a founding element necessary for sustainable business performance, including the attraction and retention of an engaged talent pool. As was nicely put by Sarah Edman,<sup>46</sup> “We live in an “AND” world: We can improve quality of life by delivering reliable and affordable energy supplies while also protecting the environment AND creating jobs AND improving community life”. Through this HC taskforce, we will seek to quantify the drivers and influencers of social perceptions on human capital in the energy industry and the opportunities that presents.

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<sup>44</sup> KPMG (2014), “Sustainable Insight: The essentials of materiality assessment”. [Link](#)

<sup>45</sup> AT&T Materiality Assessment (2016). [Link](#)

<sup>46</sup> Sarah Edman is the manager of corporate public policy for ConocoPhillips.

# **4. HUMAN CAPITAL ISSUES MONITOR**

## INTRODUCTION

### About this report

To collect the views of the FEL-100 community on Human Capital issues, the taskforce has developed the HC Issues Monitor by implementing the methodology used by the WEC to develop its annual World Energy Issues Monitor. The survey used to create the HC Issues Monitor (see Annex II) was comprised of 36 issues across the taskforce’s four categories of study: Talent, Diversity, Skills Mismatch, and Social Perception. The aim of this exercise has been to understand which Human Capital issues are top of mind for FELs, and to serve as one of the inputs to develop the taskforce’s final recommendations to senior energy leaders.

## HOW TO READ THE MONITOR

### Categories and individual issues

The HC Issues Monitor assesses 36 issues in a high-level overview covering 4 categories:

- Talent
- Diversity
- Skills Mismatch
- Social Perception

### Dimensions/Axes

The responses are translated into the HC Issues Monitor with three assessed dimensions:

- The **impact** of an issue on the energy sector – this forms the x axis.
- The degree of **uncertainty** related to its impact – this forms the y axis.
- The **urgency** with which we need to address the specific issue – this is represented by the proportional size of the issue bubble. A larger size corresponds to a higher degree of urgency.

### Zones within the Monitor

The zones within the HC Issues Monitor are as follows:

- **Critical uncertainties:** Issues with high uncertainty and high impact (in the top-right quadrant) are the ‘critical uncertainties’ with no clear path of action. These issues keep future energy leaders most awake at night and need to be part of the energy leaders’ dialogue and scenario analysis.

- **Action priorities:** The issues in the high-impact and low-uncertainty space are those which keep energy leaders most busy (bottom-right, ‘action issues’).
- **Weak signals:** The low-impact and low-uncertainty issues (bottom-left quadrant) include those of perceived lesser importance or those that are still not fully understood and need further investigation.

**ASSESSING THE HUMAN CAPITAL ISSUES AGENDA**

**Survey respondents**

The HC Issues Monitor is based on insights from 74 out of the 100 FELs from 52 countries. The charts below illustrate the statistics of the respondents.

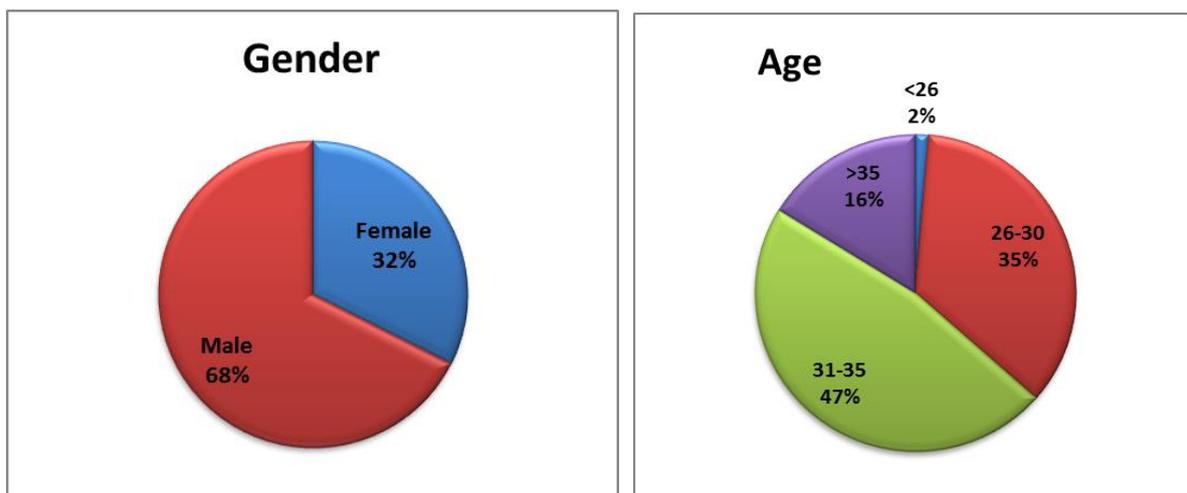
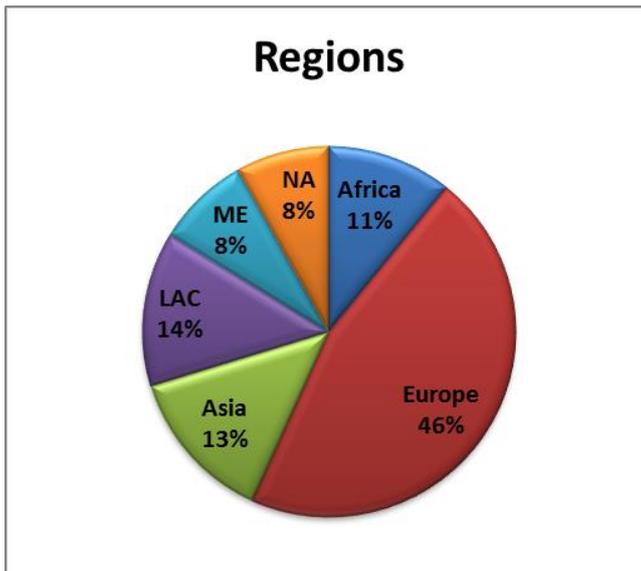


Figure 10: Percentage of respondents by gender and age



LAC = Latin America and the Caribbean.

NA = North America.

ME = Middle East and North Africa.

Figure 11: Percentage of respondents by regions

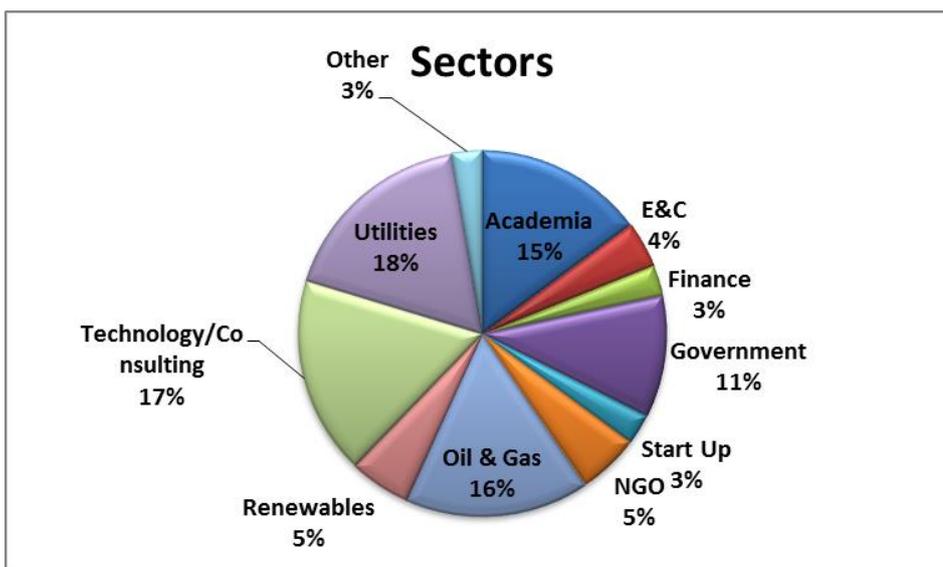
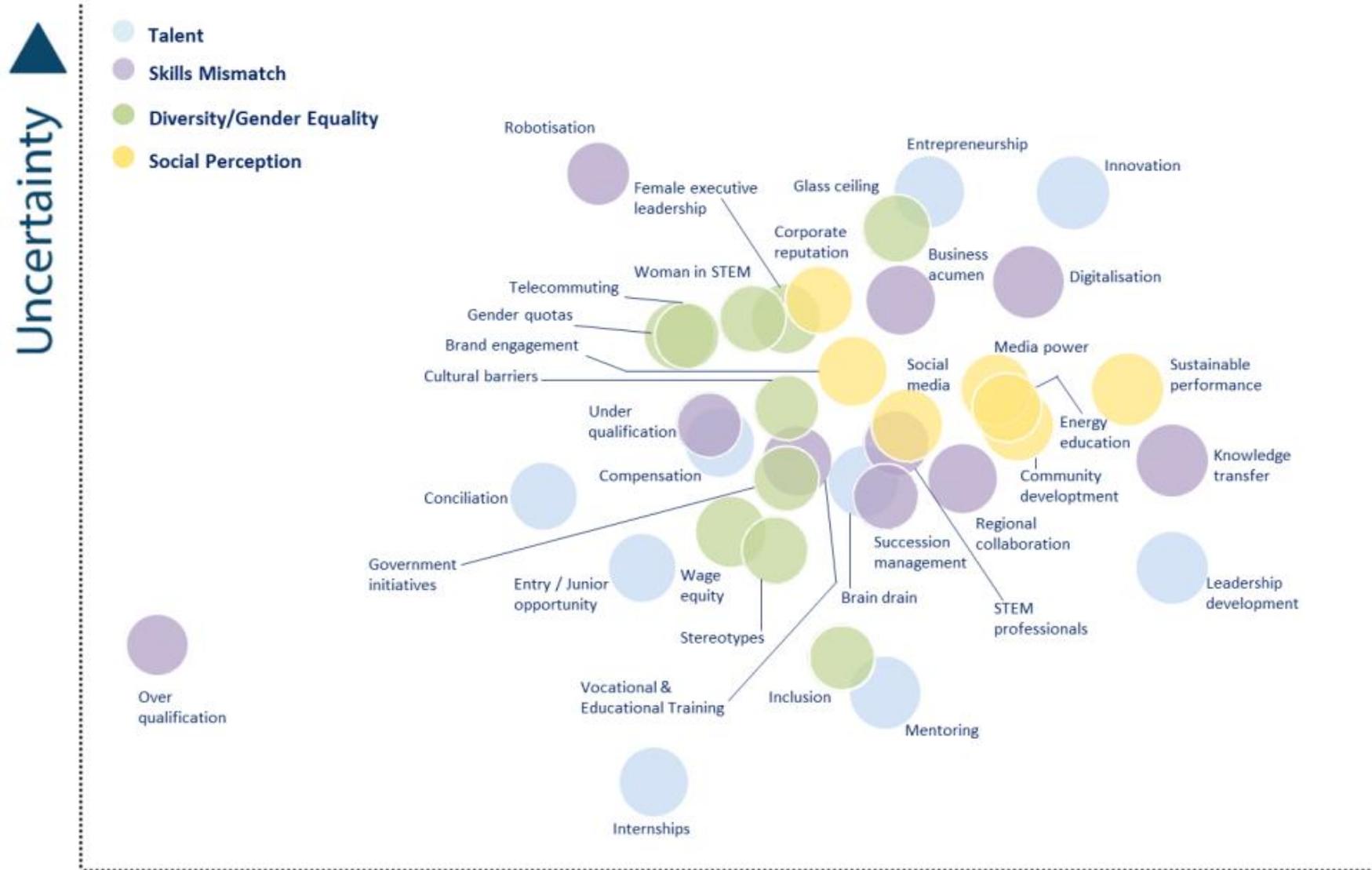


Figure 12: Percentage of respondents by sectors

### Survey results – The Human Capital Issues Monitor

The HC Issues Monitor is shown in the next figure 13:

Figure 13: HC Issues Monitor



FEL-100 Human Capital Issues Monitor - 2016

Impact 

Less urgent  More urgent

© World Energy Council 2016

## Key features of the Monitor

One visible feature of the Monitor is that 35 out of 36 issues have been ranked with mid- to high-impact, and only one issue as ranked as having low impact. These results might be a reflection of the general interest and awareness of the FEL community on human capital issues.

A second visible feature is that all issues have been ranked with a homogeneous and high urgency level, which means that the FEL community believes that the energy sector should react to these issues in the short- to medium- term.

## WHAT HUMAN CAPITAL ISSUES KEEP FUTURE ENERGY LEADERS AWAKE AT NIGHT?

### Analysis of critical uncertainties

The top four of eight critical uncertainties on the HC Issues Monitor (shown in dark orange in figure 14 below) include Innovation, Entrepreneurship, Glass Ceiling and Digitalization. The bottom four (shown in light orange in figure 14 below), include Business Acumen, Corporate Reputation, Female Executive Leadership and Women in STEM roles.

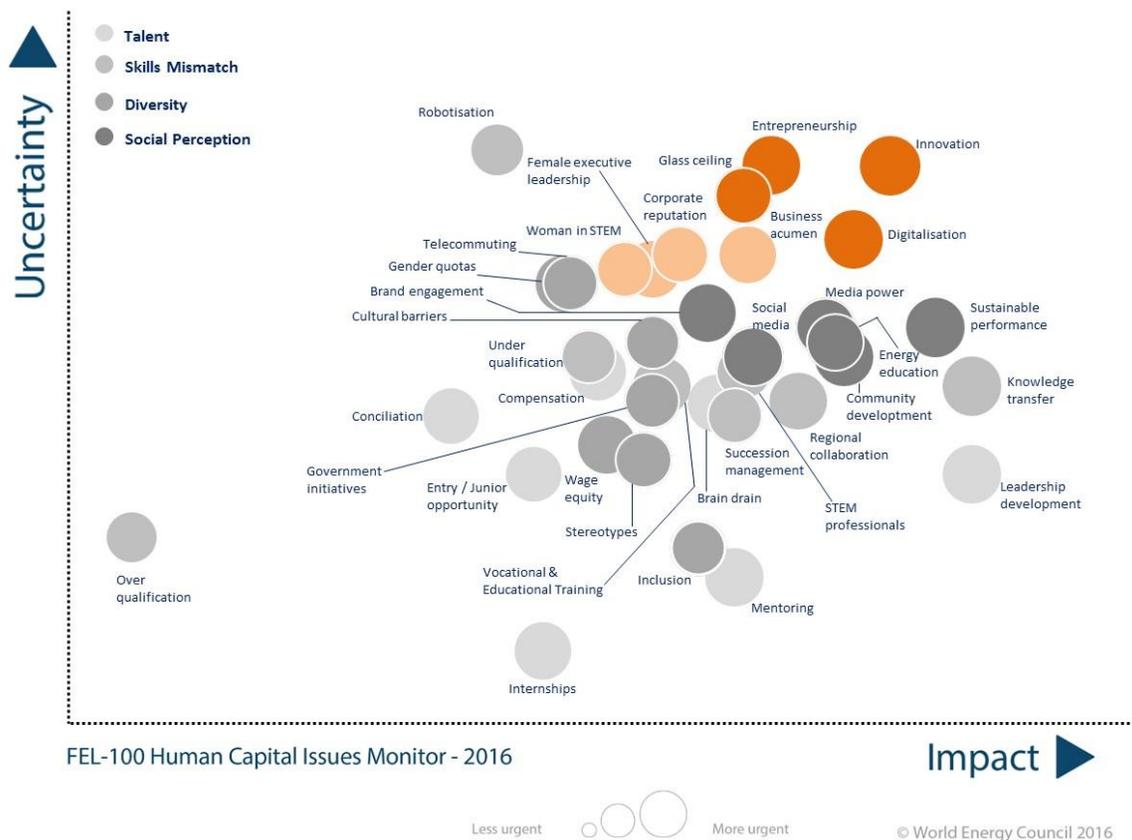


Figure 14: Critical uncertainties

“**Digitalization**” (Skills Mismatch category) is defined as the competing effect on employment dynamics caused by the generation of new business models, products and associated technical jobs but also the cutback of medium skilled jobs on the other. It relates to the replacement of how work is done today with more efficient and effective means in the future. Although the FEL community feels this can bring advantages to the world’s energy sector and have a high impact there is uncertainty as to the specifics of this, including the impact on workplaces, careers and lives. It can be seen as a warning sign that changing dynamics can increase uncertainty, maybe even provoke fear around jobs security.

The dimensions of “**Innovation**” and “**Entrepreneurship**” (Talent category) relate to the capacity and willingness of individuals and businesses to develop and introduce new approaches and strategies to tackle challenges in the energy sector, while ensuring competitiveness and economic growth. Current challenges include the new climate framework drawn by the Paris agreement (COP21) and the volatility of commodity prices. The significance of having the right talent to tackle such challenges is recognized by the FEL community as indicated by its high impact rating, but current availability and perceived associated risk results in equally high uncertainty rating.

The dimension of “**Glass Ceiling**” (Diversity category) refers to the limitations that women and other minorities face when it comes to advancing to upper management positions in the workplace, despite having the right qualifications and experience. The placement of this dimension as a high uncertainty, with a mid - to high - impact, indicates the FEL community’s understanding of the significance of this issue but uncertainty as to its full impact.

Another related and high-uncertainty dimension is “**Females in Executive Leadership**” (Diversity category) and refers to the representation of women in leadership positions in the energy sector. The research by the taskforce, as outlined in the Context Analysis section of this report, indicates that there is a positive correlation between women participating in decision-making positions and financial performance of companies<sup>47</sup>. It is therefore important energy leaders recognize that this dimension includes social and economic benefits – there is opportunity for the energy sector as a whole to have increased awareness of the benefits.

The dimension of “**Women in STEM roles**” (Diversity category), shares the same location as Female Executive Leadership in the Monitor, reinforcing the FEL concern on the progress of concrete actions, new ideas, policies, better communication or marketing plans which enable and encourage a higher participation of women in STEM positions. It has been highlighted in

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<sup>47</sup> International Labour organization (2015), “Women on boards: Building the female talent pipeline”. [Link](#)

the Context Analysis section that the change is happening, but very slowly considering the necessities of the sector.

Aside from STEM skill sets, the dimension of “**Business Acumen**” (Skills Mismatch category), speaks to the importance of business knowledge and thinking amongst STEM professionals. Based on its mid - to high - impact placement, the FEL community sees this as an important issue but unsure of the prevalence of this gap.

The final top uncertainty is “**Corporate Reputation**” (Social Perception category). Corporate reputation management is an enabler of trust and risk mitigation, but it is a broad topic with a variety of influencers. For this reason, it is not surprising that the FEL community rated this with a higher level of uncertainty.

### **Analysis of action priorities**

The top three of seven action priorities on the HC Issues Monitor (shown in dark blue in figure 15 below) are Sustainable Performance, Knowledge Transfer and Leadership Development. The bottom four (shown in light blue in figure 15 below) include Media Power, Energy Education, Community Development and Regional Collaboration.

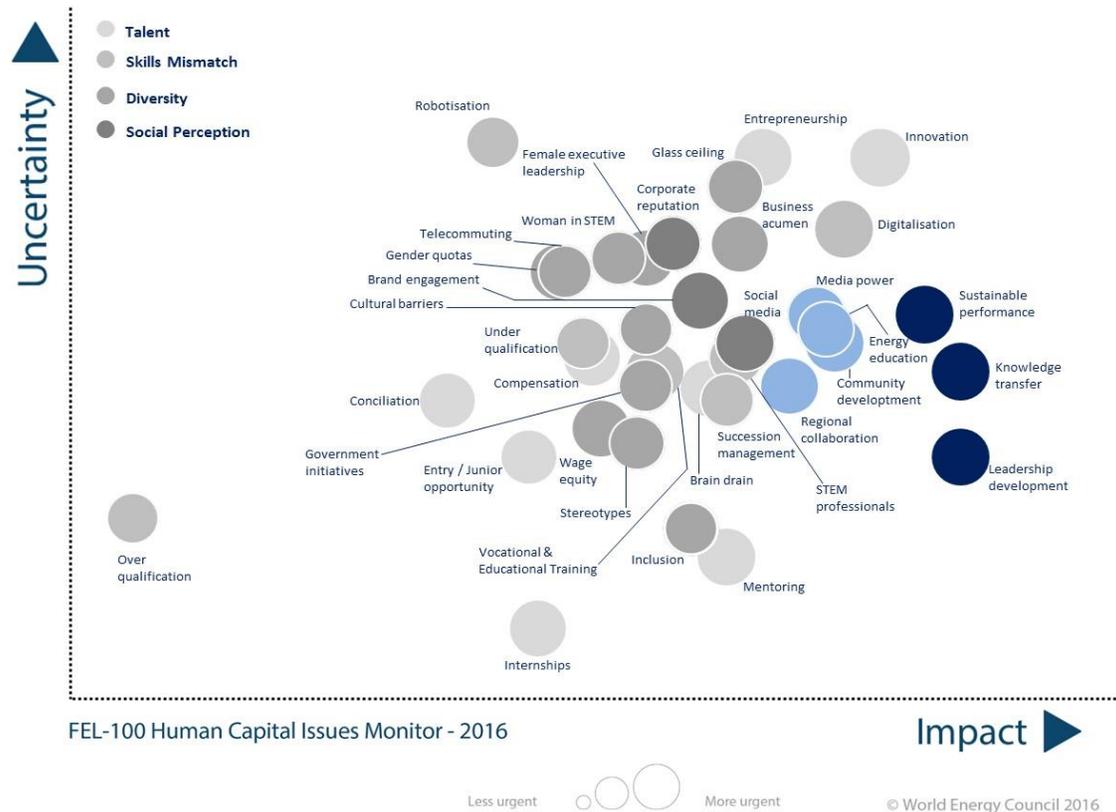


Figure 15: Action priorities

The position of “**Sustainable Performance**” (Social Perception category), indicates that energy industry action on social and environmental issues has a big impact on stakeholder perceptions. The FEL community high impact view of this issue is not surprising given acceptance of climate change and the recent global agreements that resulted from COP21, undoubtedly bringing more attention to sustainable performance. The result also complements Edelman survey findings presented in the Social Perception Context’s Analysis, showing that renewables were more trusted in the energy industry than oil and mining sectors, which also reflects a great opportunity for the latter ones: the more that can be done on sustainable performance, the greater trust stakeholders have in the industry. Given the direct impact the energy industry has on the environment, there is clearly a place for the industry to be proactively and aggressively focusing on sustainable performance.

The dimension of “**Knowledge Transfer**” (Skills Mismatch category) relates to the transfer of knowledge and skills from senior employees to young professionals, to minimize the impact of loss as senior employees leave the workforce. It is clear for FELs that age diversity is a critical tool to protect the industry from skills mismatch risks: bridging the generation gap, finding ways to motivate both senior and junior staff, developing systems to enable knowledge transfer and

enhancing idea generation by complementing industry experience with fresh perspectives. These are all elements that global energy companies should be dealing with in order to support talent development in the workforce.

**“Leadership Development”** (Talent category), is a powerful means by which organizations can attract and retain talent – this is reflected in the placement of this dimension as the highest impact of the HC Issues Monitor. Being involved in decision making, mentoring programs and having progressive work opportunities are highly appreciated features for young, talented employees. Programs or career plans to promote leadership skills are essential to enable future energy leaders to tackle the current and upcoming world energy challenges<sup>48</sup>.

**“Energy education”** (Social Perception category), refers to the inclusion energy issues in early education. Doing this results in influencing and informing the opinions and preferences people develop from a young age. If the energy industry is to attract a motivated workforce, increasing awareness and developing skills through education is an area where the FEL community believes the industry would have a positive impact.

The dimension of **“Media Power”** has a higher perceived impact than **“Social Media”**, both of which fall within the Social Perception category. This result suggests that public opinion can be influenced more by traditional media than social media. The difference could be the result of the perceived ‘trustworthiness’ of the information source or the broader reach media could have. Regardless, the results of the Monitor certainly reinforce the idea that an informed public has higher trust and there is opportunity to improve social perceptions with an engaging, clear and transparent communications strategy.

The position of the **“Community Development”** dimension (Social Perception category) also reinforces the point that positive community contribution is now an expected behavior of a company demonstrating corporate citizenship. It shows how the FEL community has a view that the creation of programs that help the communities companies operate and work in will have value add impact to social perceptions.

### Analysis of other issues of interest

**“Inclusion”** and **“Mentoring”** are the issues with the lowest uncertainty and a medium/high impact, consequently the must be also considered as high priority actions on the energy leader’s current agenda. An inclusive professional environment where all individuals are treated

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<sup>48</sup> Forbes (2014), “Leadership Is About Enabling The Full Potential In Others”. [Link](#)

fairly and respectfully is a must for FELs. Every company and organization need to make sure their best and brightest people are contributing to the organization's long-term growth and success, no matter their gender, age, ethnicity, religion, nationality, sexual orientation or culture. The FEL community reinforces the idea that 'business as usual' must evolve and the contribution that a diverse mix of employees with the same opportunities can make the difference to addressing the future challenges of the sector in a more innovative way.

Mentoring programs are an opportunity to address that existent talent scarcity in our sector and the knowledge gap apparent because of the aging workforce. Implementing such programs and enabling partnerships between senior and junior employees to share expertise will catalyze the learning process of the less experienced with a great positive impact for the business.

It has been explained that talent shortage and skills mismatches are matters of concern for a country, and FELs consider that the '**Brain Drain**' phenomenon is a real challenge that must be addressed. Regional collaboration and partnerships between sending and receiving countries could contribute to mutual cross-border benefits.

The shortage of "**STEM Professionals**" in the energy sector is also an issue to be highlighted. The changing dynamics, especially those in the remit of technology like digitalization, automatisisation and robotisation, make the STEM skill matching a moving target. It starts with the anticipation of futures skills to avoid a shortage professionals coming from these disciplines by providing the right feedback and stimulus to academic and vocational training programs in order to keep the work force supply steady.

Concerning the monitor's weak signals, there is only one issue which is clearly out of the radar of the FEL community: "**Over Qualification**", or the state of being skilled or educated beyond what is necessary for a job. "**Conciliation**", "**Entry/Junior Level Opportunities**" or "**Internships**" are also talent management tools perceived as less relevant or critical when analyzed among the set of human capital issues.

# **5. FINAL RECOMMENDATIONS**

## **5.1 RECOMMENDATION 1: DEVELOP A LONG-TERM STRATEGY FOR TALENT MANAGEMENT IN THE ENERGY SECTOR, WITH A FOCUS ON LEADERSHIP DEVELOPMENT, INNOVATION AND ENTREPRENEURSHIP**

As stated in previous sections of the report, talent management is a major issue in the energy sector. Particularly, solving the challenge of a shortage of talent is a top priority. This urgency is due to many factors, as explained in the report, which include a retiring workforce that makes up nearly 50 percent of the industry<sup>49</sup>; lack of a skilled workforce to join the industry<sup>50</sup>; STEM graduates, who often make good candidates, are attracted to non-energy sectors; and insufficient training programs.

Short-term measures have primarily been implemented to tackle these factors but have led to talent shortage, inflated salaries (regarding certain skill sets), knowledge dissemination to third party contractors, and widespread poaching of talent. Therefore, it is important to develop long-term strategic plans to mitigate any foreseen challenges, including the disruptions and opportunities of the Fourth Industrial Revolution. As supported by the HC Issues Monitor, long term plans should focus on enhancing innovation, entrepreneurship, and training programs to develop great leaders; doing this is essential for the prosperity of the energy sector.

Table 1 summarizes key actions that can be taken towards this recommendation. Each action is discussed in further detail below.

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<sup>49</sup> Arthur J. Gallagher & Co. (2014), "Recruiting & Retention Opportunities for the Energy Industry in a Changing Environment". [Link](#)

<sup>50</sup> Universum (2015), "Talent Attraction in the Energy Industry". [Link](#)

Table 1

Ref	Action
5.1.1	Companies should create a strategic workforce planning model to attract and manage talent, identifying the skills needed for their industry in the near- and, mid-term future.
5.1.2	Governments and companies should collaborate to boost innovation and entrepreneurship in the energy sector.
5.1.3	Companies should develop and implement mechanisms that ensure the safeguard and transfer of knowledge for the next generation, and implement mechanisms to pass essential knowledge and expertise from third-party contractors to permanent employees.
5.1.4	Companies should create an employee value proposition to attract and retain talent, and establish programs to promote leadership development.
5.1.5	Universities should reconsider their traditional way of learning and become business incubators, matching skill development with business or governmental expertise.

**5.1.1 Companies should create a strategic workforce planning model to attract and manage talent, identifying the skills needed for their industry in the near- and, mid-term future.**

A strategic workforce planning model is a necessary first step to identify the skills and talents that are required for their potential workers and reduce skill mismatch and talent shortages. Such a model can act as a database of the entire workforce outlining training, development and mentoring needs. It can also be used as a tool for succession management.

Additionally, within the context of the Fourth Industrial Revolution, energy companies and governmental organizations must learn to cope with the undergoing disruptions and megatrends that are reshaping the industry. To anticipate and mitigate the challenges and benefit from the opportunities ahead, companies should develop complementary businesses models, and collaborate with other industries to support the progress of new technological innovations and entrepreneurship initiatives.

### **5.1.2 Governments and companies should collaborate to boost innovation and entrepreneurship in the energy sector.**

To address disruptions and megatrends that are spreading across the energy industry, new skills are needed. Also, to prevent future talent shortages and skills mismatch, energy companies must strengthen ties with schools and universities, to ensure that education programs are in line with the energy sector’s needs. Company-sponsored scholarships, prizes, conferences, competitions and job fairs are powerful initiatives to attract talent and develop new ideas.

Moreover, governments and public institutions should support entrepreneurship and innovation, creating an enabling environment by measures such as: reducing entry barriers; creating a well-developed infrastructure; addressing the barriers to the mobilization of finance; eliminating barriers from policy design; a well-developed legal framework. Public-private partnerships are also interesting mechanisms to facilitate innovation, technology and research, and to contribute to the economic performance of countries.

#### **Leading Practice: Magazine Energy and Future**

The Magazine Energy and Future, being developed by the Ministry of Energy in Chile with the support of academic institutions and private organizations, will be the first professional scientific journal with the aim of contributing to the diffusion, reflection and scientific debate increasing professional knowledge and energy policies, in thematic engineering, sociology, and science among other topics.

The organizational structure of the magazine has a scientific committee which brings together academics, officials and recognized experts in the fields of energy and sustainability at the international level.

This magazine will be distributed in electronic and open access format, with a periodicity of two copies per year thus achieving be recognized by the science community and society as a whole.

**5.1.3 Companies should develop and implement mechanisms that ensure the safeguard and transfer of knowledge for the next generation, and implement mechanisms to pass essential knowledge and expertise from third-party contractors to permanent employees.**

As mentioned previously in the report, to avoid a gap in the transfer of knowledge, interest must be fostered to encourage the younger generation to join the energy industry. Therefore, companies must invest in retaining and safeguarding this knowledge by providing a platform where the aging workforce could transfer the knowledge to the younger workforce. It would also be useful to assess the workforce periodically and identify the gaps in knowledge that must be filled. Companies must also invest in training programs that will maximize the learning between workforce generations. Implementing mentoring programs and developing partnership between seniors and juniors workers to share their expertise is also a useful tool for safeguarding essential knowledge.

In addition, the energy industry relies extensively on third-parties who become holders of key knowledge, therefore, the problem of knowledge dissemination external to organizations rather than internal arises as a pressing challenge. Companies should make every effort to retain key knowledge within the company. Contractors who have access to key information and knowledge can be attracted and hired as permanent employees in the company to retain this knowledge

<b>Leading Practice: Open Energy in Chile</b>
<p>The National Energy Commission of Chile developed the first open data web platform in Latin America for the energy sector which focused on facilitating access to information and education of citizens.</p> <p>The site allows innovative solutions to be promoted by citizens, using information about the Chilean energy sector, such as: statistical data, maps, laws, studies, people working within the same platform, processing, cross-breeding, electricity, hydro-carbons, energy efficiency, renewable energy and much more.</p> <p>This web platform aims to raise levels of transparency of the Chilean energy sector, providing the opportunity to generate new knowledge on energy issues, allowing for open innovation processes (citizens contribute in identifying problems and possible solutions) and creates a collaborative ecosystem.</p>

#### **5.1.4 Companies should create an employee value proposition to attract and retain talent, and establish programs to promote leadership development.**

In order to attract and retain talent, companies must create a value proposition. This value proposition should be competitive, appealing to the current millennial generation and include non-monetary incentives. Traditional benefits such as health insurance are not enough for the new generation; work-life balance, job security and stability, creativity and innovation, competitiveness, intellectual challenge, value for the society, possibility of international rotation/mobility and career growth are appealing benefits to the millennial generation.

Energy companies need to become competitive, dynamic and creative in talent attraction by being more involved with younger students and close those close to graduation. Scholarships, games and prizes, job fairs, etc. can facilitate the recruitment of fresh graduates and attract talent to start their careers in the energy sector.

Finally, companies should implement programs and career plans to develop stronger and capable leaders. This includes both internal and external training programs. Identifying leadership candidates to follow a specific path is a must for current energy companies. Off-site programs are also recommended as they allow leaders from different companies and backgrounds to interact and exchange ideas.

#### **Leading Practice: Enbridge’s Engineering Professional Development Program**

At Enbridge, one of the keys to a successful career is a well-rounded knowledge of the organization. The Engineering Professional Development Program (EPDP) is a rotational program for Engineers in Training (EIT) designed to expose participants to core areas of the business through unique rotational opportunities. EITs in EPDP will have the chance to participate in a number of training and development opportunities throughout their 4.5 year journey in the program. As EITs learn and grow, they will take on increasingly challenging assignments and projects, culminating in the achievement of their Professional Engineering License. We encourage EITs to learn as much as they can, take advantage of all the opportunities that come their way and truly enjoy this unique Enbridge experience.

The goals of EPDP are:

1. To attract and retain high potential EITs and develop them to become competent technical and people leaders at EGD.

2. To provide the foundation to become a gas distribution engineer in a safety critical organization, by providing EITs with a variety of experiences within the core areas of our business.
3. To provide EITs with the necessary experience to meet the Professional Engineers of Ontario (PEO) licensing requirements and obtain their P.Eng designation.

### **5.1.5 Universities should reconsider their traditional way of learning and become business incubators, matching youth skill development with business or governmental expertise.**

In addition to energy companies establishing ties with universities, the role of universities themselves should evolve. The more that students are involved in solving business cases, proposing start-ups, applying for scholarships and grants, holding internships and participating in mentoring programs, the better prepared they are when entering the workforce and contributing to the constantly changing energy world. In doing this, an atmosphere of competitiveness, innovation and real-world business application can be created. This in turn can enable academic institutions to better prepare students for the challenges of the energy sector, and to develop adaptable and motivated graduates with skills and knowledge that match the requirements of the employers.

## **5.2 RECOMMENDATION 2: DEVELOP PROGRAMS TO ENSURE A DIVERSE WORKFORCE IN ENERGY COMPANIES AND INTERNATIONAL ORGANIZATIONS, WITH SPECIAL FOCUS ON GENDER BALANCE**

The Human Capital taskforce has already stated that “business as usual” is not an option anymore in the energy sector. Innovation implies forcing businesses to re-examine the way they operate. As discussed in previous sections of this report, the taskforce believes that the changes needed include promoting diversity in the energy sector workforce. There are risks associated with singular ways of thinking; the value that diversity brings must be recognized and capitalized on.

The taskforce would like to emphasize that gender inequality is not only a pressing moral and social issue but a critical economic challenge. The global economy will suffer if women do not achieve their full potential. The taskforce believes that both government and private companies must be active in reducing the gender gap. Both must look to better address the issue of attracting and retaining more female professionals and developing them into leaders. They must also build favorable environments which enable women to thrive in their careers, which in turn will allow companies to better overcome the competitive challenges which are expected to be faced in the future.

Table 2 summarizes key actions that can be taken towards this recommendation. Each action is discussed in further detail below.

Table 2

Ref	Action
5.2.1	Governments and companies should encourage the advancement and mentorship of women into senior leadership roles.
5.2.2	Countries must provide support mechanisms to attract and retain female labor in the energy workforce through the development of solid educational programs.
5.2.3	Governments must establish policies to promote a heterogeneous and balanced workforce, which will contribute to removal of cultural barriers to gender equality.
5.2.4	Companies must recognize and communicate the benefits of diversity, such as enhanced innovation and competitiveness, and as a smart recruitment practice.

### **5.2.1 Governments and companies should encourage the advancement and mentorship of women into senior leadership roles.**

Increasing the representation of women in executive-level positions undoubtedly promotes gender equality in the economy and also an efficient use of the talent pool. It has already been shown that women are under-represented on corporate boards: only 19 percent of board seats globally are occupied by women and less than 5 percent of the CEOs of the world’s largest corporations are women<sup>51</sup>. Thus, career support and coaching is helpful to women as they advance through their careers, particularly in a male-dominated sector like the energy sector. Establishing networks and support groups might also be helpful for women to navigate career challenges and gain advancement into senior positions. Voluntary initiatives and commitments, suggested targets, and other measures can be used to increase female representation.

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<sup>51</sup> International Labour organization (2015), “Women in Business and Management: Gaining Momentum Global”. [Link](#)

### Leading Practice: Enbridge’s “Women @ Enbridge” Community

Enbridge is committed to building positive working relationships and offering learning and development opportunities for its employees. The Women @ Enbridge Community is one of many initiatives Enbridge is undertaking to demonstrate its commitment to its people.

The Women @ Enbridge Community offers engaging working environments for women to contribute their knowledge, energy and expertise while enhancing and contributing to Enbridge's long-term business success. The vision and mission of Women @ Enbridge are as follows:

- Vision: *We enrich the Enbridge community through the advancement of women.*
- Mission: *Our organization supports the development of women at Enbridge, enhances employee engagement, and assists in the retention of talent. We create a community to connect, learn, share and become empowered.*

Women @ Enbridge is proudly partnered with organizations that support the value of leadership, advancement and recognition of women in the workplace.

The Human Capital FEL taskforce believes that companies can benefit from training programs that promote the value of diversity; impart knowledge on how to manage a more diverse workforce; and focus on how to attract, develop and retain female talent. These training programs, for both men and women, can be relevant for shaping an environment for women to successfully lead.

Finally, promoting transparency and accountability of business practices related to gender balance could contribute to the effective implementation and observance of gender equality commitments.

### **5.2.2 Countries must provide support mechanisms to attract and retain female labor in the energy workforce through the development of solid educational programs.**

Increasing the educational attainment of women has accounted for 50 percent of the economic growth in OECD countries over the past 50 years, and has the potential to increase growth

further<sup>52</sup>. For this reason, the Human Capital taskforce encourages governments to create education and outreach campaigns that introduce the energy industry to all ages, from primary and secondary school level through to undergraduate and graduate level, showcasing women who already work and lead in the energy industry as it will be helpful for young women to see that other women have managed to establish themselves in the sector.

It is also clear that as the energy industry continues to evolve on the back of technological advances, it will be vital to ensure that it has access to a larger pool of skilled talent to support these changes. If it does not manage to close the existing gender gap, the industry could miss out on attracting much needed STEM professionals and building a diverse workforce that could ultimately be the key to providing more innovative solutions for the industry.

Moreover, to get more women to work in technical jobs in the energy industry, the taskforce encourages introducing mentorship for females and improving virtual STEM education programs, especially in those areas with more difficult access to a established and mature education systems. There are lots of women who occupy senior Human Resources (HR), Accounting and Finance (AFC), Legal, Corporate Social Responsibility (CSR), Health, Safety and Environment (HSE) positions but more rarely roles like Chief Innovation Officer and Chief Operating Officer.

**Leading Practice: Promote girls development and give them tools to empower themselves in Information and Communication Technology (ICT)**

There is a movement in Uruguay lead by a number of organizations from the public and private sector, promoting the professional development of women by giving them tools to empower themselves in ICTs. The event is carried out each year during the International Day of the girls in ICT decreed by the ITU. The work consists on organizing activities to attract girls from public and private high schools during their third year and show them what they can do with technology: robotics workshops, programming, virtual reality, engineer’s presentations and workshops with women working in technology.

Since it started 4 years ago, this has continued adding more organizations in different levels to promote the use, and especially raising awareness about the importance of bringing girls today to ICTs, who will be the leaders of tomorrow

<sup>52</sup> OECD (2012). “Effects of reducing gender gaps in education and labour force participation on economic growth in the OECD”. [Link](#)

### **5.2.3 Governments must establish policies to promote a heterogeneous and balanced workforce, which will contribute to removal of cultural barriers to gender equality.**

Equality between women and men is a universal legal principle recognized in a number of international instruments about human rights, such as the [Convention on the Elimination of All Forms of Discrimination against Women](#) (1979, UN General Assembly). However, there are still certain areas all over the world where women have to overcome often sensitive social, cultural and traditional barriers, and where numerous factors are still impeding them from participating to a greater extent in energy workforce. Although companies and society are key stakeholders to change culture and mindset, it is absolutely necessary that governments continue taking bold steps towards overcoming still-existing cultural obstacles, and channeling and elevating women into their domestic workforces.

The taskforce believes that governments should promote mechanisms to increase employment access, remove bias, and ensure equal pay for females in the labor force by increasing access to education, reducing entry barriers to male-dominated fields (such as energy), and facilitating flexibility and work-life balance for both men and women. Governments could also consider providing incentives to encourage female employment and female-owned businesses.

To ensure the effective implementation of the regulations enhancing transparency, accountability and monitoring of the measures put in place would be valuable. Therefore, governments should carry out regulatory impact assessments, and elaborate and publish reports with analysis and data on these issues, to increase the efficiency and effectiveness of the policies and allow governments to improve in future decisions.

### **5.2.4 Companies must recognize and communicate the benefits of diversity, such as enhanced innovation and competitiveness, and as a smart recruitment practice.**

When it comes to diversity, energy companies must tie inclusion efforts to innovation. More and more employers are explicitly tasking diversity roles with innovation, in part by titling key jobs accordingly. The promotion of success stories of women who hold middle and senior management positions can inspire younger employees of the company both in professional and work-life balance areas. As an example, promoting the possibility of flexible working hours, remote working, nearby nursery schools, paternity leave or free of charge parking, can all be considered for women to help them balance work and home commitments.

Creating a workplace inclusive of race, gender, nationality, sexual orientation, age, disability etc, seeks value in something terribly simple: diversity of thought. For the energy sector, seeking out talent with different thinking and problem solving backgrounds is critical to face the global challenges the industry is facing now and in the coming decades.

The taskforce urges companies and organizations to introduce diversity as a strategic element of their vision/mission statements, developing programs and/or including it as a corporate function with the aim of making sure that all employees fully understand the benefits of a diverse workplace.

## **5.3 RECOMMENDATION 3: REMOVE UNCERTAINTIES AROUND THE IMPACT DIGITALISATION IS HAVING ON THE INDIVIDUAL AND REQUIRED SKILLS IN THE FUTURE**

The HC Issues Monitor revealed that the FEL community believes digitalization has a major impact in the context of skills mismatch. As discussed previously in the report, digitalization, within the skills mismatch category, is defined in the FEL Human Capital Issues Survey (Annex II) as the “competing effects on jobs dynamics: generation of new business models, new products and new jobs on the one hand, and cutback of medium skilled jobs on the other”. Despite the positive effect digitalization can have on improving the energy sector and our world in general, it also should be realized what negative effects it might have on individuals as job roles adapt or reduce with more digitalized and automotive processes. Due to its prominent ranking in both dimensions of the monitor (uncertainty and impact), special attention should be dedicated to this item. Specifically, focus should be paid on the uncertainty associated with the related skills sets required in the future to avoid a skills mismatch with STEM professionals.

Table 3 summarizes key actions that can be taken towards this recommendation. Each action is discussed in further detail below.

Table 3

<b>Ref</b>	<b>Action</b>
<b>5.3.1</b>	Organizations should take proactive steps to reduce uncertainty that digitalization can have on individuals and their jobs, by identifying required skills.
<b>5.3.2</b>	In anticipating the required skills in a digitalized future, energy companies should work with academia and vocational education institutions to tailor education to the future needs of businesses.
<b>5.3.3</b>	Organizations should reduce the knowledge gaps and ensure a smooth transition of knowledge in a fast evolving digitalized world, by encouraging mentoring, job rotations and training programs.

### **5.3.1 Organizations should take proactive steps to reduce uncertainty that digitalization can have on individuals and their jobs, by identifying required skills.**

The ever-changing world of digitalization alters the skills sets that are needed by the energy sector, which can lead to uncertainty among employees. What will be required from the individual going forward in the light of digitalization? Will their job description change? How should they position themselves in the light of these changes? Will they be needed and if yes, in what form? By creating a clear communication plan between employer and employee, along with defined job profiles and skills, this uncertainty can be reduced. Active involvement of the employees in the process of skills definition will allow the organization to focus on the positive benefits that come with it.

### **5.3.2 In anticipating the required skills in a digitalized future, energy companies should work with academia and vocational education institutions to tailor education to the future needs of businesses.**

Of particular relevance for the energy labor market is the highly specialized skill sets needed in many areas of the energy sector. Very often a highly skilled labor force and STEM professionals are working in the energy market. The changing dynamics due to digitalization mentioned above make STEM skills matching an even harder task to achieve. Anticipation of future skills will be required to avoid a shortage of STEM professionals. That can be achieved by providing the right feedback loop and stimulus to academic and vocational training institutions in order to keep the work force supply steady.

It is recommended to ensure ongoing collaboration with academia and vocational education institutions to tailor education to the needs of businesses. This could be achieved by defining curricula jointly and permanently update and adjust to the needs of an ever more digitalized world.

### Leading Practice: Repsol's involvement in Dual Vocational Training

Repsol's support to Dual Vocational Training began in 2012 in Spain with the aim of promoting measures to reduce unemployment among young people, especially on education-related actions, which provide a strong lever to overcome youth unemployment and reduce skills mismatch. This initiative is targeted at the professional qualification of workers by combining the teaching and learning processes both in the workplace and at the training center.

370 students have already participated in the different apprenticeship cycles, mainly focused on STEM disciplines. This system trains new professionals according to the company needs and it is a very valuable source of recruitment with a direct access to the best profiles.

### 5.3.3 Organizations should reduce the knowledge gaps and ensure a smooth transition of knowledge in a fast evolving digitalized world, by encouraging mentoring, job rotations and training programs.

Knowledge transfer emerges as another key theme that the FEL community has ranked as having the highest impact on the HC Issues Monitor. Knowledge Transfer describes the “know-how transmission between senior employees and young professionals, focusing on capturing the knowledge and transferring the abilities that are in danger of walking out the door” (FEL Human Capital Issue Survey, Annex II). This knowledge gap is particularly relevant when put into the wider context of digitalization. Since students and young professionals can be even more adaptable to new digital reality, having had more exposure at a young age, it is important to establish good knowledge transfer in the opposite direction from younger to senior workers. Doing this may not only help create an ongoing dialogue and knowledge exchange between two generations but also keep senior workers “in the office” to prepare successors for their positions. It is also a good example of age diversity when skills, experience and ideas can be transferred smoothly between different age groups.

## **5.4 RECOMMENDATION 4: IMPLEMENT MUTUALLY BENEFICIAL SUSTAINABLE PERFORMANCE INITIATIVES AND ENGAGE STAKEHOLDERS DURING THE JOURNEY**

As discussed previously in the report, the HC Issues Monitor revealed that the FEL community sees all surveyed social perception issues as critical uncertainties or action priorities for the energy sector. If “perception is reality”, being able to identify and then address the influencers of people’s perceptions will be key requirements for ensuring a motivated and talented workforce is available for the energy sector going forward.

The key takeaway from the HC Issues Monitor was that sustainable performance must be proactively addressed in a way that supports communities and informs and engages stakeholders. Thus, it is a twofold approach, one of “walking the talk” and another of communication and engagement.

Table 4 outlines four specific actions that have been identified which would support the headline recommendation from the social perception perspective.

Table 4

<b>Ref</b>	<b>Action</b>
<b>5.4.1</b>	Organizations should take proactive steps to positively impact economic, environmental and social issues.
<b>5.4.2</b>	Organizations should create programs to educate the public and increase awareness of the energy sector.
<b>5.4.3</b>	Organization should implement initiatives that create value for the company and the community.
<b>5.4.4</b>	Organizations should generate engagement initiatives internally, and externally with stakeholders to positively impact corporate reputation.

### **5.4.1 Organizations should take proactive steps to positively impact economic, environmental and social issues.**

We know that energy is something we all use and is vital to our way of life. The way the global energy system is currently designed is causing resource depletion and negative impacts to the environment. There is significant global attention on how we address climate change and there are big expectations of organizations in the energy sector to take action. It is not surprising that sustainable performance was rated as the highest critical uncertainty. For organizations to have authenticity when it comes to influencing social perception, there must be evidence to show they are “walking the talk”. This could include:

- How a business or organization operates (i.e., policies or processes to cause certain behaviors and efficiencies to exist such as the creation of new roles, industry growth or energy efficiency improvements);
- What it chooses to invest in (i.e., do business cases adequately consider environmental effects, supports biodiversity and efficiently use resources);
- What and where it chooses to spend its money (i.e., a vote is cast when money is spent so conscious spending is important, responsible supply chain, relations with community, and the development and motivation of employees).

Having a broad and results-focused framework to sustainable performance will be essential to influence external perceptions of the energy sector.

### **5.4.2 Organizations should create programs to educate the public and increase awareness of the energy sector.**

People form perceptions based on their beliefs and there is a role for the energy sector to ensure the public is educated and informed, such that those perceptions are based on a robust understanding. There is significant and broad opportunity for a future workforce in the energy sector, but to attract motivated and educated people to the sector, programs which raise awareness of these aspects must be put in place. The encouragement by governments and organizations to create education and outreach campaigns that introduce the energy industry to all ages has been touched on, and is further reinforced from a social perceptions perspective.

It is possible to coordinate systematic skills development from school desk to university graduates through to young professionals by introducing things like government and company contests, workshops and programs. This will enable children of different ages to better understand and be aware of future career opportunities in the energy sector.

It is also important for companies and government to establish succession planning activities so as to provide smooth transfer of knowledge and employees within the sector.

### **5.4.3 Organization should implement initiatives that create value for the company and the community.**

Community contribution is now a mainstream expectation of an organization demonstrating corporate citizenship; the FEL community reinforces this with a view that the creation of programs that help the communities where companies operate in will positively impact social perceptions and trust. A first step is identifying where the organization impacts the community and how they interact based on the service or products provided. The second step involves discovering what matters to those communities and then areas of mutual interest and benefit can be identified. Here the instrument of materiality assessment can be helpful as it summarizes business and community priorities and indicates the key areas where cooperation is possible. This will ensure fit for purpose initiatives are put in place that will realise benefits that do impact social perceptions of the sector.

#### **Leading Practice: Phillips Cape Town to Cairo road show**

Global lighting company Phillips demonstrates great corporate citizenship with its annual Cape Town to Cairo road show. This event not only provides energy efficient lighting solutions (such as promoting LED lighting and “extending the day” in rural areas with solar lighting) but also has a focus on advancing health care. Roadshows to date have had a focus on UN Millennium Development Goals related to reducing child mortality and improving maternal health through the provision of education and facilities.

### **5.4.4 Organizations should generate engagement initiatives internally, and externally with stakeholders to positively impact corporate reputation.**

Once an organization is “walking the talk” the next focus should be to engage stakeholders. This is more than just telling people what you do, but about getting genuine buy in and building

strong relationships. The research previously highlighted by Aon Hewitt shows the evident business results that can be achieved when staff engagement is high; being able to go further and achieve that same success with external stakeholders will ensure a talented workforce is attracted to the energy sector. In order to succeed in that, start with mapping internal and external stakeholders, understand who influences the business and how the business influence them, and whether there are positive relations or some tensions.

Engagement can be achieved through education programs, joint start-ups, social entrepreneurship, social investments, volunteering activity and other community initiatives. Media has also been highlighted in the Monitor as a medium that has high impact on public opinion. In short, a broad engagement strategy that identifies all key stakeholders and includes channels that will result in effective engagement with them is critical to causing a positive social perception impact.

#### **Leading Practice: Z Energy’s social media “Ask Mike” sessions**

Z Energy uses social media channels Facebook and Twitter as a multi-purpose initiative to offer members of the public the opportunity to ask the CEO “Mike” any question they like over a two-hour period, building awareness and engaging directly with the public to inform social perceptions. Since it originally started in 2012 it has continued to evolve with social media and now includes a live element where questions are answered on video during the session. A clear demonstration of transparent and progressive stakeholder engagement.

**ANNEX**

# ANNEX I: INTERVIEWS TO MARIE-JOSÉ NADEAU AND PIRJO JANTUNEN

## Annex overview

A key issue within the topic of “Diversity”, one of the four main pillars defined and being studied by the FEL HC taskforce is “Gender Balance”. The European Institute of Gender Equality defines the term *gender balance* as the “...equal participation of women and men in all areas of work, projects or programs”<sup>53</sup>. Further, the United Nations Entity for Gender Equality and the Empowerment of Women states that *gender equality*, a related issue and one that promotes gender balance, means “...that women’s and men’s rights, responsibilities and opportunities will not depend on whether they are born male or female”.

“Gender equality implies that the interests, needs and priorities of both women and men are taken into consideration, recognizing the diversity of different groups of women and men”<sup>54</sup>. The need for gender balance exists within the global energy sector. For example, in a 2015 survey by Ernst and Young (EY) of the top 200 global power utilities organizations by revenue, only 5 percent of board executives and 13 percent of senior managers are women<sup>55</sup>.

At the WEC, for the first time ever, the Chair of WEC, Marie-José Nadeau, and the Chair of the WEC FEL-100, Pirjo Jantunen, are both women. Thus, as female leaders in the energy sector and advocates for gender balance (increasing diversity in the energy sector it is a major theme for Ms. Nadeau as Chair of WEC<sup>56</sup>), the taskforce sought their insights on the importance and benefits of and strategies to achieve gender balance in the energy sector. The following sections present the interviews conducted by the taskforce with Ms. Nadeau and Ms. Jantunen.

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<sup>53</sup> European Institute for Gender Equality (June 2016), “Gender Balance”. [Link](#)

<sup>54</sup> United Nations Entity for Gender Equality and the Empowerment of Women (June 2016), “Gender Equality”. [Link](#)

<sup>55</sup> EY (2015), “Talent at the table: Women in Power and Utilities Index 2015”. [Link](#)

<sup>56</sup> WEC (2015), “Women’s place in the energy industry”. [Link](#)

## Introduction of interviews

The term Human Capital can be defined as “The skills, knowledge, and experience possessed by an individual or population, viewed in terms of their value or cost to an organization or country”<sup>57</sup>. One of the founders of this concept, American economist and Nobel Laureate Gary S. Becker, discovered through his work beginning in the 1950’s that, for example, education is valuable and discrimination is costly to an organization<sup>58</sup>.

Since this time, the concept has evolved to include many issues related to attracting, developing and retaining the right people to solve today’s complex problems. Progress has and continues to be made on some issues in some areas of the world, but the gaps that remain have a global impact.

This is certainly true in the energy sector. This is why the Future Energy Leader Program of the WEC introduced a new taskforce in 2016 titled *Human Capital: equity and skilled personnel for current and future energy developments*. The taskforce will study current practices and identify future actions needed for countries and organizations to secure the required workforce for the international energy industry. Specifically, topics within four key areas will be examined: Talent, Diversity, Skills Mismatch, and Social Perception. Regarding Diversity, a key issue within this topic is gender balance. For the first time ever, the Chair of the WEC and the Chair of the FEL-100 are both women. Therefore, as leaders in the energy sector, the taskforce wishes to collect their insights on the issue of gender balance in the energy sector.

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<sup>57</sup> *OxfordDictionaries.com*, Oxford Dictionaries (2013), “Human Capital”.

<sup>58</sup> Gary Stanley Becker. *The Concise Encyclopedia of Economics*. Library of Economics and Liberty (2008). [Link](#)

## Summary of interview with Marie-José Nadeau, Chair of the World Energy Council

### 1) *Why did you pursue a career in the energy sector?*



When I was in law school I was looking for a topic for my Master's degree. We had to decide on a theme that had not been very well developed. We were in the aftermath of the first oil crisis in the mid-70's and there were issues in Canada about how to share responsibilities between the federal and provincial governments, both claiming they had authority over natural resources, the price of oil and how to allocate subsidies. I had no specific views or knowledge on energy issues so I decided to pick this topic in constitutional law. The first job I was offered was with in the first legal service with the first department of environment in Canada, and from that point on I remained in the same business.

It was definitely unusual for women of my generation to pick this area. My message is to find a path that will make you different and that allow you to bring a different added value or a different approach to issues that are new to either businesses or governments.

### 2) *What motivated you to strive for leadership roles throughout your career?*

I had three children over my career and my husband was involved in his own career. I thought that for my career to mean something, I had to be passionate about it and therefore it couldn't be a regular job, so I chose very early a path that was unusual. I resented any security in terms of a job and went contract after contract that brought me home very late at night. I built up my career as a very hard worker who is dedicated, not someone that would rely on job security. And it also gave me a notion of independence. I also was convinced that if I didn't like it, I didn't have to stay, since I was not bound by any contractual terms and I could go on to something else. It is not an easy path to follow, but it is worth it.

**3) *What challenges have you faced throughout your career? How did you overcome them?***

I was always the only woman for a very long period in my career. I was a lawyer in a world of engineers and I did feel the differences between men and women, but insisted that I be treated equally and recognized as an expert. And I think I was seen as bringing a strong personality, bringing a different approach, bringing a different perspective to the issues and that I simply added value to the debate. I was really never taken off guard. Of course there were struggles, mostly because I had children. But I was fulfilling my dream, I was happy and I am proud of my accomplishments. Coping with professional and family life is very demanding and I can understand that some can get discouraged and quit. But in a fifty-year career it takes ten years of your time so everything is relative in life.

**4) *How have perspectives changed with it comes to gender balance in the energy sector?***

There's now a true believe that it's not only a women's issue but it's a societal one. It's an issue we have to address as the leaders both male and female. For a number of years, only women leaders would talk about in public and men were shy about it. But it's no longer the case, partly because men have raised young women as young professionals. They want their daughters to have ambition, experience, knowledge and success. It's a question of recognizing their next generation's potential and claim for success and giving them the opportunities,

Someone told me that he just can't think that his daughters will be prejudiced in life because they're women. To me this is a major change, although there are still a lot of challenges to go through. We still have to move ahead with more women on boards and at senior levels, but I see less denial and more positive action by male leaders.

**5) *What specific qualities do women have that are necessary for success in the energy sector?***

Women are usually seen to be more acute to interpersonal relations, more concerned with good communication and have more emotional intelligence. That is what you usually read about it. I think it is true to some extent but this is not how I see myself. I don't see myself as a typical woman. I'm usually very impatient and because I am blonde and blue-eyed, others thought of me as being very smooth and nice, they were always shocked! In many cases you need to balance between mathematical intelligence types with emotional intelligence types.

**6) *What attraction and retention policies work and do not work for women in energy organizations? Are there global differences? Generational differences? Who should promote these policies: government, companies, both?***

The question calls for a lot of nuances. If I would talk to women in the Middle East, they would ask: how do I share a male colleague's hand? Do I look at him in the eye? Will there be toilets reserved for woman? I'm talking about basic needs and cultural issues. In industrialized countries, this can be taken for granted, but it is still something to be developed in emerging countries. And yet, in those countries, women are qualified, but have no experience interacted with the other sex.

But fundamentally, the answer to the question is a mosaic one. It depends on where you are in the world and the cultural background. Younger women are different than women from my generation. They expect daycare and hours that will give them free time to care for their families. I always thought that if I had left earlier than my colleagues that I would be discredited for it and considered not part of the team. Women want to be part of the team and they should be.

Leaders today have to adapt to this new generation because it's not only the case of young women, but also young men because they have been raised to think that they will share tasks with their companions. So business leaders and HR resources in large or small companies have to care for that. I have a sense of the needs we have to care for, and at the same time, we can't have one set of criteria for males and one for females. We must be evaluated under the same grounds. It demands a lot of flexibility from leaders, transparency and better communication. All these are good managerial behaviours.

**7) *Follow-up: Who should promote these policies: government, companies, both?***

I am convinced it's both. We need the cultural ability to adapt within organizations but it has to be backed by governmental legislation and processes by regulations, and leaves the decisions for businesses. It has to be consistent in the company or in government, year after year, mandate after mandate, leader after leader. Otherwise it falls off the cliff and someone has to start all over again.

**8) *You have spoken about the lack of “consistent enabling infrastructures”<sup>59</sup> around the world as reasons for gender inequality in the energy sector. What advice can you give or action do you recommend to change the underlying beliefs causing the inconsistency and persistent gender imbalance?***

It's a question of infrastructure, legislative enabling, leadership, transparency, reporting and consistency. We have to take it on early facilitating family and professional lives. It's a whole that has to be taken together like an ecosystem. If you take just one aspect and make the legislative or regulatory amendments, it will not do what you want it to do. It calls for everyone and the determination to follow up. Policies around the world are calling for women to get back to the workforce. We see well educated women that have no interest to do so because they don't feel supported. The best course I find for this is the ecosystem, calling for all the components of success to come into action.

**9) *Aside from representation in corporate echelons, what role can (and should) women play in tackling issues with lack of modern energy access at local, community levels?***

Out of 1.2 billion people with no access to any form of modern energy, about six hundred thousand are in India, and the rest is mostly in Africa. If we focus on these regions, we see that women in villages are the caretakers. They are on the ones who educate their young children and take care of their health. They are at the core of their societies. So any support we can give them, they will take it over. So the better we tool them the better it will be for their own local community. And it starts from there. In terms of access to energy we really have to work with women.

**10) *What advice/recommendations do you have for other energy leaders to encourage diversity in the energy sector? To future energy leaders?***

My answer to that is pretty simple - they need women on board. Women bring a different culture. They have a different added value. If you put together a team of people who've been educated the same and are of the same background and age, they will all think alike. Diversity calls for gender but also age and ethnicity for example. It's more demanding for a leader, but if you want provocative discussion, if you want new ideas, there's no other way. I've seen this many organizations miss on essential and fundamental strategic development. They never saw it coming. Why? They were all in their comfort zone.

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<sup>59</sup> Marie-José Nadeau. WEC (2015). “Full potential of women needs to be utilized”. [Link](#)

You have to get out of your comfort zone, you have to bring in new ideas, new people, different backgrounds, and really this is how you create great initiatives. We live in a world where there will be a lack of skilled labour, and women have a firsthand grasp on new technologies, new ideas, and they should take advantage of it. To any leader that I meet, I tell them 'you're missing out on something'; 'don't see it as a threat'; 'It's an added value and you will gain from it'. I have seen great examples of that.

**11) *Do you see a change in the horizon?***

I see change on the horizon. But we have to be very persistent. We have to come back at it and persuade. In the case of the World Energy Council I was the only woman on board for too many years. I am trying to bring on more than one and every time I raise the question my colleagues are open minded. There are so many competent women that are willing to be called.

## Summary of interview with Pirjo Jantunen, Chair of the WEC Future Energy Leaders Program



### **1) Why did you pursue a career in the energy sector?**

Accidentally. I studied sustainable development and ended up making an internship in the local energy utility. While working in the energy industry I realised it has a major role in solving the world's most crucial problems, including climate change, so I decided to stay in the energy sector.

### **2) What motivated you to lead the FEL-100?**

The energy sector needs to change, and in order to do that it needs new skills and knowledge, fresh ideas and leadership. Building new sustainable solution requires diversity of voices, meaning cultural and gender diversity, but also closing the generation gap. I am convinced that FEL-100 has what it takes to develop young energy professionals into the energy leaders of tomorrow. It is important that Future Energy Leaders bring their voices to the energy discussions, because various views are needed.

Before applying to the FEL Chair position, I saw that the programme has unleashed potential, and we began to develop it with a small team. After that, applying for the Chair's position felt natural. I believed, and still believe, that I have what it takes to improve the programme: increase its visibility within the energy sector, and develop the programme to be a platform for active participation. There are still steps to be taken, but we are on a right track.

### **3) What challenges have you faced throughout your career as a professional woman in the energy sector? How did you overcome them?**

Being a young female professional in the energy sector is not always easy. As an example, more than once people have thought I am a secretary or even an avec (i.e. companion or

escort) in professional situations. Not sure how much of it is because of gender, how much because of age, and other reasons. Also, I do not know how it would be if I was a man.

A supportive and equal company culture is important, and there should be zero tolerance for harassment. I've tried to show and develop my expertise and to build permissive work culture.

**4) *What do you think is the most important reason for the gender balance gap in the energy sector?***

It all begins from the way children are raised and educated. Do we give dolls for girls and cars for boys to play? Do we encourage girls to take care of their dolls and do we teach boys how to fix their cars? Even though this is simplified example, it reveals how people begin to modify the child's expectations about their skills and abilities from an early age. And this continues in school: the expectations of boys succeeding better in science builds the reality and directs more boys to select science subjects to study. The energy industry has been dominated by engineers and thus by males. In order to have more women in the industry, we need to have more women studying science and mathematics, and thus change society's expectations about who can study and what. I am not saying people would say it aloud or even think it, the problem of inequality is so deep in the society we might not even notice it.

In order to have the best employees, we cannot skip half of the people. In this situation, when the energy industry is dominated by males, it feeds the current status. People tend to like to spend their time with people like them, so increasing diversity is not easy, and pioneers are needed. Luckily, there already are pioneers in the energy sector, but more needs to be done to further increase the diversity.

Also, the energy sector has been technologically focused. This also needs to change, and we need to take customers and stakeholders into account (e.g. to increase the legitimacy of the business and improve services). Also, when the energy industry is more business driven than government driven, customers play a key role. For example, climate change and digitalisation are changing the energy sector. In the future it is not only about engineers building power plants but also, for example, behavioural science specialists finding new business models for the sector. We also need to increase the professional diversity in the sector, and that might help us to close the gender gap as well.

The energy sector needs new skills and knowledge, new views and ideas. The industry needs to be attractive in order to attract the best talent available - we don't want to lose them to other industries. Diversity can also increase the attractiveness of the industry.

**5) *How do you think perspectives on gender equality compare and contrast amongst senior and future energy leaders?***

At least in some cases it seems they do contrast. For many Future Energy Leaders, the gender equality issue seems to be certain. Most of the current senior energy leaders who are males used to work with male leaders. Not sure how much male senior energy leaders promote equality, but I have been happy to see it is common within the males in the FEL-100 community.

**6) *What attraction and retention policies work and do not work for women in energy organizations? Are there global differences? Generational differences? Who should promote these policies: government, companies, both?***

I think both companies and governments play important role, and the balance between them depends on a society (in some countries government has bigger role and vice versa).

When it comes to what policies work and what do not, I do not believe that there are significant differences between energy organizations and other organizations. Generally, based on some studies women value, for example, career development possibilities and flexibility.

I have no expertise about global differences, but I believe there are some due to cultural differences. Generational differences exist for sure, millennials value flexibility more. And not just females, males as well. Working their whole career in the same company was a dream of my grandmother's generation, but not of my generation.

Generally, companies should offer equal possibilities (e.g. career development, salary) to all genders. And governments should create a society with equal opportunities, like education. Also, governments shouldn't create benefit traps, for example offering better possibilities for females to stay at home with kids. The possibilities should be equal to encourage men take care of kids as well.

**7) Do you think there are ways women hold themselves back and if so, what advice would you give to them?**

Unfortunately, I think there are, and at least some studies suggest the same. My simple advice for them: You can do it!

**8) What specific qualities do women have that are necessary for success in the energy sector?**

I do not know if there are any specific qualities needed in the energy sector, I'd assume that the same qualities are required in many other fields work as well as in the energy sector.

Furthermore, I do not know if women and men have different qualities in the end. If no, in order to have best talent, we need both. If yes, having both balances the quality set and gives more comprehensive view.

**9) Aside from representation in corporate echelons, what role can (and should) women play in tackling issues with lack of modern energy access at local, community levels?**

Increasing energy access at local levels requires expertise from women, since in many cases women are the ones using the energy in the first place. Thus, taking the target group along while planning the solutions via co-creation processes is one way to build sustainable models. Barefoot College is a superb model of this!

**10) What advice/recommendations do you have for senior energy leaders to encourage diversity in the energy sector? To future energy leaders?**

Senior energy leaders: Even though it might feel more comfortable to work with people like you, diversity enables multiple views and thus generates ideas and innovation. Also, your customers are a diverse group, so diverse workforce can serve them better. Diversity means business benefits, and as a senior energy leader you should be interested on that.

Future energy leaders: Build your expertise and leadership capabilities and show them to others. You have a possibility to increase the diversity at your workplace. Remember to give the change to others as well, do not hire only people like you.

To both senior and future energy leaders: Treat your kids as well as other children equally, no matter what gender they have. All children should be equally encouraged to express themselves, develop their skills and later choose a career.

***11) Do you see a change in the horizon?***

I do. It is not only the energy industry that is facing the challenge, but other technical industries as well. For example, a huge share of programmers and coders are males. They have started coding schools for kids, and especially for girls as well. Similar things should be developed in the energy sector as well.

Also, the energy sector is changing, for example due to climate change and digitalisation, among others. New skills are needed, and that means skills from other industries. This could renew the way the industry works, and thus break the glass ceilings.

# ANNEX II: HUMAN CAPITAL ISSUES MONITOR SURVEY

## WEC 2016 FEL Human Capital Issues Survey

Please complete the details below and proceed to the Issues Survey on the next page. Further explanation of each issue is provided on page 3.

All information will be treated as anonymous and used for the sole purpose of the outputs to this survey. Please ensure your completed survey is emailed to Javier Jiménez ([jjimenezp@repsol.com](mailto:jjimenezp@repsol.com)) before 29<sup>th</sup> of April.

### Respondent Details:

<b>NAME</b>	
<b>COMPANY</b>	
<b>SECTOR</b> (please select one)	Oil & gas / coal / nuclear / renewables / utility / demand-side / technology / transportation / finance / government / academia / NGO / association / consultancy / other (please specify)  .....
<b>COUNTRY</b>	
<b>EMAIL</b> (for sole purpose of providing you the final report and analysis)	

<p><b>2016 SURVEY</b> This issues survey aims to identify your priorities regarding key issues and their impact about human capital aspects on the energy sector. Your feedback will help us to understand which issues are on the top of the Future Energy Leaders agendas regarding this subject.</p>	<p>What is the potential <b>IMPACT</b> of this issue on the sector?</p> <p>A high score represents high impact (irrespective of whether you consider the impact to be "good" or "bad").</p>			<p>What is your level of <b>UNCERTAINTY</b> related to the issue's impact?</p> <p>What you perceive as "critical uncertainties" should score high.</p>			<p><b>URGENCY</b> – When does the sector need to react to the issue?</p> <p>Short term; less than 3 years, long-term; more than 10 years.</p>		
	High	Med	Low	High	Med	Low	<3	3-10	>10
<b>Talent</b>									
Leadership Development	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mentoring	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Internships	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Innovation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Entry or Junior Level Opportunities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Compensation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Entrepreneurship	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Conciliation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Brain Drain	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Skills Mismatch</b>									
Vocational Education and Training (VET)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Business Acumen	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
STEM Professionals	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Knowledge Transfer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Succession Management	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Digitalisation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Robotization	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Over Qualification	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Under Qualification	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Regional Collaboration	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Diversity / Gender Equality</b>									
Gender quotas	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wage Equity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Female Executive Leadership	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Women in STEM roles	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
"Glass Ceiling"	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Telecommuting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Government Initiatives	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cultural Barriers to Gender Equality	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Stereotypes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Inclusion	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Social Perception</b>									
Brand Engagement	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sustainable Performance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Community Development	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Corporate Reputation Management	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Media Power	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Social Media	<input type="checkbox"/>								
Energy Education in Primary /High schools	<input type="checkbox"/>								

<b>Talent</b>	
<b>Leadership Development</b>	Programs or Career plans to promote managerial/directorial skills among industry employees.
<b>Mentoring</b>	Learning and development partnership between someone with vast experience and someone who wants to learn, acting as an advisor, counselor, or guide.
<b>Internships</b>	Proactivity from companies to offer students or recent graduates periods of supervised training in order to provide them certain skills for their future professional life.
<b>Innovation</b>	Capacity of young professionals to introduce new elements or methods into the current industry.
<b>Entry or Junior Level Opportunities</b>	Opportunities for junior professionals and recent graduates as a consequence of energy companies prioritizing experienced workers to complete projects quickly and effectively.
<b>Compensation</b>	Compensation level (salaries, other financial incentives and extra remuneration package) as a tool to attract and retain talent
<b>Entrepreneurship</b>	Capacity and willingness of energy industry workers to develop, organize and manage new businesses or projects by themselves, assuming any of their risks, in order to reach a major goal.
<b>Conciliation</b>	Degree of people's ability within the industry to reach a balance between personal and professional life.
<b>Brain Drain</b>	Emigration of intelligent, well-educated individuals for better pay or conditions, causing their places of origin to lose skilled people and talent.
<b>Skills Mismatch</b>	
<b>Vocational Education and Training (VET)</b>	Vocational education that prepares professionals for a specific trade. VET courses are typically shorter and more practical than higher education ones and have an industry and trade focus, including in-company training programs.
<b>Business Acumen</b>	Possibility of lack of business-oriented thinking among STEM (science, technology, engineering and mathematics) professionals.
<b>STEM Professionals</b>	Shortage of STEM (science, technology, engineering and mathematics) professionals.
<b>Knowledge Transfer</b>	Know-how transmission between senior employees and young professionals, focusing on capturing the knowledge and transferring the abilities that are in danger of walking out the door.
<b>Succession Management</b>	Process of identifying internal people with potential to fill key leadership positions in order to increase availability of employees capable to assume these roles when needed.
<b>Digitalisation</b>	Competing effects on jobs dynamics: generation of new business models, new products and new jobs on the one hand, and cutback of medium skilled jobs on the other.
<b>Robotization</b>	Automation of a system or process by use of robotic devices, replacing jobs due technological revolution.
<b>Over Qualification</b>	State of being skilled or educated beyond what is necessary for a job (surplus of overqualified workers).
<b>Under Qualification</b>	Lack of skilled and experienced professionals to meet the required position criteria.
<b>Regional Collaboration</b>	Possibility of knowledge exchange and teamwork projects among different regions (countries, geographic areas) E.g. employees internships, secondee agreements, collaboration panels.
<b>Diversity / Gender Equality</b>	
<b>Gender Quotas</b>	To establish a quota system which involves setting up a percentage or number for female representation within the global workforce.
<b>Wage Equity</b>	Gap between wage and education levels between men and women.
<b>Female Executive Leadership</b>	Setting up a percentage of women in managerial and CEO positions within the energy industry.
<b>Women in STEM Roles</b>	Shortage of female professionals with technical background. Need to encourage young women about the various career prospects offered in the industry.
<b>Glass Ceiling</b>	Presence of the unseen, yet unbreakable barrier that keeps women and other minorities from rising to the upper organizational levels of the corporate ladder, regardless of their qualifications or achievements.
<b>Telecommuting</b>	Flexible work schemes. Work arrangement in which employees do not commute to a central place of work, mainly working from home.
<b>Government Initiatives</b>	Actions and regulations put in place by governments in order to promote and encourage a heterogeneous and balanced workforce.
<b>Cultural Barriers to Gender Equality</b>	Customs, beliefs or stereotypes that restrict women open access to all positions within the industry.
<b>Stereotypes</b>	Barriers to open access to job positions and within the job environment due to race, religion or sexual orientation.
<b>Inclusion</b>	A work environment in which all individuals are treated fairly and respectfully, have equal access to opportunities and resources, and can contribute fully to the organization's success.

<b>Social Perception</b>	
<b>Brand Engagement</b>	Ability of the industry companies to create an emotional or rational bonds with their brands, building a strong and enduring culture to engage their teams.
<b>Sustainable Performance</b>	Stakeholders' concern about energy industry social and environmental impact
<b>Community Development</b>	Activities that a company undertakes to enhance its relationships with, and contribute to the well-being of, the communities in which it has a presence or impact.
<b>Corporate Reputation Management</b>	Process of creating influencer strategies that deepen understanding, build trust and mitigate risk in complex, ever-changing environments.
<b>Media Power</b>	Media's potential for public influence over energy subjects.
<b>Social Media</b>	Energy sector's communication strategy through social media in order to transmit its capability to deliver safety, environmental, and community engagement performance.
<b>Energy Education in Primary /High Schools</b>	Need of an early education starting from a very young age regarding energy issues that may clarify children and teenagers perception of the industry.