

# A National Human Resource Strategy for the Electricity and Renewable Energy Industry in Canada

Results of a Pan-Canadian Consultation  
Final Report, June 2009



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#### **About the Electricity Sector Council**

Approximately 100,000 Canadians are involved in the generation, transmission and distribution of one of our country's essential utilities: electricity. Their work powers homes and businesses across the country, fuelling everything from light bulbs, cell phones and refrigerators to water treatment plants and road vehicle assembly lines.

The Electricity Sector Council provides support to this dedicated team by working with industry employers and other stakeholders to research and resolve human resource and workplace development issues.

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## **Executive Summary**

### **Introduction**

The Electricity Sector Council (ESC) was established in 2005 as a not-for-profit partnership between business, labour, education, and government. The ESC is the hub for research into human resources trends and sector-specific solutions to Canada's skilled-labour shortage. According to the 2008 Labour Market Information Study (ESC, LMI 2008), based on employer estimates, 28.8% of the current electricity workforce is expected to retire between 2007 and 2012. The competition to replace these workers both from within Canada and abroad will be intense. To date, Canada has neither hired sufficiently nor sustained the electricity and renewable energy training programs required to adequately meet workforce needs. Equally significant, advances in technology, particularly those in the continually developing sectors of energy efficiency and renewable energy, are changing the skills profile of workers in the electricity sector.

The 'Building Connectivity' Project, undertaken by ESC, is a two year project that involved a comprehensive consultation process with 88 provincial/regional and federal key stakeholders. The goal was the development of a Pan-Canadian Human Resource Strategy to effectively address industry human resource practices and support enhanced workforce development. Regional stakeholders included utilities, government, unions, associations, distributors, NGOs, and academic institutions. The regions included: Ontario, Alberta, British Columbia, Atlantic Canada (New Brunswick, Nova Scotia, PEI, Newfoundland/ Labrador), the Prairies (Saskatchewan, Manitoba), Quebec, and Northern/ Off-Grid Canada (Yukon, Northwest Territories, Nunavut and, that portion of many provinces with large numbers of 'off grid' communities).

This National Human Resource Strategy for the electricity and renewable energy industry is a reflection of those regional consultations. Stakeholders were asked to give their insights into the current human resources barriers and gaps, the skills of the future that need to be developed, the suggested practices in recruitment and retention, the partnerships and collaborations that need to be formed or strengthened, and finally, the necessary tools and support industry stakeholders would need in order to address these issues. The final strategies and tactics that emerged from the regional consultations were validated and prioritized through web survey by a broad spectrum of senior industry stakeholders.

### **Summary of Findings**

There have been significant efforts by industry stakeholders and the Electricity Sector Council to address the current human resources challenges faced by the electricity and renewable energy industries. Some of these efforts include hiring an increasing proportion of younger workers, the production of labour market information, organizing regional working groups to address human resources issues, the development of succession planning tools, implementing a foreign trained worker research project, and working towards curriculum development for the renewable energy industry. However, despite the high industry awareness of human resources issues and the efforts put forth to resolve them, according to the ESC's 2008 'Powering Up the Future' labour market information study, the current industry labour force supply-demand gap has widened since 2004.

In order to understand this widening supply-demand gap, stakeholders were asked during the consultations whether human resources issues were being portrayed correctly and whether there were additional issues that needed to be highlighted and/or emphasized. Those consultations validated previous work undertaken by the ESC to characterize human resources issues within the industry.

### National Issues Identified:

- **Public awareness and industry branding** was a major theme which emerged during the consultations. There is a lack of a strong national industry brand and not enough awareness of potential career opportunities. New branding approaches need to deal with the negative social stigma around the trades within this industry.
- **Employee mobility** was another critical component to defining this industry's workforce environment. There are significant barriers in Canada for employees to move freely between jurisdictions and for new immigrants' qualifications to be recognized.
- **A lack of coordination and alignment** between all levels of stakeholders (Academic Institutions, Unions, Utilities, Distributors, Rate Regulators, Government, Associations, and NGOs) is an issue that needs to be addressed in order to begin an open dialogue about industry human resources challenges and start the process of a collaborative effort towards solutions.
- **A lack of strategic human resources planning** between stakeholders and within organizations was also identified. There is a need for a more coordinated, innovative, and cooperative approach to planning in order to better inform academia of training needs and job availability. There are also a variety of issues related to recruitment and retention of workers. The ESC is well positioned to address this issue as it has developed, and is continually developing, human resources planning resources.
- **Workforce diversity** needs to be addressed, especially with regards to aboriginals, women, and internationally trained workers.
- **The rural-urban shift amongst youth** needs to be better understood and incentives/strategies need to be created in order to develop local talent in rural communities.
- **More training and infrastructure capacity is required** (teachers and classroom spaces) through the development of technical skills, leadership and soft skill sets, human resource skills, and interdisciplinary skills.
- **Ability to and, priority of funding initiatives to address** a human resource strategy.

### Regional Issues Identified:

- **A very competitive labour market** was identified for regions such as Eastern Canada, the Prairies, and the Northern/ Off Grid communities. This was partly caused by the oil and gas industry in Alberta and the difficulty of enticing workers with utility experience to remote and rural areas.
- **A better understanding of national and provincial energy policies** was identified by Ontario especially with regards to infrastructure, climate change, carbon pricing, and renewable energy.

- **New energy infrastructure upgrades** that are occurring in Quebec will increase the demand for the necessary skills to implement these projects.
- **Increased secondary school competencies in math and sciences**, especially for students interested in the trades, was an issue identified throughout Canada, but was most strongly felt in Eastern Canada, the Prairies, the Northern/ Off-Grid region, and Aboriginal Communities.

## Human Resource Strategy Key Recommendations

The following six strategic recommendations for the national human resources strategy are based upon the information gathered during the Pan-Canadian consultations. They have been prioritized, beginning with the most critical, through a National Validation process by senior level industry stakeholders across Canada. Each of the strategic recommendations, tactics, and additional resources were prioritized based on the rating average which participants ranked on a 7-point Likert scale. The outlined direction is listed first, followed by the suggested tactical approaches needed for successful delivery within a time frame of three to five years.

- **Harmonize Industry Standards across Canada, while ensuring the appropriate development of occupational skills and competencies.** *However, the organization and implementation of this could take many years, therefore as an interim solution:*
  - Complete a gap analysis of occupational requirements provincially/territorially.
  - Develop a database of foreign credential assessments and recognition program, combined with ESC's Foreign Trained Worker research project.
  - Create a Pan-Canadian Guide/ Map of occupational requirements by province/territory to be included in industry branding and awareness website.
  - Leverage national and regional working groups to help ensure that proper skills and competencies are being developed and are reaching a broader audience by:
    - *Increasing technical skills sets and competencies as determined by current and future needs of the industry.*
    - *Developing better knowledge management systems within organizations via in-house training and mentoring to increase knowledge transfer.*
    - *Increasing soft skills sets within K-12 system and post-secondary schools (i.e. leadership skills, critical and creative thinking, problem solving, project management, team work, communication skills, cultural/generational diversity training, interpersonal skills, and resource stewardship).*
    - *Developing multiple deliver methods for training to reach a broader audience.*
    - *Developing enhanced human resource skills and increased capacity within the industry to deal with human resources planning needs.*
- **Develop Strategic Human Resource Planning Support Tools.**
  - Develop long-term market, workforce, and human capital planning tool
  - Support by industry of ESC's succession planning tool development

- **Support Federal, Provincial, and Organizational Policy Initiatives that increase labour availability (to human resources planners/educational institutions) and help to enhance workforce mobility.**
  - Strengthen the call to government and industry to increase the number of post-secondary seats in programs that lead to electricity and renewable energy sector occupations.
  - Intensify messaging to government regarding Canada's immigration policies in order to enhance entry of internationally trained workers for high demand job areas in the industry.
  - Develop a reallocation service to reposition labour force from over supplied areas (high density) to undersupplied areas (low density).
  - Use of existing industry working groups to continually monitor national and provincial/territorial energy plans to see what the implications and opportunities are for labour force (including climate change, carbon pricing, and renewable energy).
  
- **Develop targeted branding and marketing tools to increase public awareness of the industry and increase recruitment rates.**
  - Create an industry-wide recruitment plan to include key elements of the industry's re-branding efforts and an engagement and outreach strategy for target groups (Youth, Aboriginals, Women, and Internationally Trained Workers).
  - Create an industry 'brand' website to highlight career opportunities, competencies needed, training needed, career pathways, national job postings, and monetary/ non-monetary benefits of working in the industry (potentially integrated with current industry websites).
  - Focus targeted recruitment strategies on guidance counselors, parents, high schools, and post-secondary institutions to clearly identify career development opportunities in the industry and to increase the number choosing a career in this industry.
  - Make use of current employees as recruiters, 'selling' the benefits of the job/organization.
  - Utilize social networking applications used by younger potential recruits in branding efforts, e.g. Facebook, Myspace, Twitter.
  
- **Define funding priorities and ownership of National Human Resource Strategy elements.**
  - Develop a strong business case for human resource planners and bring them into the strategic corporate planning process. The business case would be used to help companies inform rate regulators of current and future human resources needs in order to secure more labour. This initiative should be based on information gathered in the ESC's 2008 LMI study.
  - Industry and government need to dedicate more resources towards building human resources capacity within their organizations and further promote awareness of the industry.
  - Define ownership of plan elements through working groups and upcoming electricity sector conferences and events.
  - Funding priorities include:
    - *Increased training opportunities (apprenticeships, co-ops, try-trades programs)*
    - *New technology and equipment for educational institutions*
    - *Updated course content and increased teaching capacity*

- *Establishment of university research chairs*
  - *Increased training opportunities (apprenticeships, co-ops, try-trades programs)*
  - *More timely labour market research*
  - *Development of human resources Planning Support Tools*
  - *Further awareness of industry workforce*
  - *New Marketing and Branding Initiatives*
- ***Build awareness around current human resources tools available or in development, in the form of a web-based information clearinghouse which includes an information exchange and feedback mechanism.***
    - Develop an awareness campaign for industry stakeholders of this web-based information and communication tool, including current resources available and resources to come.
    - Utilize the current ESC Bright Futures website with some additional resources and upgrades as an industry communication and feedback tool to share information on innovative programs, resources, best practices, critical industry data, and trends.
    - Inclusion of the following resources in the information clearinghouse:
      - *Marketing materials for guidance councilors/parents*
      - *Succession planning tools*
      - *Regular, detailed and timely labour market information*
      - *Inventory of suggested practices in recruitment, retention, and training*
      - *Inventory of schools, programs, graduates, specialties, careers, and jobs*
      - *Training course materials for specialized occupations in need of upgraded content*
      - *Sharing of core human resources metrics and information between organizations*
      - *Educational tools for high schools (i.e. Trades Math and Science Courses)*
      - *Standardized terminology and occupational descriptions*
      - *Regulatory updates*
      - *Inventory of industry branding initiatives.*

## Next Steps

“The combination of the aging workforce, a shortage of trained new workers and rising demand on the electricity system are the factors raising significant concerns about the ability of the electricity sector to meet the needs of Canadians. The immediate task is the need to focus on closing the supply-demand gap for personnel” (2008 LMI Study, ESC).

The strategic recommendations which emerged from this Pan-Canadian consultation demonstrate that industry stakeholders are well aware of the issues and what solutions are needed in order to ensure an adequate human resource supply is available for the future of Canada’s energy system. It will require that all industry stakeholders contribute, collaborate, and communicate to ensure that there is an appropriate and well-trained supply of labour entering the industry.

The Electricity Sector Council has already developed or is in the process of developing many of the tools discussed by industry stakeholders as critical to the success of these recommendations. For more information about these resources and how you can get involved, please go to the Electricity Sector Council’s website, [www.brightfutures.ca](http://www.brightfutures.ca)

This project sought to gain industry consensus around strategic priorities for a successful national human resource strategy. These recommendations from stakeholders across Canada have been validated and prioritized by thought leaders in the industry and the final strategy will inform the initiatives of the Electricity Sector Council for the next three to five years. This report will be made electronically, as well as, distributed widely to all industry stakeholders, including government, rate regulators, Boards of Directors, academia, and labour leaders.



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## 1. INTRODUCTION

### ***The Electricity Sector Council:***

The Electricity Sector Council (ESC) was established in 2005 as a not-for-profit partnership between business, labour, education, and government. The ESC is the hub for research into human resources trends and sector-specific solutions to Canada's skilled-labour shortage. Its mandate is to address the need for sector-wide recruitment and retention strategies. The ESC resulted from the 2004 report "Keeping the Future Bright: 2004 Canadian Electricity Human Resources Sector Study," outlining the human resource challenges the electricity sector will face in the coming decade.

The Electricity Sector Council is funded by the Government of Canada's Sector Council Program with support from distinguished industry stakeholders.

### ***Human Resource Issue Addressed:***

According to the 2004 Canadian Electricity Human Resources Sector Study, up to 40 per cent of Canada's traditional electricity workforce will likely retire by 2014. The competition to replace these workers both from within Canada and abroad will be intense. To date, Canada has neither hired sufficiently nor sustained electricity and renewable energy training programs to adequately meet workforce needs. Equally significant, advances in technology, particularly those in the continually developing sectors of energy efficiency and renewable energy, are changing the skills profile of workers in the electricity sector.

ESC's 2008 Labour Market Information Study entitled, 'Powering Up the Future', also reiterated these challenges:

"An aging workforce, low recruiting numbers, inadequate infrastructure and a continual increase in demand from domestic and export markets are converging to create a perfect storm in the electrical industry. Although many employers have started to take action to mitigate the effects of the looming labour shortages in the electricity sector, there remains an increasing threat of an insufficient supply of workers to meet the increasing demand within the sector."

The industry workforce needs to grow to address the needs of this changing environment.

### ***The 'Building Connectivity' Project:***

The 'Building Connectivity' Project was a two year project that involved a comprehensive consultation process with provincial/regional and federal key stakeholders towards the development of a Pan-Canadian Human Resource Plan to effectively address industry human resource practices and support enhanced workforce development.

The Electricity Sector Council is working with industry partners and associations to address the forthcoming workforce shortage identified in the 2008 ESC 'Powering Up the Future' study. Among the solutions suggested in that report was a recommendation to establish and build

intergovernmental and industry partnerships and relationships that will enable the collective action required to address a number of key issues such as:

- Adequacy of training facilities/infrastructure to meet industry needs
- Challenges and issues for workforce initiatives dependent on rate review and regulatory protocols
- Immigration barriers to industry workforce supply
- Lack of awareness among youth and applicants of opportunities with the industry
- Rural and remote work challenges for the industry

The intent of the cross Canada consultations and this resultant national Human Resource Strategy was to increase awareness among stakeholders of the issues which hinder the development of an adequate electricity and renewable energy workforce supply and to produce a Pan-Canadian industry plan to mitigate the workforce challenges the electricity and renewable energy industry is facing.

## **2. DEFINING THE WORKFORCE ENVIRONMENT**

Stakeholders were given the opportunity in advance of the consultations to reflect upon five discussion papers (covering such topics as the regulatory environment, training and skills development, immigration, industry awareness and brand, and rural and remote issues) and an environmental scan of energy plans and human resources management strategies in Canadian provinces and territories. The discussion plans and environmental scan were developed specifically for this project to serve as tools to aid in the facilitation of the broad-based consultations by setting the context and providing substantive content on each of the five key issues to enable the sharing of ideas, prioritization of suggested actions, and recommendations for implementation.

Stakeholders were then asked to see whether human resources issues were being characterized correctly and if there were any additional points that needed to be highlighted and/or emphasized. The following issues were highlighted during the consultation as critical to defining the workforce environment in the electricity and renewable energy industry and were broken down into national and regional categories. The issues are then summarized in Table 1 below with a set of potential actions and solutions recommended by stakeholders. It is important to note that the issues listed are in no particular order of importance.

### **2.1 National Issues**

During consultation, stakeholders identified seven main national issues: branding/ public awareness, employee mobility, industry partnerships, strategic human resources planning, recruitment and retention, training, and funding. Issues and stakeholder perceptions are:

#### *Public Awareness and Industry Branding*

There is a lack of a strong national industry brand and little awareness of potential career opportunities. Many different initiatives are occurring regionally—which can be seen in the section three of this report—but there is currently no real national strategic branding and awareness approach. Participants also noted a negative social stigma around the trades within

this industry. Traditionally, entering into the trades has been viewed by parents as inferior to pursuing a university education, and as a result parents and guidance counsellors are encouraging high school students to enter into a bachelor program. This negative social stigma must be overcome in order to attract more students into the industry's trades. A variety of potential solutions were recommended to address this issue, for example: defining the target audience, highlighting the new and positive attributes of the industry, and creating aggressive marketing strategies/materials for the defined target groups. This would include approaches like positively promoting industry careers and trades in high schools.

### *Employee Mobility*

There are significant barriers across Canada for employees to move freely between jurisdictions. Additionally, it is very difficult for new immigrants to have their qualifications recognized. Stakeholders identified that the creation of nationally standardized training requirements and certifications would enhance the workforce mobility from low demand areas to high demand areas. The barriers are also partly caused by an immigration system that may not be favourable to trades, as evidenced by a lack of recognition or understanding of international qualifications and an inadequate support system for new qualified immigrants (i.e. language, Canadian protocol/systems). Participants felt this could be overcome by enabling better understanding and control of certification/accreditation from provincial, federal, and international jurisdictions. That information would then be used to develop and/or harmonize national standards and to create an international credential recognition program. Similarly, strengthening immigration policies to better screen for foreign workers is a necessary step to supplement the labour force demands of this industry.

### *Coordination and Alignment of Industry Stakeholders*

An improved coordination and alignment between all levels of stakeholders (Academic Institutions, Unions, Utilities, Distributors, Rate Regulators, Government, Associations, and NGOs) is a necessity. The industry needs to further develop these partnerships strategically to ensure the maintenance of: good feedback mechanisms, timely labour market information, appropriately defined roles and responsibilities, available collaborative training programs, and correct funding mechanisms.

In addition, partnerships with other industry groups, sector councils, and unions should be developed in order to find successful approaches to human resources issues so as to reduce industry poaching and increase cross-collaborations. It was felt that under-represented stakeholders, such as, rural/ remote communities, aboriginal groups, and small scale independent power producers need to be partnered with for a successful national human resources strategy.

### *Strategic Human Resources Planning*

A lack of strategic human resource planning between stakeholders and within organizations was identified as a major issue. There is a need for a more coordinated, innovative, and cooperative approach in order to inform academia of training needs and job availability. The industry is evolving rapidly and needs to take a long term view when considering its human resource needs. The development of new technologies and the increased complexity of skills required to support technological change will have impact on the capacity of the existing workforce and mechanisms need to be put in place to help skill transfer from old technologies to new ones. Industry and unions need to collaborate with educational institutions to ensure the continuous and timely development of curriculum. In addition, knowledge management processes need to

be put in place to ensure the transfer of knowledge from retiring employees to new recruits. Standardized occupational terminology and succession planning/ leadership skills would be useful tools for supervisors and managers. Human resources strategic planning is a critical aspect for the success of that strategy because it enables a significant lead time in developing the appropriate curriculums. Also, the coordination of long-term strategic planning with the development of a strong feedback mechanism and communication tool between learning institutions and employers will ensure that the right skills are being developed and the appropriate numbers of job-ready students are entering the workforce.

### *Workforce Diversity*

A variety of issues related to recruitment and retention of workers were identified and are addressed in Section 3 of this report. One notable recruitment issue is the traditional diversity profile of the industry. Workforce diversity is an industry issue that needs to be addressed specifically with regards to aboriginals, women, youth, and immigrant populations. Stakeholders also identified a need for a better understanding of the rural-urban shift amongst youth and that related strategies need to be conceived in order to implement the appropriate incentives to develop local talent in rural communities. Improving workforce diversity presents a recruitment opportunity for demographics that have not been considered traditionally, and if marketed properly could be one of the potential solutions to this industry's workforce shortages. Issues of competition, specifically the poaching of workers from larger utilities and other industries also needs to be addressed and is discussed more fully below as it has regional implications.

### *Skills Development and Training*

Skills development and training were recognized as another major national theme. More training is required in the development of technical skills (high school math/sciences, current technologies, new technologies, renewable energy, grid infrastructure renewal, and smart grids), leadership and soft skill sets (project management, critical thinking, resource stewardship), human resource skills (strategic human resources planning, succession planning), and interdisciplinary skills. This will require more qualified teachers, mentors, and an infrastructure upgrade for academic institutions (space and technology). There is also a lack of clarity over who should fund and provide this training (Government, Industry, Academic Institutions, and/or Unions). Initiatives around skills development and training should be coordinated with awareness and branding because of the need for better promotion of available programs in the industry.

### *Funding Priorities*

One final and critical national issue identified was the lack of clarity around how the implementation of such strategic initiatives would be funded. Funding will be needed for such things as: new skills development programs and the appropriate infrastructure, re-branding of the industry, more timely and regular market research, a knowledge exchange mechanism for industry stakeholders and, the necessary human resource planning tools.

## **2.2 Regional Issues**

There were four major regional issues which emerged from the consultations that help to better understand the industries workforce environment and its needs: human resources competition, Provincial/Federal Policy implications, New Grid Infrastructure Development, and Secondary School Skill Development.

*Competition for Human Resources: Eastern Canada, Prairies, Northern/ Off Grid*

Previous to the current economic recession, when the price of oil was higher and the Canadian dollar stronger, there was a very competitive human resource atmosphere from other sectors such as the oil and gas industry in Alberta and other out-of-province jobs with more competitive compensation (including oil and gas and larger utilities) for regions such as Eastern Canada and the Prairies. There is also a difficulty for the Northern/ Off-Grid region of Canada to entice industry workers (with utility experience) without offering highly competitive wages due to its remoteness, lack of services, and extreme weather conditions. This was echoed across Canada and also mentioned in relation with the shift of young workers from rural to urban areas.

*Changing National and Provincial Energy Policies: Ontario*

Ontario discussed the need to better understand changing national and provincial energy policies (i.e. infrastructure policy (Integrated Power System Plan, ON.), climate change, carbon pricing, and renewable energy (Green Energy and Economy Act, ON.) and the impact this will have on human resources and future training needs. Policy changes at the provincial and/or federal levels may strongly impact organizations' abilities to build long term strategic talent development.

*New Grid Infrastructure Development: Quebec*

Quebec will also be moving forward with many new infrastructure upgrade projects notably in transmission and will require a workforce with the necessary skills to implement these projects. While these last two issues have highlighted Ontario and Quebec, these Federal/ Provincial policy changes will have implications for all regions in Canada.

*Secondary School Skill Development: Eastern Canada, Prairies, Northern/ Off-Grid, Aboriginal Communities*

The final regional issue of secondary school skill development (i.e. math and sciences), while identified across Canada, was more strongly identified in Eastern Canada, the Prairies, Northern/ Off-Grid region and Aboriginal Communities. There was a real sense that the secondary school math and sciences courses offered were either insufficient or not developing the appropriate skills for trades related to the electricity industry. This was especially reiterated for the regions and communities identified above. It is essential to develop these math and science skills appropriately if students are interested in entering this industry's trades. The root cause of this problem could be attributed to a lack of awareness and understanding of the industry in secondary schools, a lack of resources, or a combination of the two.

**Table 1: Defining the Workforce Environment**

Theme Identified	Definition	Potential Actions and Solutions Recommended by Stakeholders
<b>National Themes</b>		
<b>Branding/ Awareness</b>	<ul style="list-style-type: none"> <li>Lack of strong, current industry brand</li> <li>Inadequate awareness of industry and career opportunity potential</li> <li>Poor public perception of trades</li> </ul>	<p><b>Define audience for re-branding exercise</b></p> <ul style="list-style-type: none"> <li>Generation (youth), women, immigrants/foreign workers, aboriginal populations</li> </ul> <p><b>Highlight positive attributes of the industry</b></p> <ul style="list-style-type: none"> <li>Exciting new and advanced technologies (i.e. renewable energy, smart grids, distributed energy), environmental attributes of industry, work-life balance, career development potential, social benefits (depending on region, i.e. rural vs. urban).</li> </ul> <p><b>Create aggressive marketing strategies for target groups</b></p> <ul style="list-style-type: none"> <li>Better understand the values of different age groups and demographics</li> <li>Create tailored marketing strategies to the specific demographics targeted, highlighting industry attributes that would most appeal to those groups               <ul style="list-style-type: none"> <li>Positively promote trades in high schools to students, counselors and parents</li> <li>Look at best practices in other industries for recruiting ideas (i.e. police force and ambulance workers for recruiting women)</li> <li>Provide assistance to foreign workers to help them adapt to the country and the industry</li> <li>Promote alternative working schedules / contract work to attract retirees</li> </ul> </li> </ul>
<b>Employee Mobility</b>	<ul style="list-style-type: none"> <li>Significant barriers to employee mobility between jurisdictions</li> <li>Lack of national standards and professional accreditation for trades, technology</li> </ul>	<ul style="list-style-type: none"> <li>Develop a better understanding of workforce mobility constraints</li> <li>Develop a better understanding and control of certification/ accreditation from provincial, federal, and international jurisdictions</li> <li>Develop national standards and international credential recognition program</li> <li>Strengthen immigration policies to better screen for foreign workers</li> </ul>
<b>Industry Partnerships</b>	<ul style="list-style-type: none"> <li>Lack of coordination and alignment between different stakeholders</li> </ul>	<ul style="list-style-type: none"> <li>Further develop partnerships between industry and academic institutions to help with training program development</li> <li>Align non-traditional stakeholders (i.e. immigrant associations) with industry</li> <li>Develop a much better relationship between the rate regulator and the industry in order to help fund human resources initiatives.</li> <li>ESC could take on a leadership/secretariat role to liaise between stakeholders (unions, industry, government, and academic institutions), to ensure that:</li> </ul>

		<ul style="list-style-type: none"> <li>▪ Good feedback mechanisms are in place;</li> <li>▪ Roles are appropriately defined;</li> <li>▪ Collaborative training programs are available;</li> <li>▪ Initiatives are shared and not duplicated;</li> <li>▪ Right funding mechanisms are in place; and to,</li> <li>▪ Serve as clearinghouse for information regarding real-time workforce data</li> </ul>
<b>Strategic Human Resources Planning</b>	<ul style="list-style-type: none"> <li>• Lack of integrated planning between stakeholders</li> <li>• Need for a more coordinated, innovative, cooperative approach to planning and training</li> <li>• ‘Just-in-time’ recruitment</li> <li>• Need for greater consideration of rapidly changing industry and taking a long term view</li> </ul>	<ul style="list-style-type: none"> <li>• Decision makers and human resources departments need to coordinate, integrate, and plan for future talent requirements</li> <li>• Integrate planning considering all areas of focus to help develop industry partnerships and to deliver the human resources needs of the future</li> <li>• Develop standardized occupational terminology across Canada</li> <li>• Develop succession planning and leadership skills for supervisors and managers</li> </ul>
<b>Recruitment and Retention</b>	<ul style="list-style-type: none"> <li>• Lack of workforce diversity, particularly: women, aboriginals, and immigrants</li> <li>• Rural-urban shift amongst youth</li> <li>• Competition from larger utilities and from other industries</li> </ul>	<ul style="list-style-type: none"> <li>• Better understand generational differences (i.e. ‘Millennium’ generation), differences between values of other targeted groups, and create work environments to suit their needs: <ul style="list-style-type: none"> <li>▪ More flexible work environments for special interest groups such as retirees, women, generation Y</li> </ul> </li> <li>• Create industry competency matrixes for different jobs areas that define actual required competencies.</li> <li>• Highlight non-monetary incentives to address competition from other industries.</li> <li>• Better understand rate base structure to provide pay competitive with other industries.</li> <li>• Better understand and take steps to address potential barriers to entry for target groups (i.e. inadequate access to industry skills for aboriginal populations).</li> </ul>
<b>Training</b>	<ul style="list-style-type: none"> <li>• Lack of training in required industry skills.</li> <li>• Technical</li> <li>• Leadership/ Soft Skill Sets</li> <li>• Human resources</li> <li>• Interdisciplinary</li> <li>• Lack of clarity around who should</li> </ul>	<p><b>Training Content</b></p> <ul style="list-style-type: none"> <li>• Skill sets for new technologies</li> <li>• New security protocols / safety protocol for new technologies</li> <li>• Tailored programs (trades and professional ) for under-represented groups (i.e. aboriginal populations)</li> <li>• Streamline curriculum development, certifications, and career pathway development to facilitate cross-training</li> </ul>



	<p>fund and provide training; industry, government, academic institutions, and/or unions</p> <ul style="list-style-type: none"> <li>• Need for more qualified instructors</li> <li>• Cross-training from trades to technologists to engineers/ management is currently very difficult</li> <li>• Lack of communication and awareness of available programs for training and skills development</li> <li>• Lack of appropriate infrastructure in post-secondary institutions (space, technology, industry experience for faculty members)</li> </ul>	<p><b>Training Delivery</b></p> <ul style="list-style-type: none"> <li>• Alternate modes of training delivery, including outcome-based learning and informal and experiential learning</li> <li>• Broader course offerings, offer training in communities, distance education, on-line courses, industry delivered programs, and culturally appropriate education programs</li> </ul> <p>Secondary schools:</p> <ul style="list-style-type: none"> <li>• Consider creating new trades stream to provide enhanced math and science, reading/writing comprehension, problem solving, communications, and leadership skills</li> </ul> <p>Industry:</p> <ul style="list-style-type: none"> <li>• On-the-job training</li> <li>• Knowledge transfer mechanisms from the older generation to new recruits (mentoring, apprenticeships)</li> <li>• More flexibility for non-graduates</li> </ul> <p><b>Funding</b></p> <ul style="list-style-type: none"> <li>• Increase industry and government investment support (ESC also a player)</li> <li>• Government incentives for industry-led training initiatives.</li> </ul>
<p><b>Funding</b></p>	<ul style="list-style-type: none"> <li>• Lack of clarity around how Human Resource Strategy implementation will be funded</li> </ul>	<p><b>Define funding responsibilities for the following:</b></p> <ul style="list-style-type: none"> <li>• New skills development programs and the appropriate infrastructure</li> <li>• Re-branding of the industry</li> <li>• More timely market research</li> <li>• Knowledge exchange across industry stakeholders</li> <li>• Human resources planning tools</li> </ul> <p>It was felt that government has a large responsibility to contribute funding towards learning institutions to increase their capacity (technology and space) and also to help fund the strategic workforce planning process and the related marketing branding efforts that will be needed. Stakeholders felt that federal and provincial governments have a leading role because energy production is a major public utility which people depend on. Industry also has a leading role in funding: increased training opportunities within their organizations (apprenticeships, co-ops, etc.), better feedback to learning institutions, branding and marketing efforts, and succession planning. One major constraint for industry is the rate base structure which does not have the appropriate mechanisms in place to consider human resource needs.</p>

Regional Themes		
<b>Competition from Other Sectors (Alberta, Prairie Region, Eastern Canada, and North/ Off Grid Region)</b>	<ul style="list-style-type: none"> <li>• Competition from oil and gas sector in Alberta</li> <li>• Competition from out-of-province jobs in Eastern and Prairie regions of Canada.</li> <li>• Difficulty to entice workers with utility experience up north (and have them stay long-term) without highly competitive pay.</li> </ul>	<ul style="list-style-type: none"> <li>• Look at offering competitive pay with competing sectors</li> <li>• Promote non-monetary advantages, such as, work-life balance, reduced cost of living, community benefits, and community relocation programs.</li> <li>• Offer training opportunities to attract local workforce</li> <li>• Increase productivity through training programs, technology use, and streamlined regulations</li> </ul>
<b>Policy Impacts (Ontario and Quebec)</b>	<ul style="list-style-type: none"> <li>• Changing national and provincial energy policies</li> <li>• Grid Infrastructure Upgrades</li> </ul>	<ul style="list-style-type: none"> <li>• Develop better understanding of the impacts of provincial and national energy policy changes (i.e. climate change, carbon pricing, renewable energy) on human resources and future training needs</li> <li>• Develop more technical skills to meet the needs of grid infrastructure upgrades.</li> </ul>
<b>Math and Sciences in Secondary Schools (Eastern Canada, The Prairies, North/ Off Grid, and Aboriginal Communities.</b>	<ul style="list-style-type: none"> <li>• Lack of awareness/ understanding of the necessary math and science skills needed to enter the trades.</li> <li>• Lack of resources to develop the appropriate course materials geared towards trades related math and sciences.</li> </ul>	<ul style="list-style-type: none"> <li>• Development of branding/awareness program within secondary schools around the need for math/sciences for entering the trades</li> <li>• Development of branding to reduce negative stigma around the trades</li> <li>• Development of standardized secondary school level math and sciences courses/ content geared towards the industry's trade related needs</li> </ul>

### 3. HUMAN RESOURCE SUGGESTED PRACTICE

Stakeholders identified human resource suggested practices that they are currently using, that they know of from different sectors, or that they felt would be useful to inform a Human Resource Strategy. The focus was on two critical human resource areas: recruitment and retention.

#### Suggested Practice in Recruitment

A recruitment strategy with five major areas of focus was suggested:

- i. **Developing Stronger Community and Social Networks:** Building strong networks within communities of operations with non-traditional stakeholders; leveraging current workers social networks to increase awareness and referrals; recruitment of the entire family; and, recruitment from secondary school system, specifically improved networking with guidance counsellors. This would be a useful approach for rural and remote areas to help recruit local talent and to support new workers (potentially foreign) moving into these communities.
- ii. **Education Partnerships for Recruitment:** Re-branding of industry career development possibilities in secondary schools; increasing specialized training programs (co-ops, apprenticeships, internships, and 'try trades' programs); and, offering incentives (i.e. tuition reimbursements with contract obligations over time to retain) to help entice potential candidates into the industry.
- iii. **Industry Branding and Incentives:** Re-branding the industry, specifically to demographic groups of interest. The re-branding efforts would focus on new attributes of the industry, for example: how the industry is evolving and why it is an exciting time to be involved, the environmental aspects of the industry (energy efficiency, renewable, smart grids, distributed energy), and new technologies. These efforts would also need to focus on the benefits of working in this industry. Competitive monetary compensation would need to be considered, but equally important would be non-monetary benefits such as career development opportunities, quality of life, work/ life balance, and workplace flexibility and organizational culture. Non-monetary compensation and benefits would need to be a strong focus for rural and remote areas. Re-branding efforts would also need to strongly consider the values of the new incoming workforce.
- iv. **Defining Career Pathways:** Helping potential new recruits understand the possibility of meaningful career development opportunities within the industry.
- v. **Human Resources Planning:** The corporate recruitment process needs to be streamlined to reduce the operational burden and to remove unnecessary requirements that were traditionally used to screen out candidates. A better understanding of international competencies in the recruitment process would be useful for the industry.

#### Suggested Practice in Retention

The second area was focused around ideas for increasing retention rates. There were four major areas of discussion:

- i. **Work Place Flexibility:** Increasing flexibility for the retiring workforce to help retain these workers in order to ease the workforce demand in this industry. This included addressing the shifting expectations of the workforce, and resolving workplace value

- ii. **Organizational Culture:** The electricity sector has traditionally had one primary demographic working in the industry. This is now changing rapidly with new communities entering the workforce (millennium generation, aboriginals, women, and immigrants). The organizational culture will need to change to address the demographic movement in order for all groups to feel comfortable and welcomed.
- iii. **Career Development Opportunities:** Demonstrating loyalty and commitment to an employee through career development opportunities is a benefit that is very successful in helping to retain workers. Continuous learning and managing talent appropriately were among the tactical initiatives discussed.
- iv. **Incentives and Compensation:** An important part of helping to retain the current workforce (especially prospective retirees) by enticing them with incentives and workplace flexibility which would encourage them to stay in the industry longer. This includes shifting from a culture of offering contracts to younger employees to giving them full time permanent positions. There was also a discussion of building long term relationships with contractors (i.e. electrical), as there is not always loyalty and consistency in contract relationships. The idea discussed was to allow contractors the option of buying into the company and partake in profit sharing—if this is a possibility for the organization.

Table 2 discusses the suggested practice recommendations broken into ideas for recruitment and ideas for retention, highlighting which region of Canada made the suggestion or is using the approach currently. The table also outlines potential stakeholders who could be involved in implementation of the recommendations. The final aspect of the table includes some examples of suggested practice in recruitment and retention for personal reference. Two major issues also emerged as important to take into consideration with regards to recruitment and retention. The first is that the industry needs to test its processes, paradigms and assumptions regarding recruitment and retention while being conscious of generational differences. Secondly, crown corporations and government institutions need to be more consistent in their application of policies and procedures to reduce bureaucracy and help with the recruitment and retention processes.

**Table 2: Suggested Practice in Recruitment and Retention**

Recruitment and Retention Issue	Suggested Practice Recommendations	Stakeholders Involved	Notes
<p><b>More Strategic Recruitment Strategies</b></p>	<p><b>Community and Social Networks:</b></p> <ul style="list-style-type: none"> <li>Partnerships need to be built with community groups in rural and urban areas to tap into a broader and more diverse workforce (i.e. Aboriginal Communities) (Alberta, Prairies, Eastern C., North/Off-Grid)</li> <li>Use social networking and personal relationships in order to increase referrals (Alberta)</li> <li>Leverage current workers to help with recruitment by increasing awareness and promoting the benefits of working within the industry (Prairies)</li> <li>Target rebranding efforts to entire family and to secondary schools especially towards guidance counselors (Prairies, Eastern C.)</li> <li>For rural / remote areas: recruiting the entire family, not just the individual (BC, Eastern C., Prairies, North/ Off-Grid)</li> <li>Recruit local candidates in rural / remote areas more aggressively (Prairies, Eastern C., North/ Off-Grid, Quebec)</li> </ul> <p><b>Education Partnerships for Recruitment:</b></p> <ul style="list-style-type: none"> <li>Industry needs to create education partnerships/ developmental programs and incentives (via apprenticeships, internships, co-ops and tuition reimbursements) in order to enhance recruitment efforts (Alberta, Quebec)</li> <li>Skills development by offering of specialized programs, including co-operatives, mentoring, on-boarding, orientations, coaching, and summer camps (Ontario, BC)</li> <li>Increase promotion and awareness campaigns about career development opportunities (i.e. career fairs,</li> </ul>	<ul style="list-style-type: none"> <li>Requires stronger industry partnerships and relationships between other non-traditional stakeholders such as associations, communities, and secondary and post-secondary institutions</li> <li>Industry to partner with local suppliers to help the entire family re-locate and re-orient themselves</li> <li>Requires industry to tap into current workforce and networks</li> </ul> <ul style="list-style-type: none"> <li>Industry/ government to demonstrate their support to academic/ training institutions via increased training opportunities</li> <li>Industry promotion and awareness by companies with support of unions, government, and sector council</li> </ul>	<ul style="list-style-type: none"> <li>Need to test the industry's processes, paradigms and assumptions regarding recruitment and retention, while being conscious of generational differences (Canada)</li> <li>Crown corporations and government institutions need to be more consistent with their application of policies and procedures in order to reduce bureaucracy and help with recruitment and retention processes (Prairies)</li> <li>Recruitment of locals back to region is another opportunity during a changing economy (Eastern)</li> <li>Suggested practice in recruitment and retention; such as, Trade Up for Success and IBEW (Alberta)</li> <li>Association of Professional Engineers and Geoscientists of the Province of Manitoba APEAGM: Higher as non-professional and then move them over once</li> </ul>

	<p>classroom presentations, packages to guidance counselors)</p> <ul style="list-style-type: none"> <li>• Develop and fund a 'Try Trades' program with the specific intention of increasing equity within the workforce (BC)</li> <li>• 1 year boot camp training programs (Ontario)</li> </ul> <p><b>Industry Branding and Incentives:</b></p> <ul style="list-style-type: none"> <li>• Re-branding of the industry as an exciting time to be involved (renewable energy, environmentally conscious, energy efficiency, smart grids) with good salaries and advanced career possibilities. (Eastern C., Ontario)</li> <li>• Re-brand industry to highlight new technologies, green initiatives, and job stability (Alberta, BC)</li> <li>• Develop a better understanding of what new job seekers desire and what resources the industry has to offer to create meaningful opportunities (Alberta)</li> <li>• Highlighting all benefits (i.e. continuous education programs, career development) (Ontario) (Prairies)</li> <li>• Work flexibility, time-off, work-life balance, health and wellbeing, competitive pay, and performance bonuses (Alberta)</li> <li>• New employee success plans, outlining benefits package (Eastern Canada, Ontario, Prairies)</li> <li>• Targeted compensation benefits (Prairies, North/Off Grid)</li> <li>• Tuition reimbursements, mentorship programs in junior and senior high schools, and partnerships with secondary education to help with career path</li> </ul>	<ul style="list-style-type: none"> <li>• Branding to be a collaborative effort between industry, government, unions, and sector council, with national and regional efforts</li> <li>• Incentives to be determined by industry on an organization by organization basis</li> </ul>	<p>completed. (Prairies)</p> <ul style="list-style-type: none"> <li>• Institute of Electric Energy Engineering (IGEE) is a good example of a academic/ industry partnership in the aid of recruitment (Quebec)</li> <li>• Hydro-Quebec apprenticeship program for foreign workers while credentials are being verified.</li> </ul> <p>Good Potential Branding/Recruitment websites:</p> <ul style="list-style-type: none"> <li>• <a href="http://www.tradeup.ca/students">www.tradeup.ca/students</a></li> <li>• <a href="http://www.brightfutures.ca/careers">www.brightfutures.ca/careers</a></li> <li>• <a href="http://www.mypowercareers.com">www.mypowercareers.com</a></li> </ul>
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	<p>identification (Alberta, Prairies)</p> <ul style="list-style-type: none"> <li>• Promote non-monetary incentives such as affordable cost of living (regarding small cities and towns), lifestyle benefits, work/life balance, workplace flexibility, and career development opportunities (Prairies, North/ Off-Grid)</li> <li>• Differentiate Recruitment strategies on the functional needs of the industry (Prairies)</li> <li>• Branding efforts should have an understanding of the new workforce (Canada)</li> </ul> <p><b>Defining Career Pathways:</b></p> <ul style="list-style-type: none"> <li>• New employee success plans, outlining benefits package (Eastern Canada, Ontario, Prairies)</li> <li>• Clear pathways for meaningful career development need to be demonstrated early on in the recruitment process (BC)</li> </ul> <p><b>Human Resources Planning:</b></p> <ul style="list-style-type: none"> <li>• Revamp and streamline the recruitment process to reduce the amount of burden on leaders (Eastern C.)</li> <li>• Ensure that job requirements accurately reflect the occupation, removing unnecessary requirements as a means of screening out potential candidates (Eastern C., Prairies)</li> <li>• Understand the competencies of internationally trained workers in order to help fill the gaps– work with foreign institutions and national exchange programs (Eastern C., Ontario, BC)</li> </ul>	<ul style="list-style-type: none"> <li>• To be determined by human resources departments with support from Electricity Sector Council</li> <li>• To be determined by human resources departments with support from Electricity Sector Council</li> <li>• Foreign competencies will need to be a collaborative effort between the industry and federal government</li> </ul>	
<p><b><i>Increasing Retention Rates</i></b></p>	<p><b>Work Place Flexibility:</b></p> <ul style="list-style-type: none"> <li>• Flexible hiring (on-boarding, bringing retirees on contract/ adjusting job for mature workers, and create a worker pool in order to shift labour force according to supply and demand) (Alberta)</li> <li>• Address shifting expectations of the workforce (Alberta,</li> </ul>	<ul style="list-style-type: none"> <li>• Specific to organization and human resources departments with support from industry, unions, and sector</li> </ul>	<p><b>Relating to all recommendations:</b></p> <ul style="list-style-type: none"> <li>• Human resources skills would need to be further developed to maximize these opportunities, this is</li> </ul>

	<p>Ontario, Prairies, BC, and Eastern C.)</p> <p><b>Organizational Culture:</b></p> <ul style="list-style-type: none"> <li>• Develop tailored retention plans based on workforce demographic (Eastern C.)</li> <li>• Engage employees more frequently and more quickly through senior staff to keep motivated (Alberta)</li> <li>• Adopt progressive human resources practices to stay on top of what is motivating employees ('Stay' interviews) (Alberta)</li> <li>• Need for a more progressive organizational culture to deal with changing workforce (Alberta, BC)</li> <li>• Develop effective coaching &amp; leadership skills in management to increase employee satisfaction (BC)</li> <li>• Developing leaders early on, work-life balance, and a welcoming work place (Eastern C.)</li> <li>• More supportive work environment, with strong leadership and vision, and effective management (Prairies)</li> <li>• Management that is sensitive and creates a welcoming and respectful workplace as demonstrated through appropriate compensation, a good work-life balance, and appreciation for excellent performance (Ontario)</li> <li>• Different approach needs to be taken with minority groups (i.e. aboriginals) potentially using job coaches (Prairies, North/ Off-Grid)</li> </ul> <p><b>Career Development Opportunities:</b></p> <ul style="list-style-type: none"> <li>• Creating education opportunities, continuous learning and managing talent appropriately through career path development (Alberta, BC, Ontario)</li> <li>• Mentoring through knowledge transfer, career milestones, career planning, cross-training, and performance management (Alberta, Ontario)</li> <li>• Challenge workers by giving them more interesting work (BC)</li> </ul>	<p>council</p> <ul style="list-style-type: none"> <li>• Organizational leadership and human resources departments with potential tool support from Electricity Sector Council</li> <li>• Organizational leadership and human resources departments</li> <li>• Better relationships between industry and learning institutions, where this form of experiential learning is</li> </ul>	<p>where industry and sector council support would be useful</p> <ul style="list-style-type: none"> <li>• Crown corporations and government institutions need to be more consistent with their application of policies and procedures in order to reduce bureaucracy and help with recruitment and retention processes (Prairies)</li> <li>• Industry needs to be more open to innovation and doing things differently (Alberta)</li> </ul>
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	<ul style="list-style-type: none"> <li>• Paid leave of absence for professional development (Ontario)</li> <li>• Have training done in-house rather than having workers trained off-site in order to create more of a team atmosphere and loyalty to the organization (BC)</li> <li>• Different approach needs to be taken with minority groups (i.e. aboriginals) potentially using job coaches (Prairies, North/ Off-Grid)</li> </ul> <p><b>Incentives and Compensation:</b></p> <ul style="list-style-type: none"> <li>• Incentives which encourage longer employment (post retirement plans, phased in pensions, job sharing/ part-time work, flexible hours, different work activities to be conscious of age, mentoring opportunities, extra pension credits, and paid up medical benefits) (Eastern C., Ontario)</li> <li>• For potential retirees, ideas such as job sharing, hiring halls (pool of retired workers to draw on for large projects or other), part-time work, consulting and training/mentoring (Prairies)</li> <li>• Flexible compensation, work/life balance, and employee success plans (EC)</li> <li>• Offering more permanent positions, which provide increased long-term security, is better than offering contract positions (Ontario, Prairies)</li> <li>• Quality of life benefits, total compensation, healthy and safe work environment (Ontario)</li> </ul>	<p>developed</p> <ul style="list-style-type: none"> <li>• Specific to organization and human resources departments with support from industry, unions, government, and sector council</li> </ul>	
<b>Retaining Contractors</b>	<ul style="list-style-type: none"> <li>• Build longer relationships with contractors (i.e. electrical) with the idea of having them buy into the company and partake in profit sharing (Alberta)</li> </ul>	<ul style="list-style-type: none"> <li>• Specific to organization and its leadership</li> </ul>	

## 4. DEFINING SUCCESS

The following section helps define what stakeholders would consider as a successful human resource outcome. It is divided into three sections. The first section outlines key skills and training that need to be developed. The second discusses the collaborations and partnerships that need to be formed to ensure the success of a Human Resource Strategy. The final section discusses critical tools and support that stakeholders indicated would be useful for them in helping to mitigate the challenging workforce issues of the electricity and renewable energy industry.

### 4.3 Skills Development and Training

There were six main recommendations for enhanced skill development and training (Refer to Table 3 below):

- **Multiple Delivery Methods**  
The first involved developing multiple delivery methods, meaning that training needs to reach a broader audience, especially in minority communities such as rural and remote areas, aboriginals, women, new immigrants, and workers interested in crossing over from other sectors. This requires increased flexibility on how training programs are offered.
- **Knowledge Management Systems**  
The second recommendation is the creation of better knowledge management systems so that the appropriate knowledge transfer and preservation occurs from the outgoing workforce (i.e. retirees, contract workers, and worker movement within and outside of the industry) to the incoming workforce. This will require stronger mentoring, coaching, and knowledge capture prior to workers leaving the industry and managers must have the capacity and resources available to them to accomplish this goal.
- **Training Requirements and Certifications**  
The third recommendation is to create uniformity of training requirements and certifications nationally in order to enhance the workforce mobility from low demand areas to high demand areas. This will also require immigration policies to be more sympathetic to electricity industry needs and for the industry to have a system in place for the international recognition of foreign skills and credentials.
- **Human Resource Skills**  
The fourth recommendation is for strengthened human resources skills within the industry in order to deal with the necessary planning, recruitment, retention, and new workforce demographic that will be entering the industry to meet the human resource demands. A number of useful tools were identified by stakeholders (Refer to Table 3 below).

- **Soft and Technical Skill Sets**

The final two recommendations involve soft skill sets and technical skills sets that the industry needs and that should be considered in all training programs across Canada, including the K-12 system.

Table 3 defines and characterizes the issues presented in the skills development and training session by industry stakeholders. It provides recommendations and national/ regional needs. It also indicates who the training provider should be and potential supporting organizations. Although all the recommendations have national implications, the regional applicability section in the table highlights regions of Canada which placed specific emphasis on the recommendation. The final section of Table 3 has additional notes to consider in aiding implementation efforts.

**Table 3: Skills Development and Training Issues and Recommendations**

<b>Skills Development and Training Issue</b>	<b>Issue Characterization</b>	<b>Recommendations/ Skills Needs</b>	<b>Training Provider</b>	<b>Regional Applicability</b>	<b>Implementation</b>
<b>Developing multiple delivery methods</b>	<ul style="list-style-type: none"> <li>• Training developed to reach a broader target audience and minority groups</li> <li>• Inadequate funding and resources</li> </ul>	<ul style="list-style-type: none"> <li>• Broader course offerings</li> <li>• Offer training in communities</li> <li>• Distance education</li> <li>• On-line courses</li> <li>• Industry delivered programs</li> <li>• Culturally appropriate education programs</li> </ul>	Increase partnerships to evolve, between academia, government, industry, sector councils, and unions.	Alberta Eastern C. Prairies BC ON North/ Off-Grid	<ul style="list-style-type: none"> <li>• Increase flexibility of how training programs are delivered, specifically for target minority groups (aboriginals, women, and new immigrants).</li> </ul>
<b>Better Knowledge Management System</b>	<ul style="list-style-type: none"> <li>• Ensuring that knowledge transfer happens when a worker leaves</li> <li>• Control over knowledge management for the contingent workforce</li> </ul>	<ul style="list-style-type: none"> <li>• Succession planning tool</li> <li>• Mentoring/ coaching programs for exiting retirees and the necessary skills to do this</li> <li>• Exit surveys to be included in professional development curriculum</li> </ul>	Organization	Alberta	<ul style="list-style-type: none"> <li>• Human resources departments must be given the resources to organize this.</li> </ul>
<b>Education Standards</b>	<ul style="list-style-type: none"> <li>• Lack of uniformity in training requirements across the country</li> </ul>	<ul style="list-style-type: none"> <li>• Standardize certifications and training across Canada</li> <li>• Need to harmonize training and certification across provincial, national, and international levels</li> </ul>	Federal Government in conjunction with provincial governments, and academia	Ontario Eastern C. Alberta BC	<ul style="list-style-type: none"> <li>• Facilitate the mobility of workers from low demand areas to high demand areas</li> <li>• Example of this is Red Seal</li> </ul>
<b>Human Resources Skill</b>	<ul style="list-style-type: none"> <li>• Need to enhance organizations</li> </ul>	<ul style="list-style-type: none"> <li>• Succession planning, retention of skill workers, project management skills in engineers</li> </ul>	Human resources departments	Alberta BC Eastern C.	<ul style="list-style-type: none"> <li>• Employee exchanges and secondments would help to develop</li> </ul>

<p><b>Development</b></p>	<p>capacity for the following human resources skills: Human resources planning, Project management, Career development, and Worker retention</p>	<ul style="list-style-type: none"> <li>• Leadership skills and leadership development/ recognition, including managing people effectively</li> <li>• Business acumen in global markets, coordination, and communication skills</li> <li>• Understanding organizational and behaviour change frameworks</li> <li>• Project development and management skills in specialty areas, such as renewable energy projects</li> <li>• Manager support mechanism as workers move through the organization and creating flexibility to allow this movement to occur</li> <li>• The ability to identify gaps and help re-train/ mentor workers from other sectors/ countries for their successful and easy transfer into the industry</li> <li>• Diversity management (cultural and generational)</li> <li>• Better coaching, training, and mentoring skill sets for instructors in company</li> </ul>	<p>with support from academic institutions, unions and sector council.</p>	<p>Ontario Quebec Prairies</p>	<p>these skills</p> <ul style="list-style-type: none"> <li>• Continuous education within the industry; workplace mentorship training programs for skills transfer</li> <li>• Programs that are more core skill set intensive, ensuring that the accurate competencies are developed for the occupation and that these skills can be easily transferred when moving throughout the industry</li> <li>• Regulatory framework that is flexible enough to address the industry's human resources needs, including skills and training</li> <li>• Better involve First Nations (including remote/ isolated communities) into the industry, with proper representation in management</li> </ul>
<p><b>Soft Skills Sets Needed</b></p>	<ul style="list-style-type: none"> <li>• Soft skills sets needed for new incoming workers or to be developed through professional</li> </ul>	<ul style="list-style-type: none"> <li>• Leaderships skills</li> <li>• Critical and creative thinking/ problem solving</li> <li>• Project Management</li> <li>• Team work</li> <li>• Communication Skills</li> <li>• Cultural/generation diversity training</li> </ul>	<p>K-12, trade schools, regional colleges, post-secondary, unions, and</p>	<p>Ontario BC Alberta Eastern C. Prairies Quebec</p>	<ul style="list-style-type: none"> <li>• Understanding the new paradigm of 'power' generation and efficiency</li> <li>• Supervisors and Engineers with Project Management Skills</li> </ul>

	development in organizations, dependant on career choices	<ul style="list-style-type: none"> <li>• Interpersonal and social skills</li> <li>• Resource Stewardship</li> </ul>	employers, with support and coordination from Electricity Sector Council		needed across Canada.
<b>Technical Industry Skill Sets Needed</b>	<ul style="list-style-type: none"> <li>• Ability to deal with rapidly evolving changes in the industry regarding new skills and training that will be needed (grid infrastructure renewal, renewable energy, smart grids, distributed energy).</li> <li>• Inadequate funding and resources to develop these skills (space, technology, and qualified instructors)</li> <li>• New training programs and apprenticeship</li> </ul>	<p><b>Common Regional Needs:</b></p> <ul style="list-style-type: none"> <li>• Health, safety and environment training for new technologies (BC, Alberta, Prairies)</li> <li>• Alternative/ Renewable energy technologies (Solar, Ground Source Energy, Wind, Micro-grid, Distributed Generation, Smart Meters) and energy efficiency (Smart Grids, Energy Auditing): manufacturing, installation, protection, control and maintenance (Alberta, BC, Ontario, Eastern Canada, Prairies, Quebec, North/ Off-Grid)</li> <li>• Engineering paired with project management skills and infrastructure renewal (Alberta, Eastern C., Prairies, Quebec)</li> <li>• System operators (Canada)</li> <li>• Increased math and science skills specific to industry in K-12 (Prairies, Eastern C., North/ Off-Grid)</li> </ul> <p><b>Specific Regional Needs:</b></p> <ul style="list-style-type: none"> <li>• <b>Ontario:</b> Trades for evolving industry ( inc. energy efficiency/ renewable), Planners, Estimators, IT specialists</li> </ul>	<p>K-12, trade schools, regional colleges, post-secondary, unions, and employers need to enhance/ tailor course offerings to needs of industry through better communication and feedback.</p> <p>Industry to provide more in-house professional development, continuous education (life-long</p>	Canada	<ul style="list-style-type: none"> <li>• Feedback mechanism needs to be established from companies to learning centers in order to ensure the right skills are being developed</li> <li>• Need for stronger cross industry collaborations</li> <li>• Regulatory framework that is flexible enough to address the industry's human resources needs including skills and training</li> <li>• More Aboriginal engagement (including remote/ isolated communities) into the industry, with proper representation in management and trades.</li> </ul>

	<p>s need to be more flexible with alternative delivery modes</p> <ul style="list-style-type: none"> <li>• Long term view of skills development because of a 7-9 year lead time before occupations can become fully operational (i.e. nuclear energy)</li> </ul>	<ul style="list-style-type: none"> <li>• <b>BC:</b> New Technology Experts (renewable energy as above)</li> <li>• <b>Alberta:</b> Safety training for new technologies, higher steam ticket levels, alternative energy technologies (manufacturing, installation, and maintenance), mechanical engineers, engineers with project management and leadership skills, system operators, and IT specialists</li> <li>• <b>Eastern C.:</b> Renewable energy, hydro/ thermal generation, energy efficiency, engineering paired with management skills, and infrastructure renewal. Increase ratio of apprentices to journey men (Eastern C. but depends on location)</li> <li>• <b>Prairie:</b> Electricians, steam operators, system operators, millwright, power line workers/technicians, engineers (stationary), industrial mechanics, technologists, computer and IT specialists, mechanical welders, and general labour. Engineers with infrastructure development planning, systems integration, and being able to provide workable solutions with limited resources</li> <li>• <b>Quebec:</b> Electricians, technicians, electrical/power/civil engineering, and grid infrastructure (line/cable installation). Demand for electrical/power engineers and workers in electrical networks (up keep, maintenance, and repair) due to</li> </ul>	<p>learning options and effective mentoring programs to facilitate skills transfer) with support from Sector Council.</p> <p>Industry needs to partner with post-secondary institutions to offer more placements, apprenticeships, internships, cooperatives, and mentoring programs</p> <p>Industry to partner with equipment and software providers to create training programs on emerging technologies</p>		
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		<p>proposed infrastructure repair programs. Workers in Renewable Energy as above</p> <ul style="list-style-type: none"><li>• <b>North/ Off-Grid:</b> Linemen, technologists, electricians, and engineers</li></ul>			
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## 4.4 Collaboration and Partnerships

Collaboration and partnerships have been highlighted in every table throughout this report, based on the suggestions of the key stakeholders in each section. It is important to note that all collaboration and partnerships within this industry (Utilities, Independent Power Producers, Distributors, Regulators, Provincial and Federal Government(s), Unions, Renewable Industry, Manufacturers, Academia, Industry Associations, and the Sector Council) need to be strengthened in order to meet the Human Resource demand. There are six main collaboration and partnership directions that were reiterated during all the regional consultations: Branding and Awareness, Industry Communications, Education, Funding, Regulations and Policies, and Minority Groups of Importance.

### National Collaboration and Partnerships

#### *Partnerships for Branding and Awareness*

The industry's brand needs to evolve both to detail the changing industry and to help entice a new generation to join this workforce. A re-branding and awareness campaign will require input and support from all stakeholders under the potential leading role of the sector council. Target groups that need to be considered in such a re-branding approach include the new incoming workforce, elementary/ secondary school system (parents/ guidance counsellors—Canadian Counseling Association), post-secondary training institutions, minority groups (aboriginals, women, and immigrants), and rural/remote communities.

#### *Partnerships for Industry Communications*

Partnerships and collaboration needs to form around enhanced industry communications. Stronger information and communication feedback systems would help in resolving the industries human resource supply and demand issues. This could possibly take the form of a web-based knowledge exchange mechanism which would include, but is not limited to: the sharing of stakeholder labour market data, standardized occupational terminology, human resources suggested practice information, educational tools, branding materials, inventories of education programs, and HR tools (workforce and succession planning tools). The Electricity Sector Council would again be best suited to lead such an activity as it has already created much of related content and is continuing development in this area. However, other industry stakeholders (government, energy producers/distributors, unions, and academia) will need to contribute resources in support of such a communication tool (monetary funding, in-kind contributions, and content/ information contributions).

#### *Partnerships for Education and Skills Development*

Partnerships to enhance the effectiveness and availability of education and training programs will need to be further developed. These partnerships would work towards creating the necessary course content to develop the skills the industry will need to support a changing energy paradigm. This involves a more active role by the industry to interact with academic and training institutions and to inform them of both the skills they need and the types of occupations they will be recruiting for. A potential idea was to have the industry co-fund university research chairs to help set curriculum priorities. Learning institutions also need the support of the government and industry with updating their technology or to have access to facilities with these new technologies, infrastructure upgrades to support more students, alternative modes of training delivery, more qualified instructors, and further opportunities for their students to have practical experiential learning within the industry (internships, co-operatives, apprenticeships,

and try-trades). Learning institutions will also need to partner in order to standardize credentials (including international credentials), which will in turn pressure provincial and federal governments to help standardize training licences/certifications so that they are nationally recognized. This will facilitate workforce mobility from low demand areas to high demand areas. Special groups mentioned as being potentially useful to collaborate with include Association of Canadian Community Colleges, Association of Universities and Colleges of Canada, applicable provincial apprenticeship branches, and the Council of Ministers of Education Canada (CMEC).

#### *Partnerships for Funding Priorities*

Partnerships and collaboration will need to be created to make available the appropriate funding for implementation of such a national human resources strategy. Industry and government will need to support the Electricity Sector Council in its attempt to help create an industry feedback mechanism, human resources support tools, timely and regular labour market information and, educational tools. Industry and government will also need to support educational institutions so that they are able to develop the appropriate skill set and help to supply sufficient workers. All stakeholders will need to support the re-branding and awareness efforts of the industry. Which stakeholders will fund the different initiatives remains to be determined, but it will require both cash and in-kind support from all stakeholders to be truly successful. Industry and Provincial/ Federal Governments need to take the lead in developing this relationship with the support of learning institutions and the Electricity Sector Council to resolve and implement a funding mechanism for this plan.

#### *Partnerships for Enhanced Industry Regulatory and Policy Messaging*

There are a number of regulatory and policy barriers which impede the process of building industry workforce. The first barrier is the lack of harmonization of many educational licences/certifications across Canada. The second are immigration policies which can be restrictive to immigrants that could potentially work in this field (i.e. new immigrants with a trade background). These first two policy barriers will require federal/ provincial government(s) and education institutions to collaborate on national and international credential recognition. Creating stronger relationships between industry stakeholders—specifically utilities and the rate regulator, would further awareness of the workforce issues that the industry is facing and potentially increase allocation of funds to support the resolution of these issues. Finally, the industry needs to have a better understanding of how upcoming changes in federal/ provincial energy policies will affect their human resources workflow planning process. Provincial and Federal governments need to take a leading role on these regulatory and policy barriers with the support of the industry, academia, and potential facilitation by the sector council. Special groups mentioned as being potentially useful to lead such collaboration include: Provincial/ Federal Labour Departments, Citizen and Immigration Canada, Human Resources and Skills Development Canada (HRSDC), Association of Canadian Community Colleges, Association of Universities and Colleges of Canada, applicable provincial apprenticeship branches, the Council of Ministers of Education Canada (CMEC), and Provincial Rate Regulators.

#### *Partnerships to Engage Minority Groups*

Finally, minority groups need to be engaged more fully, including but not limited to: aboriginal communities, women, immigrant workers, small independent power producers, rural/remote communities, support organizations, and incumbent players to energy sector (renewable industry). They need to be more engaged in order to help direct and implement this national human resources strategy.

## Regional Collaborations and Partnerships

There were two regional collaborations suggested that emerged from consultations that should be highlighted:

### *Increasing Training Capacity in Saskatchewan*

Saskatchewan stakeholders strongly support the formation of a partnership between the Saskatchewan Institute of Applied Science and Technology (SIAST) and the regional colleges in order to increase training capacity within the province.

### *Aboriginal Engagement and Support for the Northern/ Off-Grid Communities*

The most important collaboration and partnerships to occur in the Northern/ Off-Grid are between the industry (Education System, Government, Utilities) and aboriginal communities. There is a large potential to meet some of the human resources needs through strengthened collaborations and partnerships with aboriginal communities. Additionally, the Northern/ Off-Grid community could use more support from the provinces to the south in which they share energy resources (Yukon Territory with B.C; Northwest Territories with Alberta and Saskatchewan; Nunavut Territory with Manitoba; and, Nunavut (Iqaluit) with Quebec/Labrador). There are many major infrastructure projects occurring and some political partnerships have already been formed (i.e. Alberta with NWT), but technical support, training, and human resources partnerships could be strengthened.

Table 4 highlights some of the important partnering and collaboration opportunities that emerged from the consultations. The table includes overall goals, implementation details and potential stakeholders to be involved.

**Table 4: Partnering and Collaboration Opportunities**

<b>Partnering / Collaboration Opportunity</b>	<b>Goal</b>	<b>Implementation Details</b>	<b>Stakeholders</b>
Education and Training	Enhanced education and training delivery	<ul style="list-style-type: none"> <li>• Develop curriculums and training plans</li> <li>• Training delivery: create more experiential learning pathways</li> </ul>	<ul style="list-style-type: none"> <li>• Industry/ Labour Unions/ Educational Institutions/Professional Associations</li> <li>• SIAST and Regional Colleges in Saskatchewan</li> <li>• Universities/Industry to co-fund research chairs</li> </ul>
		<ul style="list-style-type: none"> <li>• Streamline education programs</li> </ul>	<ul style="list-style-type: none"> <li>• Educational Institutions (Community Colleges/ Polytechnics/Universities)</li> </ul>
		<ul style="list-style-type: none"> <li>• Provide funding for new technology and space for educational institutions i.e. joint submissions for funding to Ministry of Training, Colleges, and Universities (MTCU) for program approvals</li> <li>• Industry sponsored awards for student scholarships</li> </ul>	<ul style="list-style-type: none"> <li>• Industry/ Educational Institutions/ Government</li> <li>• Ontario: MTCU should reach out to other ministries (Ministry of Energy and Infrastructure, Ministry of Research and Innovation) to expand skills program</li> </ul>
		<ul style="list-style-type: none"> <li>• Standardize curriculum locally, provincially, and nationally</li> </ul>	<ul style="list-style-type: none"> <li>• Industry/ Labour Unions/ Educational Institutions/ Government/Regulators</li> </ul>
		<ul style="list-style-type: none"> <li>• Get employees nuclear ready</li> </ul>	<ul style="list-style-type: none"> <li>• ENER</li> </ul>
		<ul style="list-style-type: none"> <li>• Apprenticeship training</li> </ul>	<ul style="list-style-type: none"> <li>• IBEW/Industry/Education</li> </ul>
		<ul style="list-style-type: none"> <li>• Equivalency assessments of foreign credentials</li> </ul>	<ul style="list-style-type: none"> <li>• Industry/ Province/ Federal Government</li> </ul>
		<ul style="list-style-type: none"> <li>• Share in-house training</li> <li>• Develop competency surveys</li> </ul>	<ul style="list-style-type: none"> <li>• Industry</li> </ul>

		<ul style="list-style-type: none"> <li>• Career path programs, guarantees of employment</li> <li>• Create more internships</li> <li>• Work experience opportunities for high school students</li> </ul>	<ul style="list-style-type: none"> <li>• Companies/Educational Institutions</li> </ul>
		<ul style="list-style-type: none"> <li>• Special training needs for aboriginal communities</li> </ul>	<ul style="list-style-type: none"> <li>• Industry/First Nations Groups/Labour Boards</li> </ul>
Workforce Mobility	Reduce barriers to workforce mobility	<ul style="list-style-type: none"> <li>• Standardize accreditation locally, provincially, and nationally</li> <li>• Identify and eliminate other provincial barriers</li> </ul>	<ul style="list-style-type: none"> <li>• Industry/ Labour Unions/ Educational Institutions/ Government/Regulators</li> <li>• ASAT, APEGA (Alberta)</li> </ul>
Branding and Awareness	Re-brand the industry	<ul style="list-style-type: none"> <li>• Develop strategic branding effort</li> </ul>	<ul style="list-style-type: none"> <li>• Industry/ Labour Unions/ Educational Institutions/ Government/Cultural Groups/ Electricity Sector Council</li> </ul>
		<ul style="list-style-type: none"> <li>• Increasing awareness and knowledge of the industry's brand and the benefits of working within the industry</li> </ul>	<ul style="list-style-type: none"> <li>• Industry/ Research Organizations/ Educational Institutions/ Unions/ Governments (Municipal, Provincial, and Federal)/ Chambers of Commerce</li> <li>• Canadian Counseling Association</li> <li>• In BC Industry/ Parent Advisory Council to target youth</li> </ul>
Recruitment and Retention	Increase recruitment and retention rates in minority communities.	<ul style="list-style-type: none"> <li>• Facilitate entry of foreign workers into the workplace (ESL, culture, resettling families)</li> </ul>	<ul style="list-style-type: none"> <li>• Industry/ Educational Institutions/ Immigration Boards/ Community Organizations (i.e. Chamber of Commerce)/ Canadian Counseling Association</li> <li>• Industry/ Contractors</li> </ul>
		<ul style="list-style-type: none"> <li>• Facilitate entry of aboriginal workers into the workplace</li> </ul>	<ul style="list-style-type: none"> <li>• Industry/ Federal/ Provincial with aboriginal communities</li> </ul>

<p>Human Resources Strategy &amp; Planning</p>	<p>Increase labour force strategy and planning competencies within the industry.</p>	<ul style="list-style-type: none"> <li>• Build a ‘workable’ workplace where people want to be</li> <li>• Help implement human resources plan</li> <li>• More integrated human resources planning</li> </ul>	<ul style="list-style-type: none"> <li>• Companies/ Employees</li> <li>• Industry/ Unions</li> <li>• Industry/ Regulators</li> <li>• Companies/ Employees (including retirees)</li> <li>• Independent Power Producers</li> <li>• Sector Council</li> <li>• Rural/ Remote Communities</li> <li>• Aboriginal Groups</li> </ul>
<p>Industry Communications and Information Sharing</p>	<p>Create a tool to help with industry communications and feedback.</p>	<ul style="list-style-type: none"> <li>• Best practices and successful approaches in other industries</li> <li>• Increase cross-collaborations, reduce poaching</li> <li>• Support and reinforce cross-collaborations</li> </ul>	<ul style="list-style-type: none"> <li>• Industry with external industry groups/ External Sector Councils/ External Unions i.e. in Ontario: Power Workers and Colleges are part of Ontario’s Workforce Shortage Coalition, whose goal is to persuade government to actively expand the numbers of skilled workers</li> <li>• All stakeholders with potential of Electricity Sector Council to lead.</li> </ul>

## 4.5 Tools and Support Needed

The final section of the consultation focused on what tools and support industry stakeholders would need to help them fulfil such a strategy. The feedback was very consistent across Canada. The following are six recommendations for tools and support needed, prioritized on emphasis from the regional 'As Said' reports:

- i. **National knowledge exchange mechanism/ information clearing house for industry human resources needs in the form of an online web tool**—This tool would provide a one stop-shop to share information on innovative programs, resources, suggested practice, critical industry data, and trends. It would also help increase efficiencies and help to coordinate efforts. There are a variety of industry websites available; for example, [www.brightfutures.ca/careers](http://www.brightfutures.ca/careers), [www.brightfuturesbc.ca](http://www.brightfuturesbc.ca), [www.tradeup.ca/students](http://www.tradeup.ca/students), [www.mypowercareers.com](http://www.mypowercareers.com), and the ESC's Communities of Practice site [www.brightfuturescommunities.ca](http://www.brightfuturescommunities.ca). It is suggested that, rather than reinvent new knowledge exchange mechanisms/ online tools, it would be best to enhance what already exists to meet stakeholder needs.
- ii. **Well-defined funding priorities for National Human Resource Strategy elements**—this funding mechanism would ensure that adequate funds/resources are made available to meet the needs identified.
- iii. **Branding and Marketing Tools**—the industry needs to be re-branded nationally and regionally to help with the recruitment of the new workforce and to help target minority groups. It will also serve to help increase awareness of how essential this industry is to Canada's energy security.
- iv. **Strategic human resources planning support**—certain organizations within the industry need tools to help them with their long-term human resources planning, skills foresight, technological advancements, and leadership development. Larger organizations that have already developed these tools may be able to support smaller organizations by sharing them through the knowledge exchange mechanism. The Electricity Sector Council has developed or is in the process of developing tools with this recommendation in mind.
- v. **Enhanced Workforce Mobility**—this recommendation is focused on relieving labour shortages by facilitating the flow of workers from low demand areas to high demand areas. It would include a reallocation service for under-served areas, a database of foreign credential assessments, and national/ international standards for credential recognition.
- vi. **Harmonized Training Approach Nationally**—this recommendation supports the previous in that it is intended to help enhance workforce mobility. It is also intended to ensure that the proper skills are being developed nationally/ regionally and that the appropriate infrastructure is in place to support the training needs of the industry.

It is important to note that all regional stakeholders brought up the issue of the current global economic recession and wanted a better understanding of the medium and long-term implications on industry human resources. Many stakeholders agreed that this recession has only delayed the workforce demand issues of the electricity industry and that when the economy recovers this increasing demand will still be there; therefore, rather than delaying the implementation of these action items, it would be most prudent for the industry to be opportunistic in this time of slow economic activity and begin actively undertaking solutions to these human resources issues. Electricity is one of the most important public utilities and the

industry must not let the current economic recession distract it from taking the necessary steps in securing the appropriate labour force for the future.

The tools and support suggested by stakeholders' forms the basis of the final Human Resource Strategy recommendations.

## **5. DELIVERING ON SUCCESS**

The recommendations for a National Human Resource Strategy for the electricity and renewable energy industry are based upon the information gathered during the seven regional consultations. That information was summarized in Tables 1-4 above. The proceeding recommendations are ordered according to the frequency these measures were mentioned by workshop participants.

Table 5 outlines the recommendation with applicable goals, implementation details, regional applicability, and key partners to success.



**Table 5: Recommendations for a National Human Resource Strategy**

Recommendation	Goals	Implementation Details	Regional Applicability	Key Partners to Success
<p><b><i>Build awareness around current human resources tools available or in development, in the form of a web-based information clearinghouse, which includes an information exchange and feedback mechanism.</i></b></p>	<ul style="list-style-type: none"> <li>Use the current ESC website (Bright Futures) with some additional resources as an industry communication and feedback tool to share information on innovative programs, resources, suggested practices, critical industry data and trends.</li> <li>Increase efficiencies and help coordinate efforts to deal with current human resources issues.</li> </ul>	<ul style="list-style-type: none"> <li>Awareness campaign to industry stakeholders of the Bright Futures website including current resources available and resources to come.</li> <li>Key components of the clearinghouse to include:               <ul style="list-style-type: none"> <li>Regular, detailed and timely labour market information</li> <li>Sharing of core human resources metrics and information between organizations</li> <li>Inventory of suggested practices in recruitment, retention and training</li> <li>Succession planning tool</li> <li>Inventory of industry branding initiatives</li> <li>Marketing materials for guidance counselors/parents</li> <li>Inventory of schools, programs, graduates, specialties, careers, and jobs</li> <li>Educational tools for high schools (i.e. Trades Math and Science Courses)</li> <li>Standardized terminology and occupational descriptions</li> <li>Training course materials for specialized occupations in need of upgraded content</li> <li>Regulatory updates</li> </ul> </li> </ul>	<p>National</p>	<p>The Electricity Sector Council is in an excellent position to continue its current work on their Bright Futures website as such a clearinghouse.</p> <p>Development of additional content for the clearinghouse would require the partnership of industry, educational institutions, and government.</p> <p>Existing websites identified by stakeholders that could serve as a model include:  <a href="http://www.tradeup.ca/students">www.tradeup.ca/students</a>  <a href="http://www.brightfutures.ca/careers">www.brightfutures.ca/careers</a>  <a href="http://www.mypowercareers.com">www.mypowercareers.com</a></p>
<p><b><i>Define funding priorities and ownership of National human resources Plan elements</i></b></p>	<ul style="list-style-type: none"> <li>Ensure adequate funding is available to meet the human resources needs identified in the strategy.</li> </ul>	<ul style="list-style-type: none"> <li>Definition of ownership of human resources plan elements, through working groups and upcoming electricity sector conferences. Quantify funding capabilities and requirements of stakeholders.</li> <li>Develop a strong business case for human resource planners and bring them into the</li> </ul>	<p>National</p> <p>Each Province and the Territories would need to create provincially based business</p>	<p>Industry (Utilities, Power Producers, Distributors, Unions) and Federal / Provincial Governments</p> <ul style="list-style-type: none"> <li>Funding can be provided by government or</li> </ul>

	<ul style="list-style-type: none"> <li>Effectively utilize and coordinate resources of stakeholders to optimize national human resources strategy delivery, and prepare for the future energy paradigm.</li> </ul>	<p>strategic corporate planning process. The human resources business case would be used to help companies inform rate regulators of current and future human resources needs in order to secure more labour force. This initiative should be based on information gathered in ESC's 2008 LMI study.</p> <ul style="list-style-type: none"> <li>Industry and government need to dedicate more resources towards building human resources capacity within their organizations and awareness of the industry.</li> <li>Areas identified by stakeholders as requiring funding include: <ul style="list-style-type: none"> <li>New technology and equipment for educational institutions</li> <li>Updated course content</li> <li>Increased teaching capacity</li> <li>Research chairs in universities</li> <li>Increased training opportunities (apprenticeships, co-ops, try-trades programs)</li> <li>Timely labour market research</li> <li>Awareness of industry workforce</li> <li>Marketing and Branding Initiatives</li> <li>Human resources Planning Support Tools</li> </ul> </li> </ul>	<p>cases for their rate regulator.</p>	<p>industry in the form of actual dollars, equipment donations, educational space donations, or in-kind volunteerism</p> <ul style="list-style-type: none"> <li>There is a need to develop stronger relationships between the utilities, power producers, and distributors with the rate regulator. This would be a provincial/territorial initiative.</li> </ul>
<p><b><i>Develop targeted branding and marketing tools to increase public awareness of the industry and increase recruitment rates.</i></b></p>	<ul style="list-style-type: none"> <li>Reposition industry to facilitate the recruitment and retention of youth (millennium generation), non-traditional groups (i.e. women foreign workers</li> </ul>	<p><b>Critical re-branding elements identified by stakeholders:</b></p> <ul style="list-style-type: none"> <li>Develop a better understanding of the values of different age groups and demographics to tap into a more diverse workforce.</li> <li>Targeted recruitment strategies need to be focused on guidance counselors, parents, high schools, and post-secondary institutions to clearly identify career development opportunities in the industry.</li> </ul>	<p>National</p> <p>Aboriginal Engagement Plan has been particularly emphasized for: North/ Off-Grid, Ontario, Quebec,</p>	<p>Industry to fund and decide key elements of re-branding initiatives with support from government and sector council.</p> <p>Lead stakeholder for targeted recruiting, retention and engagement strategies would</p>

	<p>and aboriginal)</p> <ul style="list-style-type: none"> <li>• Increase public awareness of industry benefits</li> <li>• Develop targeted recruiting, retention, and engagement strategies to increase human resources supply and workforce diversity</li> </ul>	<ul style="list-style-type: none"> <li>• Examine suggested practices in other male dominated industries with high success rates for recruitment and retention of minorities (i.e. police force, ambulance workers)</li> <li>• Assess barriers to entry of specific target groups and then develop National Engagement Plans for these groups (e.g. a National Aboriginal Engagement Plan)</li> <li>• Develop targeted marketing strategies for the millennium generation, women, foreign workers, aboriginal populations.</li> <li>• Focus on exciting new advanced technologies and environmental attributes of industry.</li> <li>• Assess monetary compensation rates within industry and across similar sectors to give potential candidates an expected salary rate per occupation while highlighting competitive compensation rates and benefits.</li> <li>• Highlight non-monetary incentives to address competition from other industries and to help build local talent in rural/remote communities (i.e. North/ Off-Grid)</li> <li>• Highlight industry attributes such as work-life balance and career development opportunities.</li> </ul> <p><b>Marketing tools:</b></p> <ul style="list-style-type: none"> <li>• Create an industry marketing plan to include key elements of the industry's re-branding efforts, target demographics, and an engagement and outreach strategy for target groups (Youth, Aboriginals, Women, and Internationally Trained Workers).</li> <li>• Focus targeted recruitment strategies on guidance counselors, parents, high schools, and post-secondary institutions to clearly</li> </ul>	<p>Eastern Canada and the Prairies.</p>	<p>be the sector council, with support of industry and government.</p>
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		<p>identify career development opportunities in the industry to increase the numbers of those that choose a career in this industry.</p> <ul style="list-style-type: none"> <li>Utilize social networking applications readily used by younger potential recruits in branding efforts.</li> <li>Make use of current workforce as branding and recruitment agents.</li> <li>Create an industry 'brand' website to highlight career opportunities, competencies needed, training needed, career pathways, national job postings, and monetary/ non-monetary benefits of working in the industry (Potentially integrated with current industry websites).</li> </ul>		
<b><i>Develop Strategic Human Resources Planning Support Tools</i></b>	<ul style="list-style-type: none"> <li>Help organizations plan for labour force supply needs, skills foresight, technological advancements, and leadership development</li> </ul>	<ul style="list-style-type: none"> <li>Industry support of ESC's succession planning tool development</li> <li>Long-term economic, workforce, and human capital planning tool</li> </ul>	National	Lead role to be taken by government and Electricity Sector Council with support of the industry.
<b><i>Support Federal, Provincial, and Organizational Policy Initiatives that increase resource availability to human resources planners/ educational institutions and that also help to</i></b>	<ul style="list-style-type: none"> <li>Revisit national and provincial/territorial energy plans to see what the implications are for human resources</li> <li>Engage Citizenship and Immigration</li> </ul>	<ul style="list-style-type: none"> <li>Use of existing industry working groups to continually monitor national and provincial/territorial energy plans to see what the implications and opportunities are for human resources (Including Climate Change, Carbon Pricing, and Renewable Energy).</li> <li>Intensify messaging to government regarding Canada's immigration policies in order to enhance entry of internationally trained workers for high demand job areas in the industry.</li> </ul>	<p>National</p> <ul style="list-style-type: none"> <li>Quebec's Grid Infrastructure Upgrade and Ontario's IPSP/ Green Energy Act have been highlighted as examples of energy plans that will affect</li> </ul>	<ul style="list-style-type: none"> <li><b><i>Energy Plans Review:</i></b> Industry with the support of sector council.</li> <li><b><i>Enhanced Immigration:</i></b> Citizen and Immigration Canada with the support of Industry.</li> </ul>

<p><b>enhance workforce mobility.</b></p>	<p>Canada to help increase internationally trained workforce for the industry.</p> <ul style="list-style-type: none"> <li>Increased funding to academic institutions</li> </ul>	<ul style="list-style-type: none"> <li>Strengthen messaging to government and industry to increase the number of post-secondary seats in programs that lead to electricity sector occupations.</li> <li>Develop a reallocation service for under-supplied areas.</li> </ul>	<p>human resources planning.</p>	
<p><b>Harmonize Industry Standards across Canada, while ensuring the appropriate development of industry skills and competencies</b></p>	<ul style="list-style-type: none"> <li>Help facilitate workforce mobility</li> <li>Relieve labour shortage issues</li> <li>Ensure that the proper skills and competencies are being developed</li> <li>Ensure that the appropriate infrastructure is in place to facilitate the training needs of the industry</li> </ul>	<ul style="list-style-type: none"> <li>Harmonize industry standards across Canada. The organization and implementation of this could take many years, as an interim solution: <ul style="list-style-type: none"> <li>Complete a gap analysis of occupational standards provincially/territorially.</li> <li>Create a Pan-Canadian Guide/ Map of occupational requirements by province/territory to be included in industry branding and awareness website.</li> </ul> </li> <li>Database of foreign credential assessments and recognition program, combined with ESC's Foreign Trained Worker research project.</li> <li>Create national and regional working groups to help ensure that proper skills and competencies are being developed and are reaching a broader audience. <ul style="list-style-type: none"> <li>Developing multiple delivery methods for training to reach a broader audience.</li> <li>Developing better knowledge management systems within organizations via in-house training and mentoring to increase knowledge transfer.</li> <li>Developing enhanced human resource skills and increased capacity within the industry to deal with human resources</li> </ul> </li> </ul>	<p>National</p> <p>Additional support needed for rural/remote areas across Canada including North/Off-Grid communities.</p> <p>Please refer to Table 3 for regional requirements in skills development and training.</p>	<p><b>Workforce Mobility:</b> Lead role to be taken by government and academic institutions with support of industry and sector council.</p> <p><b>Harmonizing Industry Standards:</b> Lead role to be taken by Association of Canadian Community Colleges, Association of Universities and Colleges of Canada, applicable provincial apprenticeship branches, and the Council of Ministers of Education Canada, with the support of the industry and sector council.</p> <p><b>Skills Development and Industry Competencies:</b> Lead role for learning institutions, industry, and government with the support of sector council.</p>

		<p>planning needs.</p> <ul style="list-style-type: none"> <li>○ Increasing soft skills sets within K-12 system and post-secondary schools (i.e. leadership skills, critical and creative thinking/ problem solving, project management, team work, communication skills, cultural/generational diversity training, interpersonal and social skills, and resource stewardship).</li> <li>○ Increasing technical skills sets and competencies as determined by current and future needs of the industry, in areas such as: <ul style="list-style-type: none"> <li>▪ Health, safety and environment training for new technologies.</li> <li>▪ Alternative/ Renewable energy technologies (Solar, Ground Source Energy, Wind, Micro-grid, Distributed Generation, Smart Meters,) and energy efficiency (Smart Grids, Energy Auditing), manufacturing, installation, protection, control and maintenance.</li> <li>▪ Engineering paired with project management skills and infrastructure renewal.</li> <li>▪ System operators.</li> <li>▪ Increased math and science skills specific to industry in K-12.</li> <li>▪ For regional technical skills sets required please refer to Table 3.</li> </ul> </li> </ul>		
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## 6. CONCLUSIONS

“Aging workforce, a shortage of trained new workers and rising demand on the electricity system are the factors raising significant concerns about the ability of the electricity and renewable energy sector to meet the needs of Canadians. The immediate task is the need to focus on closing the supply-demand gap for personnel (2008 ‘Powering Up the Future’ Study, ESC).” This comprehensive Pan-Canadian consultation has indeed highlighted that there is still a great deal of work to be done in order to close this gap. It also demonstrates the need for increased industry stakeholder collaborations and partnerships.

The ‘Building Connectivity’ Project was a comprehensive consultation process towards the development of a Pan-Canadian Human Resource Strategy to effectively address industry human resource practices and support enhanced workforce development. The intent of this consultative process was also to increase awareness among stakeholders of the issues which hinder the development of an adequate electricity workforce supply. Stakeholders were tasked with helping clarify the human resources issues within this industry while also helping define what potential solutions exist with regards to recruitment and retention, collaborations and partnerships, and the tools and support needed for the successful fulfillment of a Canada-wide human resource strategy.

### **Critical Industry Issues Re-confirmed**

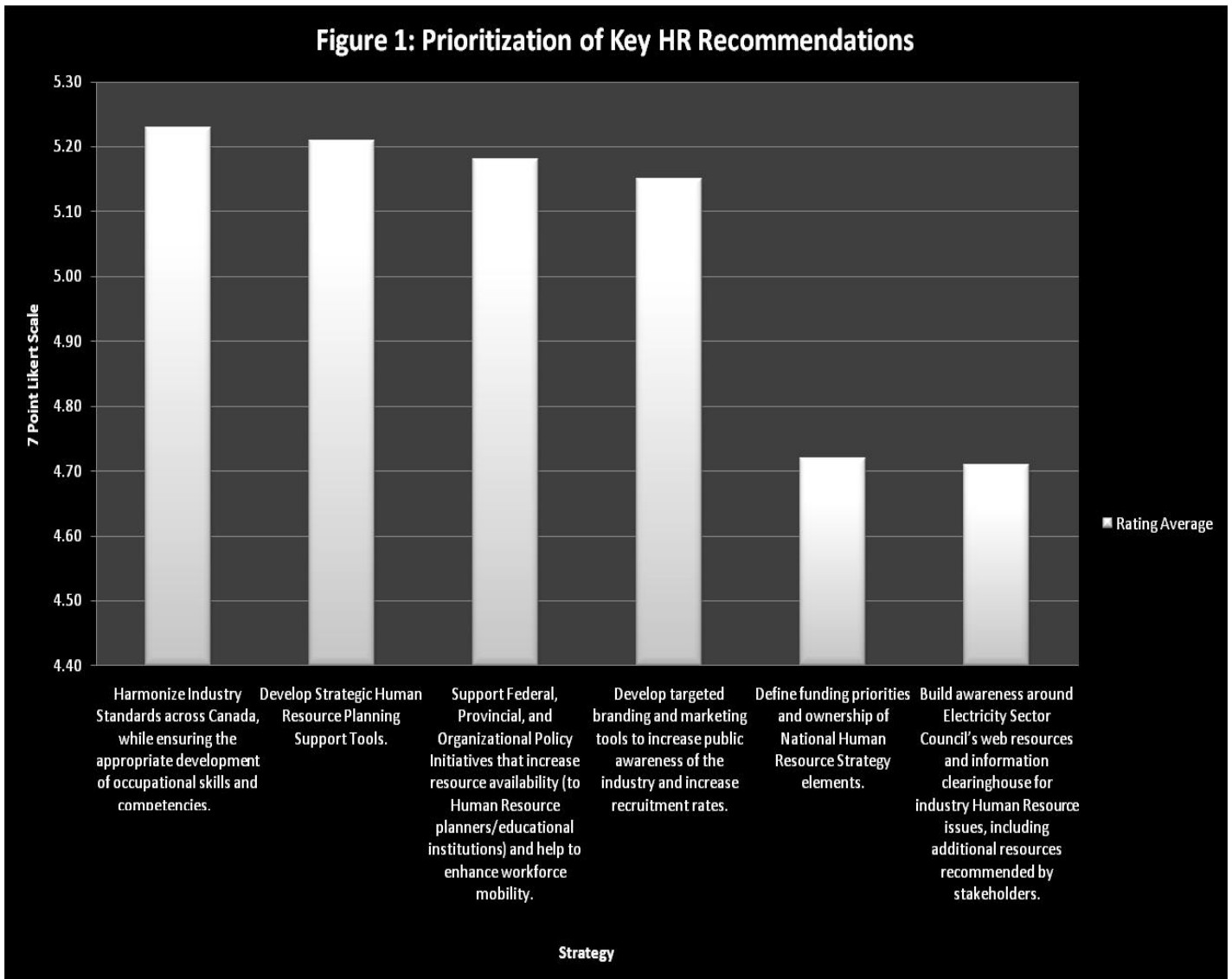
This report highlights that stakeholders have re-confirmed the critical issues defined by the Electricity Sector Council’s 2008 labour market information study ‘Powering Up the Future’ on the workforce environment. Stakeholders not only discussed issues, they also recommended solutions to these challenges. One such solution is the need to re-brand the industry and increase the public’s awareness of how the industry is changing and what the positive attributes are of working within the electricity sector. Employee mobility across Canada and for internationally trained workers can be a solution for under serviced areas if national education standards can be harmonized and international credentials better understood and recognized. Under-recruited groups such as aboriginals, women, and internationally trained workers can become a new potential source of workers in the electricity sector labour force. Branding and recruitment efforts will need to take these groups into serious consideration during the planning process. Developing local talent in rural and remote areas is another solution that will help supplement the workforce and reduce the need to recruit from urban areas by enticing workers with significantly higher wages. The appropriate technical and soft skills will also need to be developed in order to meet the demands of the changing energy paradigm in Canada.

This re-branding process will require industry and government to improve their communication and support funding priorities within learning institutions to increase teaching capacity, provide new technology and equipment, and increase the amount of seats available for incoming students. All solutions will require increased strategic and long-term human resource planning within organizations and across this industry. This long term planning is critical to the success of such a strategy and will require that stakeholders within the industry are communicating and that the appropriate partnerships and collaborations are developing. It is important to note that while there were regional differences, the majority of issues and solutions discussed during the consultations were reiterated throughout Canada.

## National Validation of Consultation Outcomes

The validation process consisted of an online survey that was distributed widely across Canada to senior level electricity and renewable energy stakeholders, both operational and human resources. The survey was intended to gain consensus, validate, and prioritize the strategic recommendations of this National Human Resource Strategy. Participants were given the opportunity to rank the key recommendations, tactics, and additional resources on a 7-Point Likert scale, where a score of one was equivalent to 'not critical' and a score of 7 was 'very critical.'

The proceeding strategic recommendations were prioritized by senior level stakeholders across Canada representing utilities, unions, associations, academia/ learning institutions, and government. There was an equal spread between small, medium, and large organizations that participated. Please refer to Figure 1 for the final results.



This graph uses a 7 point Likert scale where 1 is the least critical and 7 is the most critical.



## Strategic Recommendations

The following six strategic recommendations for a National Human Resource Strategy for the electricity and renewable energy industry are based upon the information gathered during the seven regional consultations and the national validation.

- i. Harmonize Industry Standards across Canada, while ensuring the appropriate development of industry skills and competencies.
- ii. Develop strategic human resources planning support tools.
- iii. Support Federal, Provincial, and Organizational Policy Initiatives that increase resource availability to human resources planners/ educational institutions and that also help to enhance workforce mobility.
- iv. Develop targeted branding and marketing tools to increase public awareness of the industry and increase recruitment rates.
- v. Define funding priorities and ownership of National Human Resource Strategy elements.
- vi. Build awareness around current human resources tools available or in development, in the form of a web-based information clearinghouse which includes an information exchange and feedback mechanism.

These strategic recommendations which emerged from this Pan-Canadian consultation demonstrate that industry stakeholders are well aware of the issues and what solutions are needed in order to ensure an adequate human resource supply is available for the future of Canada's energy system. It will require that all industry stakeholders contribute, collaborate, and communicate to ensure that there is an appropriate and well-trained supply of labour entering into the industry.

The Electricity Sector Council, Canada's hub for research into human resources trends and sector-specific solutions to Canada's skilled-labour shortage, has developed or is in the process of developing many of the tools discussed by industry stakeholders as critical to the success of these recommendations. For more information about these resources and how you can get involved, please go to the Electricity Sector Council's website, [www.brightfutures.ca](http://www.brightfutures.ca)

## Next Steps

This final strategy will form the business case for the Electricity Sector Council going forward. This report is made available in English and is accessible electronically. It will be distributed widely to all industry stakeholders, including government, Boards of Directors, rate regulators, academia, and labour leaders.