



Analysis of the Renewing Futures Employer Survey

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Executive Summary

Survey Highlights

- A final sample of 349 respondents was gathered from a list of 1880 industry employers.
 - Responding firms report working across many different Electricity Related Renewable Energy (RE) sectors and in many segments of the supply chain.
 - Human resources issues ranked below government policy, marketing and business development and cost and financial concerns as top issues.
 - A smaller but significant number of employers work entirely in one RE sector, for example, 40 firms in the sample work entirely in solar energy.
 - There are a large number of small firms in the sample with 50% reporting revenues below \$500,000 and 34% of the respondents reporting revenues from \$500,000 to \$2.0 million.
 - Most firms have a strongly technical workforce; listing engineers, technicians, technologists, trades and labourers and installers as their largest and most critical employee groups.
 - Marketing / legal and accounting staff were also among the largest and most critical groups.
 - Firms reported only a limited change in employment levels in the past year but:
 - Recruiting plans are bullish with 65% of the sample planning a significant or somewhat significant increase over the next two to three years, and
 - Respondents ranked business growth, government policy and energy costs equally as the most important reasons for added employment.
 - Almost half of the sample (47%) reported no difficulty recruiting while a slightly smaller group (45%) reported some difficulty.
 - Respondents assigned almost equal weight to three recruiting challenges:
 - Wage or benefit expectations were too high,
 - Candidates lack sector related technical skills, and
 - Candidates lack general technical skills.
 - The sample has no strong preference for recruiting sources and rank equally:
 - Employees in other RE firms,
 - Recent graduates from post-secondary programs,
 - Apprentices, and
 - Employees in other electricity related businesses.
 - There is a very strong training culture with 92% of responding employers providing training for employees with:
 - 86% on health and safety,
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- 85% on general knowledge about RE processes and technologies, and
- 75% technical training for operations and maintenance,
- Over 78% of employers use courses from associations, delivering or arranging in-house courses and providing on-the-job training.

Implications for a RE human resources strategy

1. The RE industry has very distinct characteristics in each Province and many energy and labour matters are within provincial jurisdictions.
 2. RE employers face significant business and technology risks and opportunities tied to economic and financial cycles, government policy and customer preferences.
 3. The industry experienced a “soft” year in 2012 and this was likely reflected in more subdued hiring and fewer difficulties recruiting.
 4. Human resources issues are not the most significant business challenges. Markets, government policy, pricing and costs were assigned a higher priority by respondents.
 5. The most important human resources issues are recruitment, retention, compensation and training. Respondents rated their companies as performing fairly well on each of these four issues.
 6. Renewable energy companies are positive about the outlook for their business. They are optimistic about their needs for more staffing over the next two to three years.
 7. Employers work in several industries (e.g. consulting and project planning) and multiple RE sectors (e.g. solar and wind); employing the same occupations and competing for these skills.
 8. Employers deploy a workforce across several RE sectors with multiple human resources and occupational requirements. HR planning will need to feature mobility and flexibility.
 9. Occupational specialization in individual renewable energy sector processes and technologies appears to be required for some but not all occupations and employers.
 10. Most Renewable Energy companies provide in-house and other training to their employees. Enhancing skills through the development of renewable energy competencies is an important goal for training.
 11. There is a risk that many RE employers will not see a problem with HR and this may limit their interest in an industry strategy.
 12. A HR strategy for RE must have distinct features to reflect:
 - a. A common set of key occupations,
 - b. Highly variable risks and opportunities that highlight the need for flexibility and mobility for HR,
 - c. Sector specific issues and needs in each Province, and
 - d. Advantages for individual employers as well as for provincial and sector interests of employer groups.
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1. Introduction

During January and February, 2013, Ipsos Reid conducted the Renewing Futures Employer Survey. The survey was intended to provide a statistically valid picture of the employers in the Renewable Energy industries, the occupations that they employ and their key human resources issues. The field research consisted of a national telephone survey of employers. Questions were specific to the renewable energy sectors covering: solar, wind, geothermal, biomass, hydro and marine and their relationships to the traditional electricity sector. The survey was targeted at human resources managers and specialists within the companies.

The survey list was prepared of approximately 1880 companies. The list was compiled from company membership lists from a number of sources: AGEA, ASPD, the Canadian GeoExchange Coalition, CanGEA, CanSIA, CanWEA, Clean Energy, Contact Canada, Industry Canada, MGEA, Ontario Geothermal Association, OSEA, and Wade Canada. Provincial renewable energy association membership lists were reviewed. The association lists were sifted to remove duplicate names where a company was a member for more than one association, or a member of a national and a provincial or regional association. Contact names were provided by the Renewing Futures Steering Committee as well. A total list of 1884 separate company names was compiled for the telephone survey.

The following report provides a summary and analysis of the responses to the survey questionnaire. Six introductory screening questions were followed by questions on human resources challenges, employment, employee training, and Renewing Futures, for a total of 28 questions. The survey running time was estimated to be 16 to 20 minutes.

2. Profile of Renewable Energy Companies

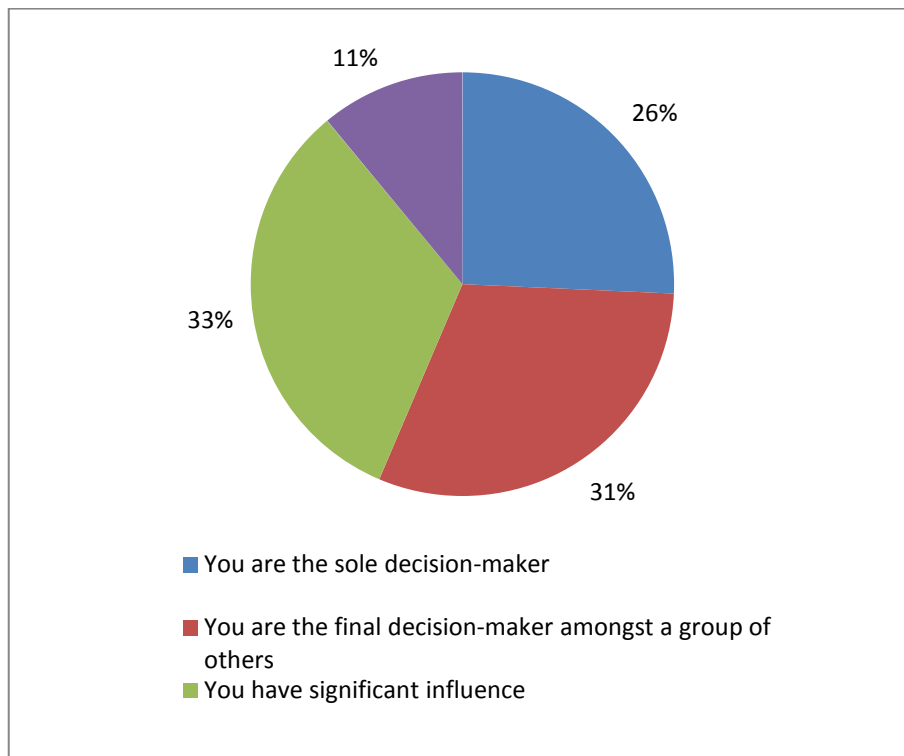
In total, 349 people responded to the telephone survey. This represents an 18.5% response rate for the survey, which is a relatively high rate for an employer survey of this type.

Several screening questions were asked to determine whether the respondent was a renewable energy company. The total 349 responses to the survey represent the respondents whose firms work in the renewable energy sector.

Respondents were asked about their role in the company with respect to human resources related decisions (Exhibit No. 1). 26% of respondents were the sole decision makers in their companies. Another 31% were the final decision-makers amongst a group of others and 33% have significant influence on human resources decisions. The survey was able to reach the target respondents within the companies who have a major role in human resources decisions.

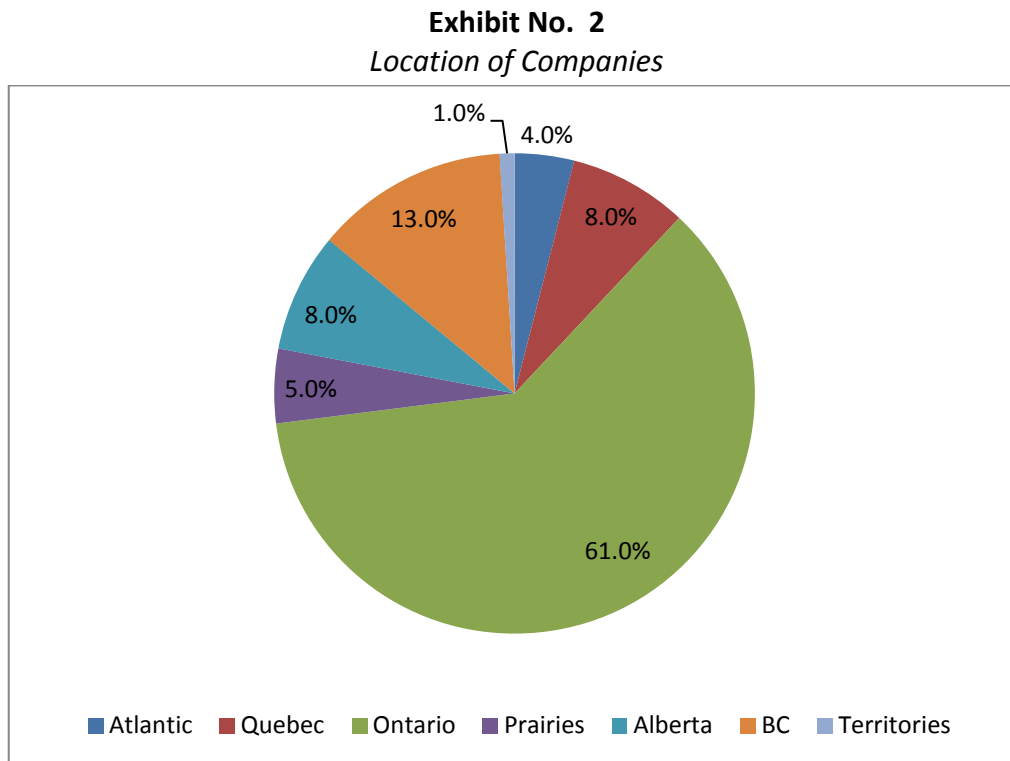
Exhibit No. 1

S2. Which of the following statements best describes your role with regards to making human resource-related decisions for your company?



Source: Prism Economics and EHRC Employer Survey

The preponderance of respondents to the survey were companies located in Ontario (61%), followed by British Columbia (13%), Quebec (8%) and Alberta (8%). The numbers of respondents from the remaining provinces are a very small base. (See Exhibit No. 2.)



Source: Prism Economics and EHRC Employer Survey

Renewable Energy Companies operate with a portfolio of businesses

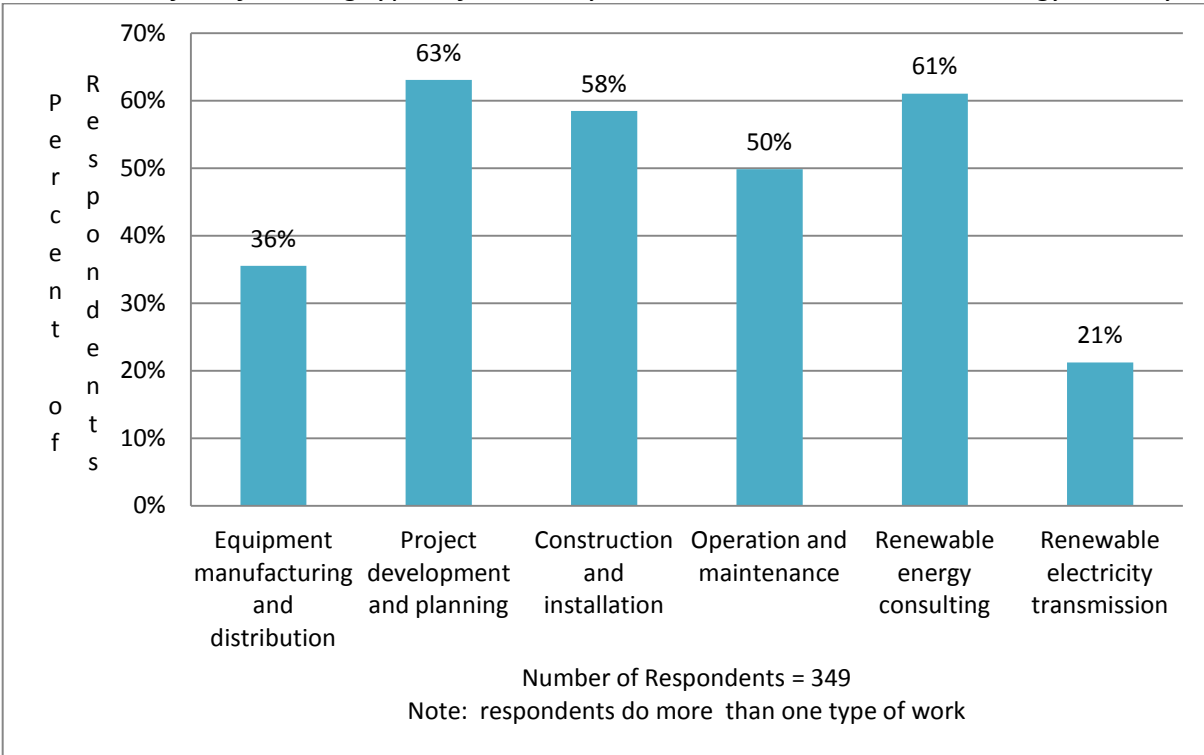
The respondents were asked what type of work their company conducts in the renewable energy industry (Exhibit No. 3). Respondent companies were concentrated in four areas: project development and planning (63%), renewable energy consulting (61%), construction and installation (58%), and operation and maintenance (50%). Equipment manufacturing and distribution and renewable energy transmission are well behind.

Companies in the renewable energy industry undertake work in several segments of the supply chain. They consult, develop, build and operate renewable energy projects; some also manufacture and distribute the equipment; a smaller number are involved in transmission. An example of this diversification can be seen with the companies in project development and planning. Sixty-three percent of the total respondents are in project development, representing 220 companies. Of these companies, 35% are involved in equipment manufacturing and distribution, 70% in construction and installation, 61% in operation and maintenance of renewable energy installations, 74% in renewable energy consulting, 31% in

transmission and storage, and 6% in research and development. This is similar to the situation in each of the other categories of work; companies are focused in one renewable energy type of work but their business activities extend to other areas.

Exhibit No. 3

S3. Which of the following types of work do you conduct in the renewable energy industry?



Source: Prism Economics and EHRC Employer Survey

A key question was what sectors of renewable energy the companies work in (see Exhibit No. 4 below).¹

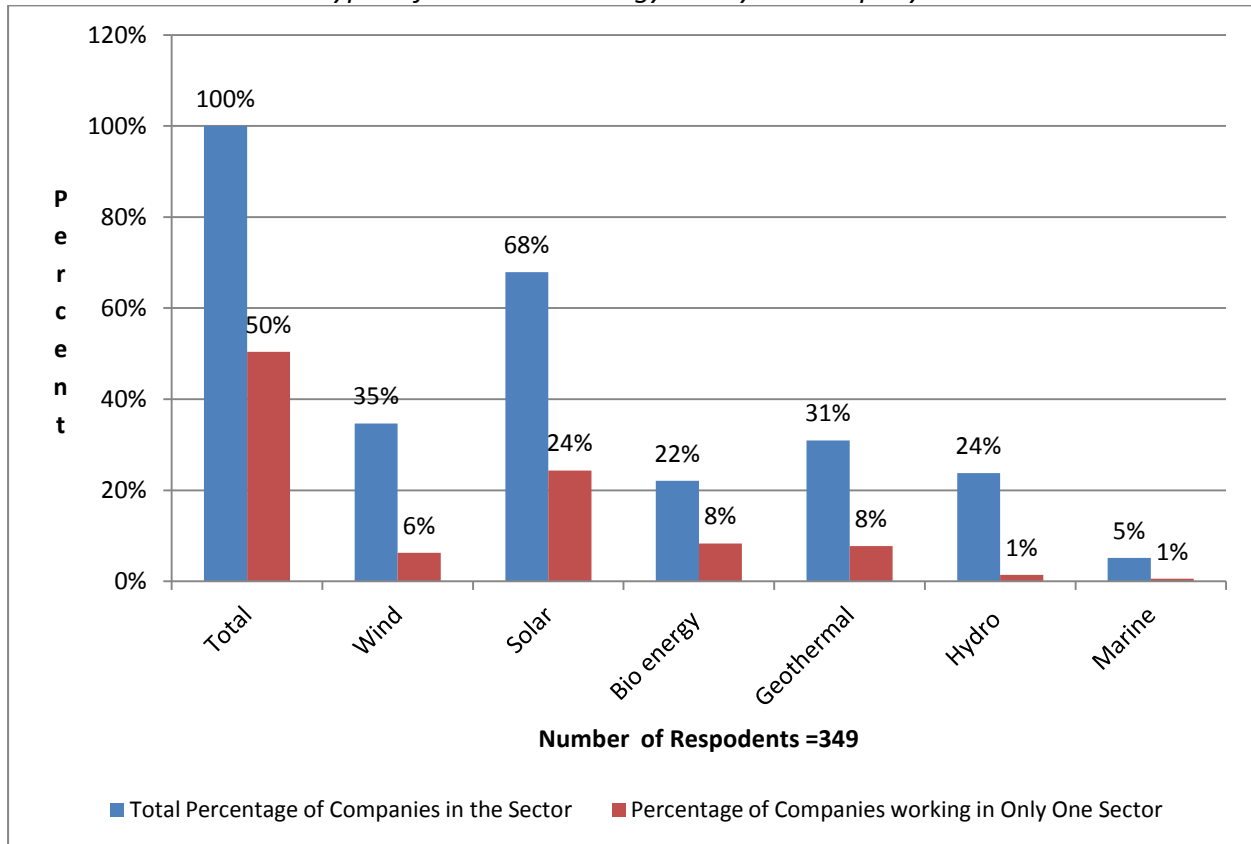
The response shows that a preponderance of companies were in the solar energy sector at 68%, followed by wind with 35%, geothermal with 31% , large and small hydro with 24%, and bioenergy with 22%. These data were analysed to determine which companies work in only one renewable energy sector compared to those which work in more than one. About 50% of the respondents work in only one sector and 50% work in multiple sectors. This result conforms to the results, above in Exhibit No. 3, about the segment of the supply chain companies work in. Many renewable energy companies work in multiple sectors and in more

¹ Note: The chart has two variables: the total percentage of respondents who work each renewable energy sector; and the percentage (of the total) of respondents who conduct all of their work in renewable energy in only this one sector. For example, 68% of respondents indicated that their company does work in the solar sector, and 24% of these respondents work only in the solar sector in renewable energy. The total of the single sector respondents add to the 50% of total respondents.

than one segment of the supply chain. There are companies which are focused precisely on one sector in renewable energy, doing all of their work in it; other companies do some of their business in renewable energy and do so across the supply chain. This variation has implications for the human resource requirements, occupational mix and challenges facing renewable energy companies.

Exhibit No. 4

S6. Which types of renewable energy does your company work with?

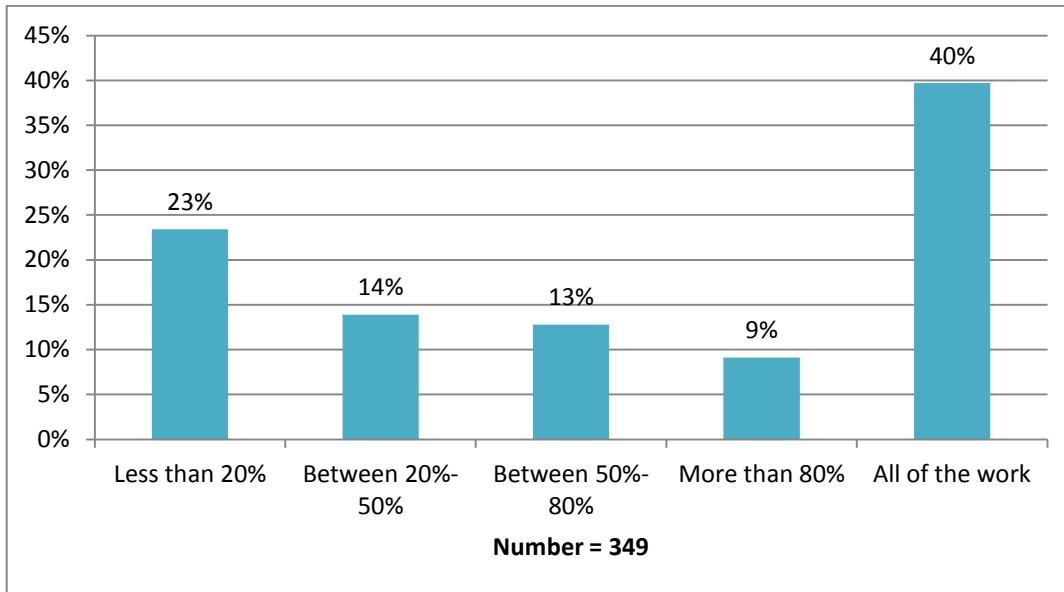


Source: Prism Economics and EHRC Employer Survey

Respondents were asked what proportion of their work is in the renewable energy sector. A wide range was reported (as can be seen in Exhibit No. 5). About 40% of respondent companies do all of their work in renewable energy. These companies are represented in the similar proportions across the types of work in renewable energy. The next largest category is companies which do less than 20% of their work in renewable energy, about 23% of the companies. In total, 62% of the companies conduct between 50 and 100% of their work in renewable energy.

Exhibit No. 5

S4. What proportion of your work is in the renewable energy sector?



Source: Prism Economics and EHRC Employer Survey

These data were examined in more detail to determine if the proportion of work in renewable energy differs depending on whether a company is primarily a renewable energy company or a company operating in more than one industry. Exhibit No. 6 tracks companies that work in only one renewable energy sector. The data shows that 77.3% of wind companies work only in wind and all of their business is in renewable energy. A large proportion of solar companies (61.2%) are similarly focused on solar as their only business. This contrasts with bioenergy companies which are diverse with about 45% doing all their business in the sector, and 18.5% of geothermal companies which do all their business in the renewable sector. Hydro companies are the most focused with 80% of those in only one renewable sector conducting all of their work in hydro (albeit from a very small sample).

Exhibit No. 6

Proportion of work in Renewable Energy for Companies in Only One Renewable Sector

	Less than 20%	Between 20% and 50%	Between 50% and 80%	More than 80%	All of the work	Total	
	Row %	Row %	Row %	Row %	Row %	Count	Row %
Wind	9.1%	9.1%	0.0%	4.5%	77.3%	22	100%
Solar	14.1%	9.4%	8.2%	7.1%	61.2%	85	100%
Bio energy	10.3%	17.2%	20.7%	6.9%	44.8%	29	100%
Geothermal	40.7%	22.2%	7.4%	11.1%	18.5%	27	100%
Hydro	20.0%	0.0%	0.0%	0.0%	80.0%	5	100%
Marine	100.0%	0.0%	0.0%	0.0%	0.0%	2	100%

Source: Prism Economics and EHRC Employer Survey

Exhibit No. 6 shows that for wind, solar and hydro sectors of renewable energy, there are a limited number of companies which are highly specialized on one sector. In bioenergy, geothermal and marine, companies take a portfolio approach conducting most of their business in other industries and focusing their work in renewable energy on one sector.

There is also a range of business interests for companies working in multiple renewable energy sectors, as seen in Exhibit No. 7. In this case, companies conduct their work across multiple renewable energy sectors, averaging almost three sectors per company. Furthermore, these companies do a considerable amount of work in industries outside of renewable energy. This is a diversified portfolio approach whereby companies conduct work in several industries, the renewable energy industry and others, and spread the risk further by working in several renewable energy sectors. For example, about 33% of wind companies working in multiple renewable energy sectors do all of their work in renewables. The next largest group of wind companies (25.7%) does less than 20% of their work in renewables; these companies are diversified within the renewable sector and diversified with other industries. Solar presents a similar pattern with almost one third doing less than 20% in renewables and another third doing all of their work in renewables.

Exhibit No. 7

Proportion of work in Renewable Energy for Companies in More than One Renewable Sector

	Less than 20%	Between 20% and 50%	Between 50% and 80%	More than 80%	All of the work	Total	
	Row %	Row %	Row %	Row %	Row %	Count ²	Row %
Wind	25.7%	18.8%	12.9%	9.9%	32.7%	101	100%
Solar	30.8%	16.1%	13.3%	11.2%	28.0%	143	100%
Bio energy	25.5%	21.6%	13.7%	9.8%	29.4%	51	100%
Geothermal	39.0%	18.2%	18.2%	11.7%	13.0%	77	100%
Hydro	28.0%	21.3%	12.0%	13.3%	24.0%	75	100%
Marine	29.4%	23.5%	0.0%	23.5%	23.5%	17	100%

Source: Prism Economics and EHRC Employer Survey

The Renewable Energy sector has a large number of very small companies

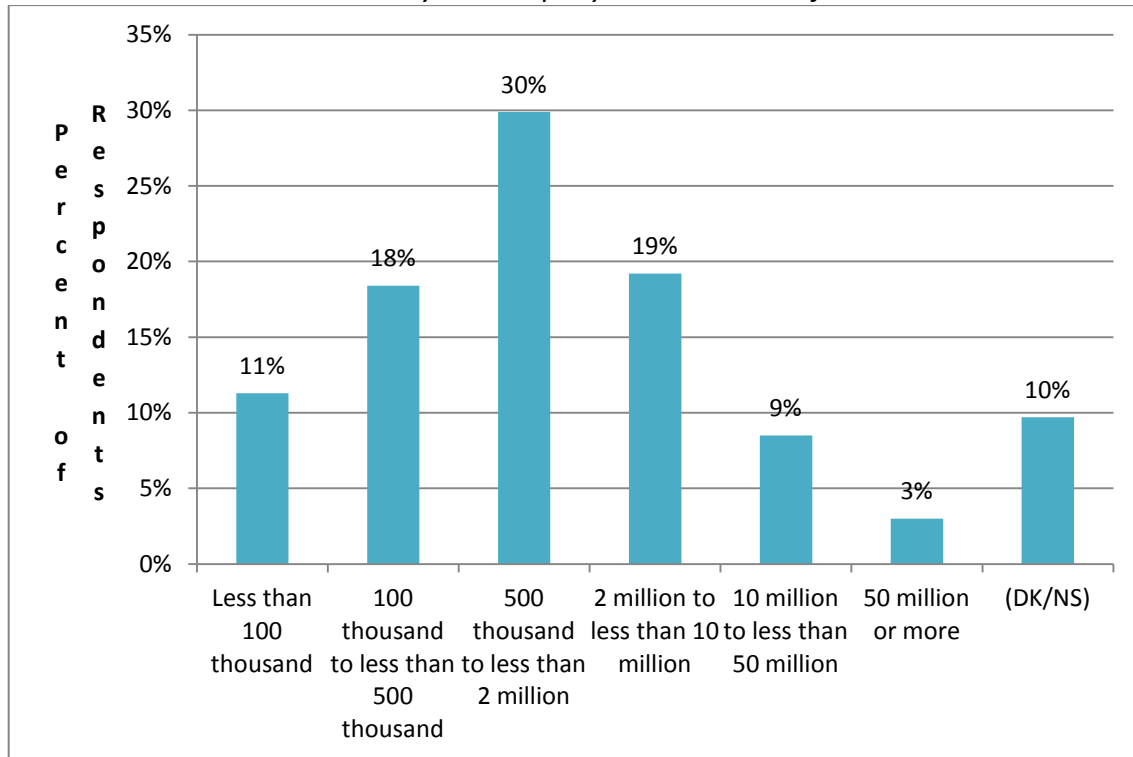
Respondents were asked what their company's total revenues were in 2012 in order to get a picture of the size of the companies in renewable energy. Exhibit No. 8 illustrates that much of the renewable energy sector is made up of smaller companies. The largest category of respondent companies (30%) had revenues in 2012 between \$500,000 and \$2 million. Below this range are small companies with less than \$100,000 in revenues (11%) and between \$100,000 and below \$500,000 in revenues (18%). These companies are likely start-ups and those with a small number of employees doing occasional work in renewable energy. Medium sized companies constitute another 28%, with companies with revenues between \$2 and \$10 million (19%) and between \$10 and \$50 million (9%). Large companies with revenues above \$50 million are only 3% of the respondents. This result can be expected as renewable energy is a relatively new industry, with many new entrants, such as start-ups beginning to establish a revenue stream, previously-existing Canadian companies that are developing renewable energy products and services, and international renewable energy companies entering the Canadian market.

Comparing revenues against the proportion of the work in renewable energy yields a similar picture: renewable energy companies have diversified revenue streams which are independent of the size of company. About 40% of respondent companies, from small to large, have all their revenues in renewable energy, and 23% have less than 20% of the revenues from renewable energy.

² Note: There are 170 companies in this table in more than one renewable energy sector. The total count of 464 represents double counting as these companies, on average, conduct business in almost three renewable energy sectors.

Exhibit No. 8

Q22. What was your company's total revenue for 2012?



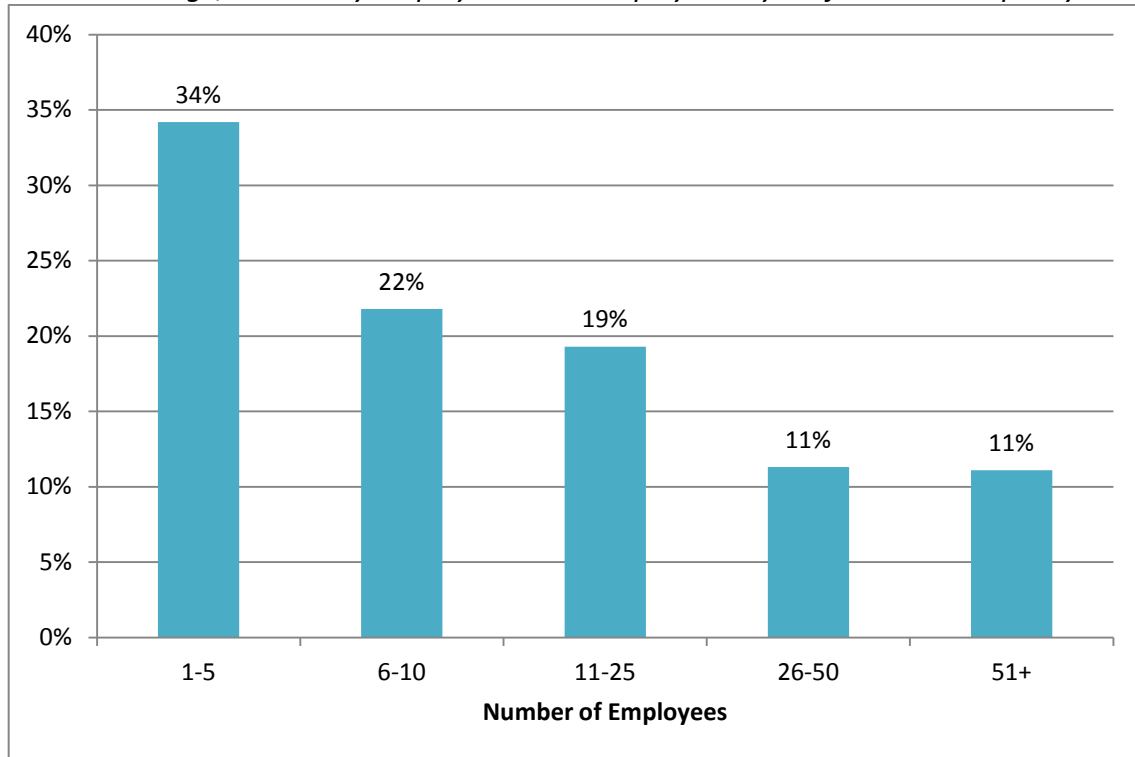
Source: Prism Economics and EHRC Employer Survey

The picture provided by revenues is supported by a parallel result from employment numbers seen in Exhibit No. 9 below which shows the employment numbers for the respondents. The exhibit shows that: 34% of the respondent companies have between 1 and 5 employees, 22% have between 6 and 10 employees, 19% have between 11 and 25 employees, 11% have between 26 and 50 employees, and 11% have over 51 employees. In total, the 349 respondent renewable energy companies employ about 19,500 people, averaging about 56 employees per company.

Employment is evenly distributed between wind and solar companies, with 62% and 61% of the total numbers of employees in the renewable energy, followed by hydro (50%), bioenergy (48%), geothermal (48%) and marine (24%). This data presents a distorted picture because of double counting of the companies that operate in more than one renewable energy sector. For example, the largest respondent company, with more than 4,000 employees, conducts its business in all 5 renewable energy sectors and operates across the supply chain in project development, construction and installation, operations and consulting. The second largest, with 1,700 employees, operates in 3 of the 6 renewable energy sectors and is focused on project development and consulting. The third largest, with 1,200 employees operates in 5 of the 6 sectors and has business in all the segments of the value chain.

Exhibit No. 9

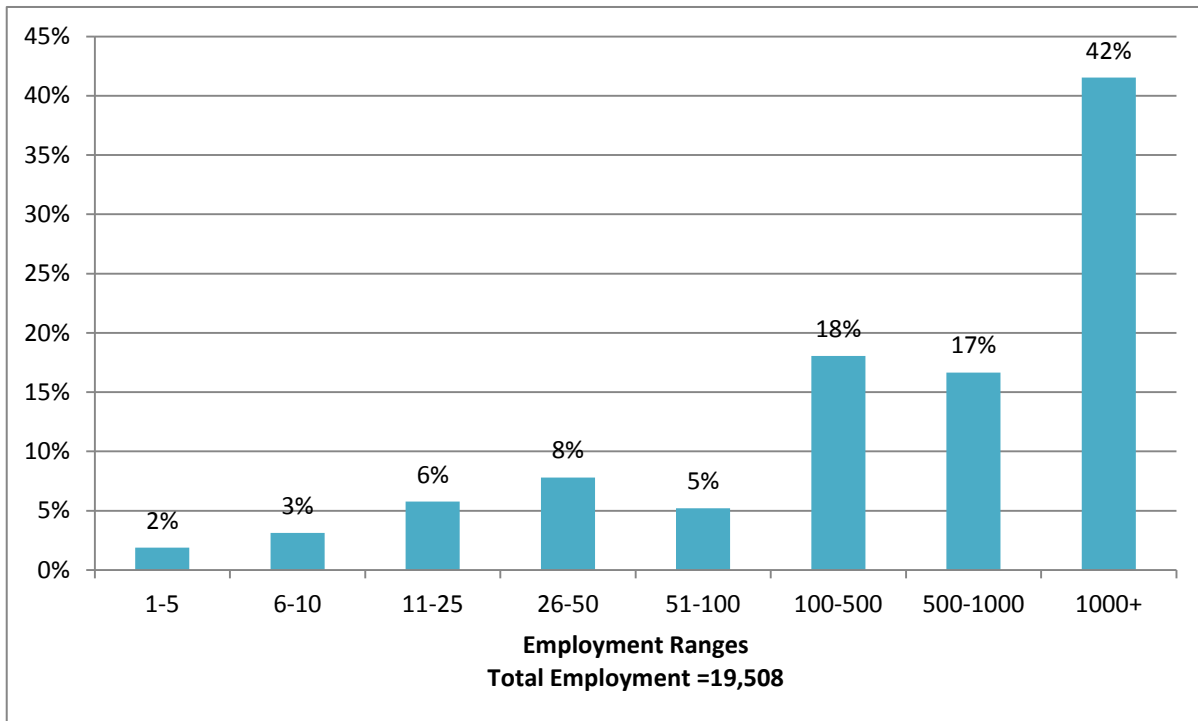
Q4. On average, how many employees were employed at your firm over the past year?



Source: Prism Economics and EHRC Employer Survey

Exhibit No. 10 looks at this same data by share of employment in employment size ranges in the sector. Fully 82% of the employment in renewable energy is found in companies which have more than 51 employees, with half of this total in companies with more than 1000 employees. These two exhibits demonstrate that the renewable energy sector has a very large number of small firms which have few employees. The bulk of employment is found in few companies which employ large numbers of people. These large companies are diversified as they operate in renewable energy and other industries, so the data may overstate the employment in renewable energy as some of these employees would have been working in other industries, for example, conventional electricity, project development, electrical contracting or electrical equipment manufacturing.

Exhibit No. 10
Employment in Renewable Energy by Employment Sizes

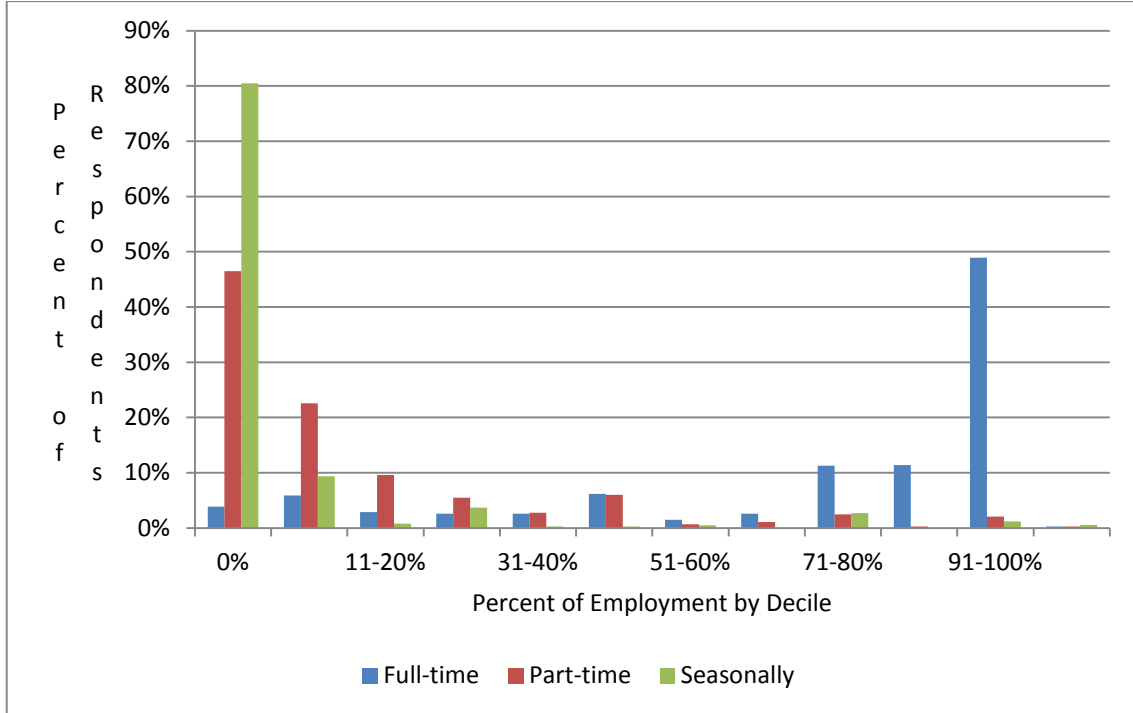


Source: Prism Economics and EHRC Employer Survey

Companies were asked about their employment patterns. Exhibit No. 11 below graphs responses describing full-time, part-time and seasonal employment. The exhibit shows that almost 50% of renewable energy firms have virtually all of their staffing as full-time employees. A smaller group of respondents have most of their employees as full-time (11%) and employ some part-time and seasonal workers. About 80% of the firms employ no seasonal employees. About 47% of respondents have no part-time employment.

Exhibit No. 11

Q5. What % of all employees at your firm is employed full-time, part-time or seasonally?

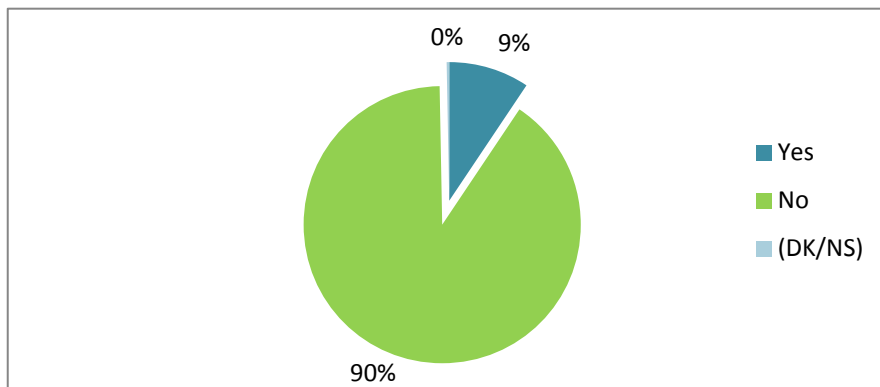


Source: Prism Economics and EHRC Employer Survey

Companies in renewable energy have a low incidence of unionization relative to the overall economy. Human Resources and Skills Development Canada reports that the unionization rate in Canada in 2011 for all industries was 31.2%.³ Exhibit No. 12 below shows that the survey respondents have a unionization rate of about 9% and 90% are not unionized.

Exhibit No. 12

Q16. Is your company unionized?



Source: HRSDC and EHRC Employer Survey

³ Human Resources and Skills Development Canada estimates, HRSDC website, <http://www4.hrsdc.gc.ca/.3ndic.1t.4r@-eng.jsp?iid=17>.

3. Human Resources Issues

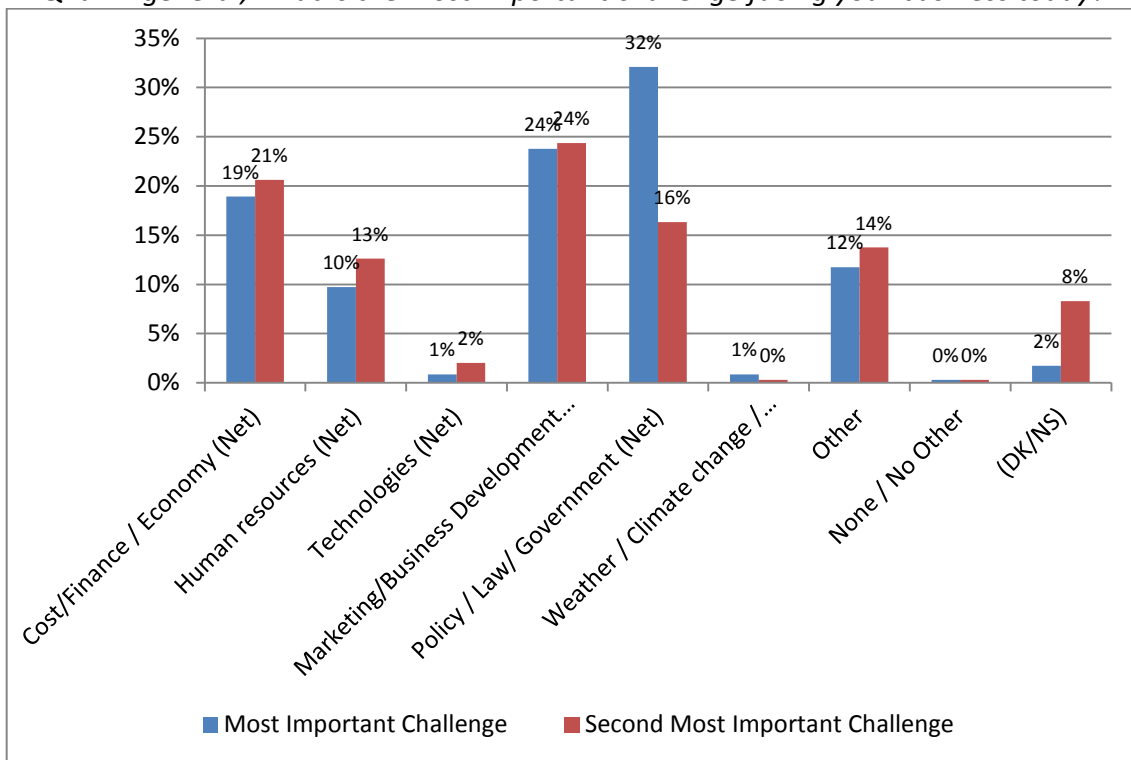
A series of questions were asked about the human resources challenges facing companies in the renewable energy business.

Markets, government policy, pricing and costs are priority issues

Respondents were asked what their first and second most important challenges were (Exhibit No. 13 below). Many companies (32%) identified government policy, law and regulation as their greatest challenge. In particular, they are concerned about the uncertainty associated with the changeability of policy and the challenges to business planning. Next were marketing and business development (at 24%) followed by costs, financing, and the state of the economy (19%). When companies were asked for their second most important challenge marketing and business development was identified, followed by costs, then government policy. Human resource issues were identified as the most important challenge by only 10% of respondents and second most important by 13% of respondents.

Exhibit No. 13

Q1a. In general, what is the most important challenge facing your business today?



Source; Prism Economics and the EHRC Employer Survey

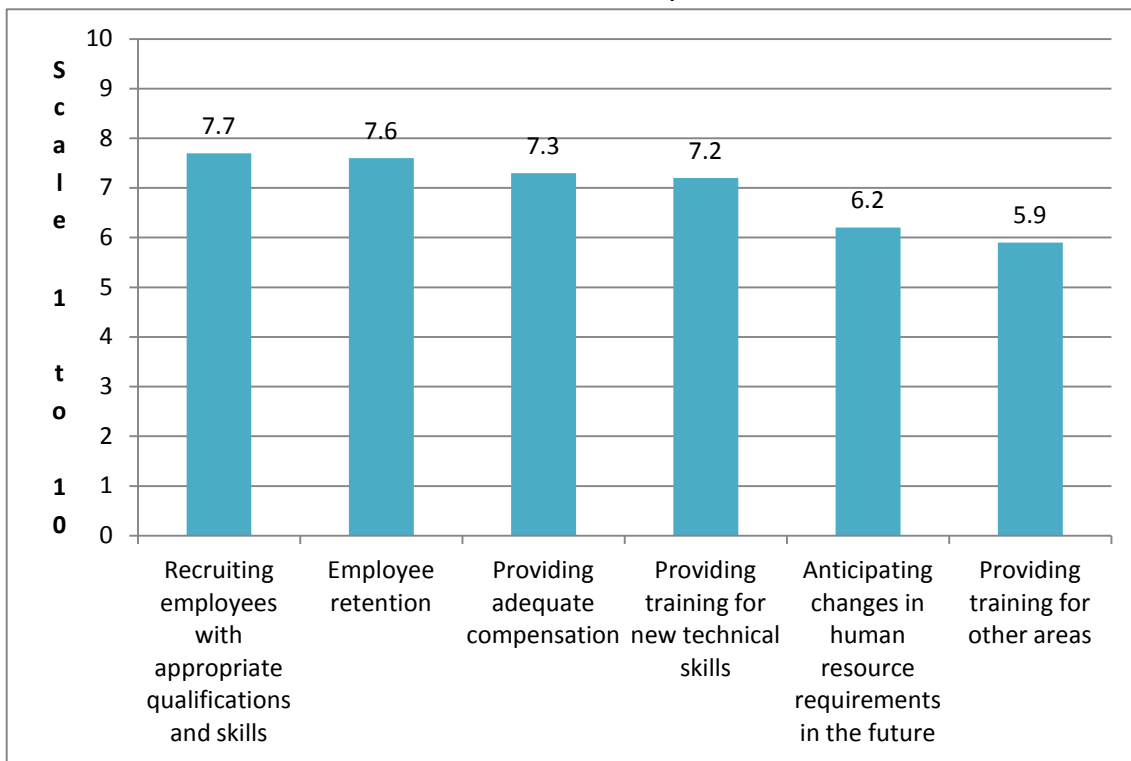
Within these broad categories, consumer awareness, government regulation, financing, and finding qualified workers were identified as the most important.

Human Resources Challenges

Concentrating on the human resources challenges (in Exhibit No. 14), respondents' ranked four issues as having almost equal importance: recruiting employees with appropriate qualifications, employee retention, providing adequate compensation and training for new technical skills. This ranking is consistent across various parameters like the supply chain and the renewable energy sector.

Exhibit No. 14

Q2. Using a scale of 1 to 10 please indicate how important each of the following human resource-related issues is to your business



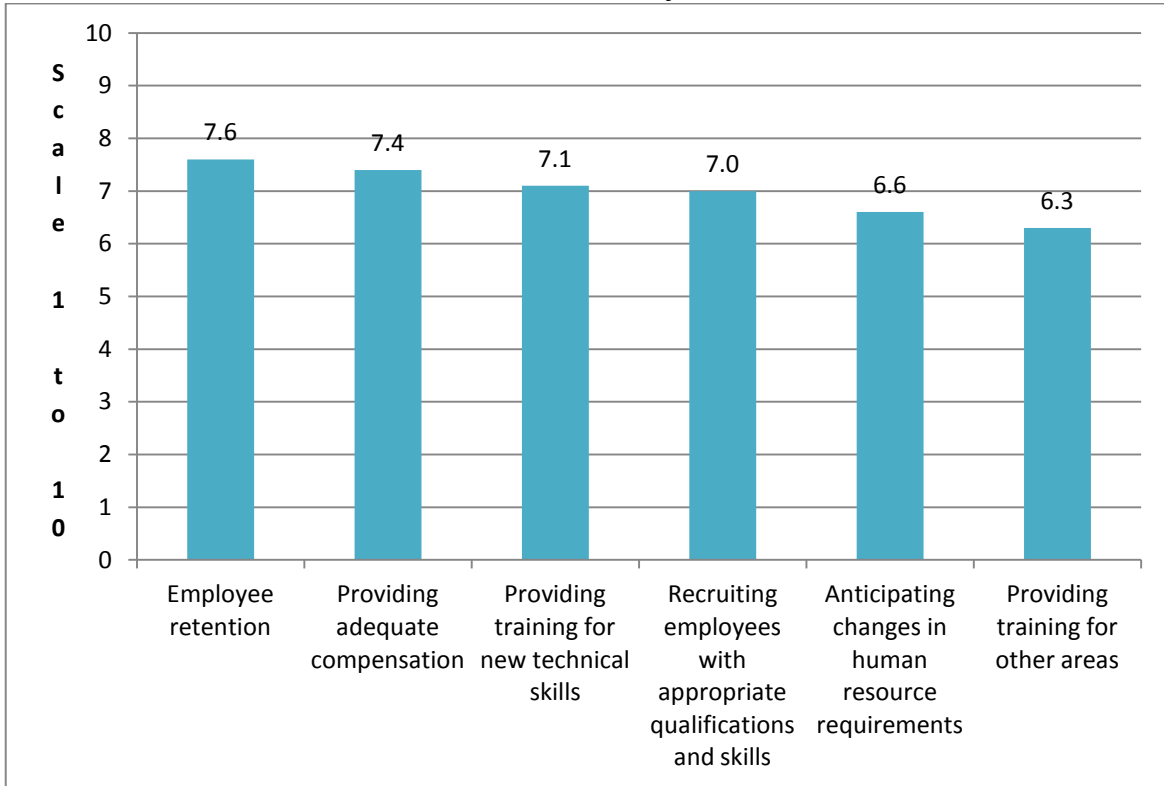
Source: Prism Economics and the EHRC Employer Survey

Companies were then asked how they rated their own performance on these human resources-related issues (Exhibit No. 15). Employee retention and providing adequate compensation were ranked the top two in terms of their own performance but there is a narrow range among the top four items identified. These four items can be regarded as all interrelated insofar as employee retention can be a factor of the compensation level and providing the appropriate training is associated with recruiting the staff with the appropriate technical skills.

Comparing the results from these two questions, it appears that the companies have some confidence that they are able to meet the human resources issue they face. Although there are different rankings in Exhibit No. 14 and Exhibit No. 15, the top four issues are ranked similarly, within a narrow band. The implication of these rankings would be that companies have four top of mind human-resources issues, and they are dealing with them.

Exhibit No. 15

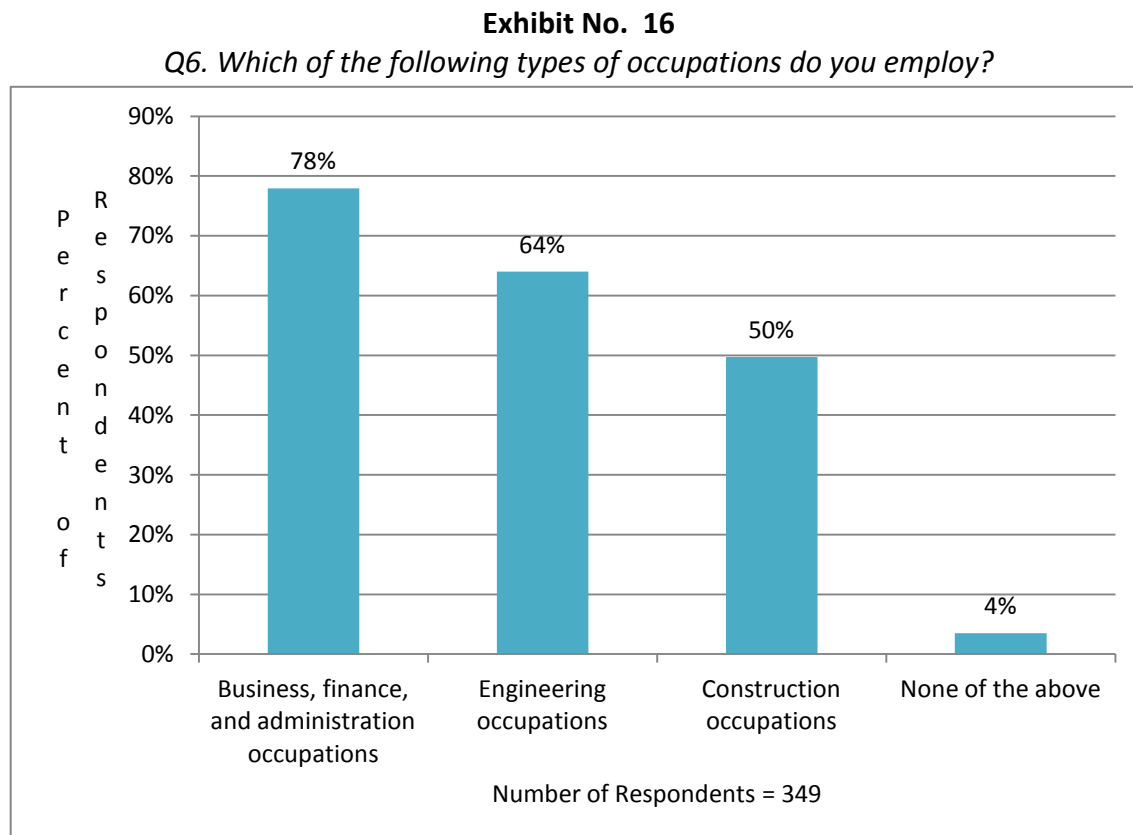
Q3. Now, please rate the performance of your business in addressing these human resource-related issues on a scale from 1 to 10



Source: Prism Economics and the EHRC Employer Survey

4. Occupational Analysis

Employers were asked about their current and anticipated staffing requirements for specific occupations. Occupations were categorized into 1) business, finance and administration; 2) engineering; and 3) construction. Exhibit No. 16 shows the occupations based on these broad aggregates.



Source: Prism Economics and the EHRC Employer Survey

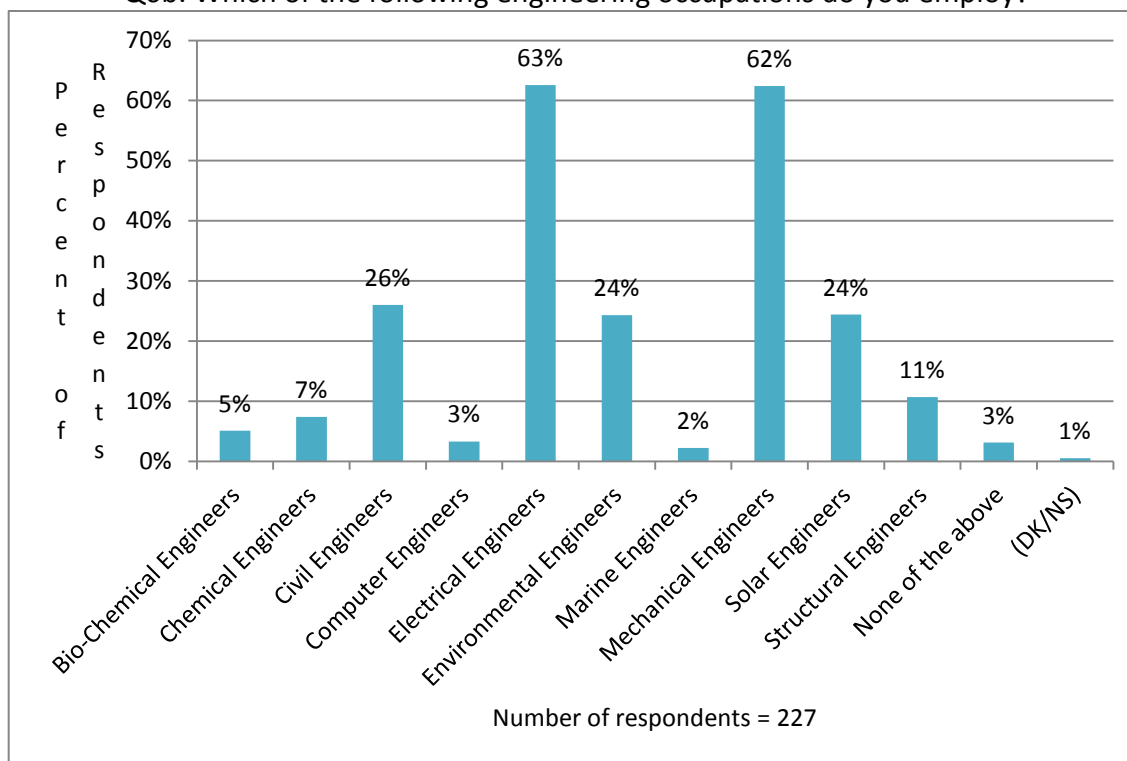
Business, engineering, and technical and trades occupations are common

Within the business category, administrative staff (87%) and accounting, finance and insurance professionals (68%) are the primary occupations.

Most engineering disciplines can be found among renewable energy companies, with a preponderance of companies employing electrical (63%) and mechanical (62%) engineers, as seen in Exhibit No. 17. Civil, environmental and solar engineers are also common in renewable energy companies, but they are well behind.

Exhibit No. 17

Q6b. Which of the following engineering occupations do you employ?



Source: Prism Economics and the EHRC Employer Survey

This pattern carries forward into the separate renewable energy sectors, with slightly higher percentages for specialized disciplines in some sectors (see Exhibit No. 18). For example, the wind and solar sectors have a higher than average number of companies with electrical and mechanical engineers, while wind has a slightly higher than average number of civil engineers (32%), and solar has a slightly higher number of solar engineers (35%). Geothermal companies employ mechanical engineers (81%) at a higher rate than the average in the industry. Hydro companies also employ electrical, mechanical and civil engineers at higher rates. Looking across the supply chain maintains the pattern of employment for engineering disciplines with electrical and mechanical engineers being the most common disciplines among companies.

Exhibit No. 18

Q6b. Which of the following engineering occupations do you employ?

	Total	Wind	Solar	Bioenergy	Geothermal	Hydro
Bio-Chemical Engineers	5%	5%	4%	20%	6%	6%
Chemical Engineers	7%	6%	6%	30%	3%	7%
Civil Engineers	26%	32%	24%	28%	21%	38%
Computer Engineers	3%	9%	3%	5%	2%	8%
Electrical Engineers	63%	71%	66%	62%	51%	73%
Environmental Engineers	24%	33%	22%	37%	33%	32%
Marine Engineers	2%	6%	3%	2%	7%	7%
Mechanical Engineers	62%	54%	60%	81%	81%	69%
Solar Engineers	24%	20%	35%	18%	25%	19%
Structural Engineers	11%	22%	12%	11%	24%	20%
None of the above	3%	6%	4%	20%	2%	5%

Source: Prism Economics and the EHRC Employer Survey

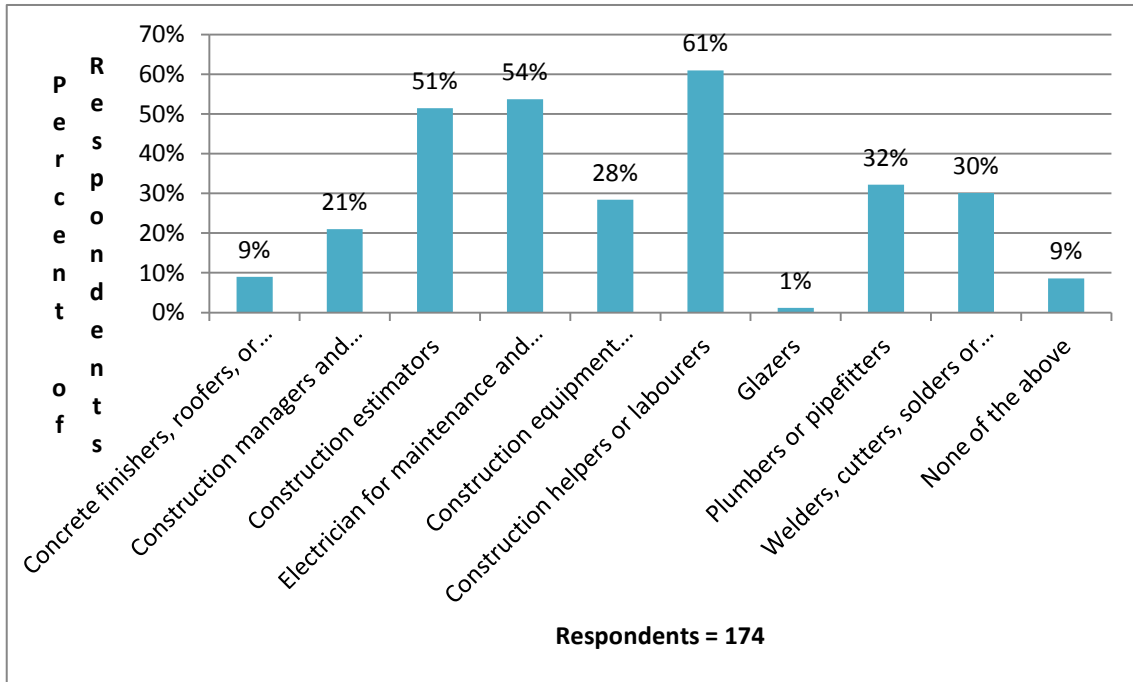
The third category, construction occupations, can be seen below (in Exhibit No. 19). The most frequently mentioned construction occupations are construction labourers and helpers, followed by electricians, construction estimators, plumbers and pipefitters, and welders. This is not surprising given that construction labours and helpers are likely to be employed by companies involved in renewable energy construction and installation in all of the different sectors while the others would not be as widespread or would be employed in fewer numbers.

Unlike the engineering occupations, there is considerable variation among construction occupations by renewable energy sector⁴. Wind companies employ construction helpers, construction managers, electricians and estimators. Solar companies employ construction helpers, electricians and estimators. Bioenergy stands out with a different mix; employing estimators, construction helpers, electricians, plumbers and pipefitters. Geothermal companies employ a higher than average number of estimators, plumbers and pipefitters, welders, cutters, solders and braziers.

⁴ see Source: Prism Economics and the EHRC Employer Survey Exhibit No. 20

Exhibit No. 19

Q6c. Which of the following construction occupations do you employ?



Source: Prism Economics and the EHRC Employer Survey

Exhibit No. 20

Q6c. Which of the following construction occupations do you employ?

	Total	Wind	Solar	Bioenergy	Geothermal	Hydro
Concrete finishers, roofers, or iron workers	9%	29%	10%	12%	6%	11%
Construction managers and supervisors	21%	68%	23%	17%	15%	39%
Construction estimators	51%	53%	50%	65%	66%	59%
Electrician for maintenance and construction	54%	59%	60%	51%	41%	49%
Construction equipment operator or crane operator or drillers	28%	34%	30%	32%	28%	24%
Construction helpers or labourers	61%	71%	76%	54%	47%	55%
Glazers	1%	2%	2%	5%	2%	-
Plumbers or pipefitters	32%	25%	28%	43%	61%	24%
Welders, cutters, solders or braziers occupations	30%	36%	28%	37%	40%	31%
None of the above	9%	9%	7%	7%	6%	9%

Source: Prism Economics and the EHRC Employer Survey

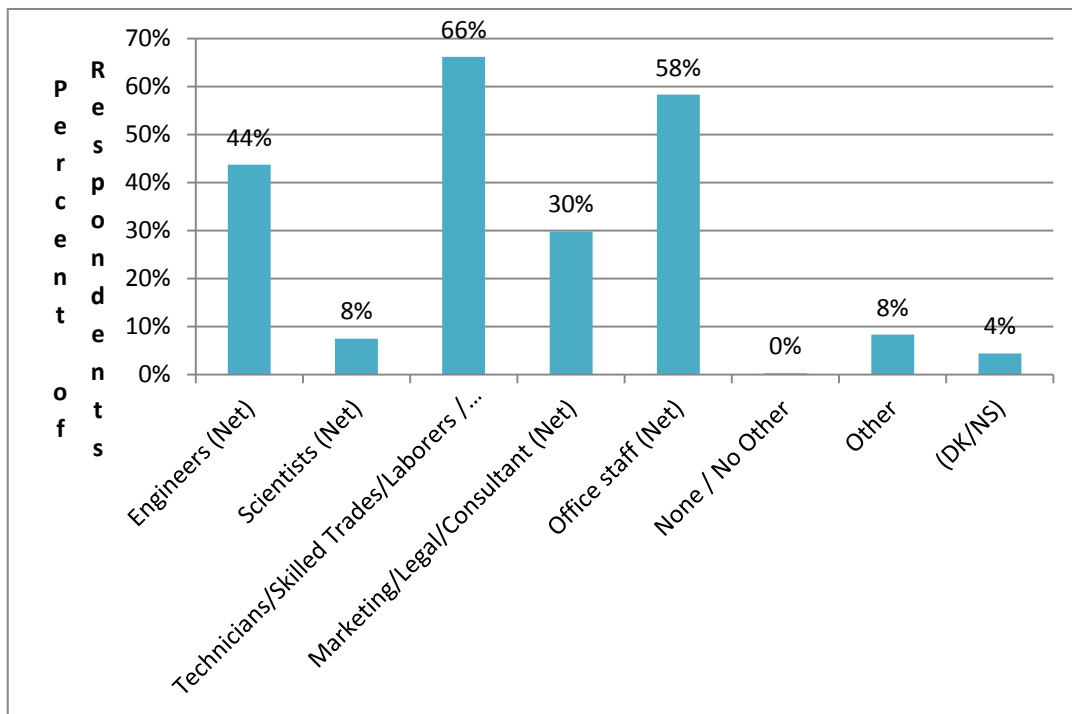
Respondents were asked to identify the five largest occupations that they employ. Exhibit No. 21 shows that the five largest occupations identified are technicians/skilled trades/labourers (66%), office staff (58%), engineers (44%), marketing/legal/consultants (30%), followed by scientists and other (8% each).

On a more detailed level, respondents most frequently identified their largest occupations to be occupations of technicians/skilled trades/labourers (by 59% of respondents), with electricians cited most often, followed by engineers (23%), marketing/legal/consultant occupations (9.3%), and office staff (8.8%) which includes supervisors and project managers. This pattern holds among the renewable energy sectors and along the supply chain.

The top five occupations by employment identified in Exhibit No. 21 vary among the sectors in the frequency which they are identified, but these occupations are consistently among the top five identified by the renewable energy sector and the value chain.

Exhibit No. 21

Q7 Now I would like you to think about all the occupations that you employ, which are the five largest occupations by size employed by your firm?



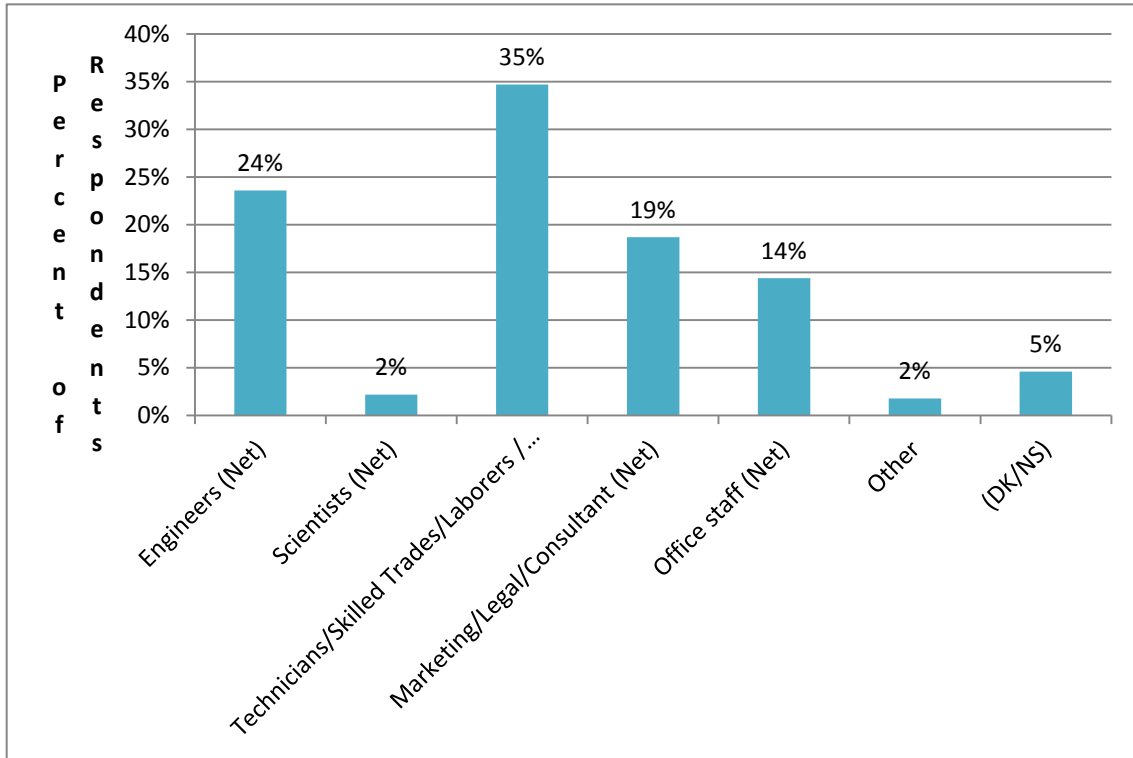
Source: Prism Economics and the EHRC Employer Survey

The survey asked respondents what were the most critical occupations to their business. Exhibit No. 22 shows that technicians/skilled trades/labourers were identified as most critical by 35% of respondents, followed by engineers, and marketing/legal/consultants. The single occupation identified as most critical was engineers, although respondents did not specify any

particular discipline. Electricians/electrical technicians were identified the most frequently as most critical, among the technician, trades, and labourer occupations. Sales and marketing were also identified as most critical.

Exhibit No. 22

*Q8a. Now thinking about all the occupations that you employ,
Which is the most critical to your business?*



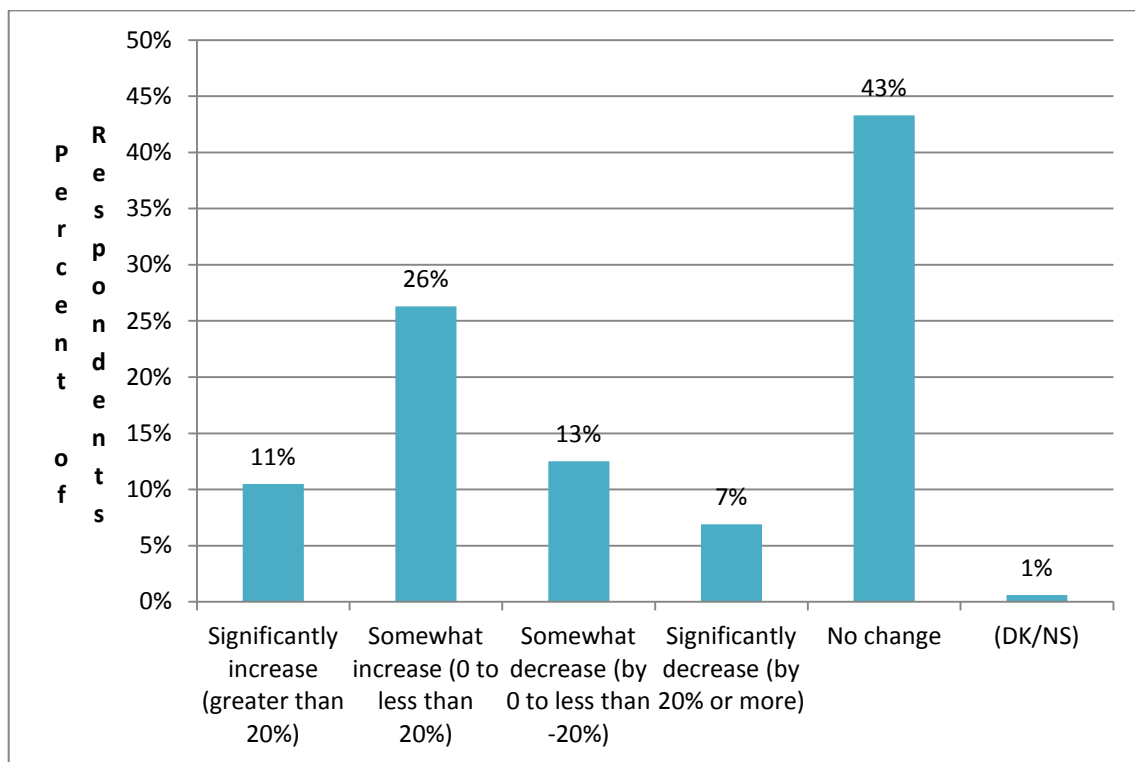
Source: Prism Economics and the EHRC Employer Survey

5. Recruitment and Training

When respondents were asked about their staffing requirements compared to a year ago, the largest number (43%) indicated that there had been no change in that time (Exhibit No. 23). About 37% indicated that their requirements increased, either significantly (11%) or somewhat (26%). This compares to the smaller number who experienced a decrease in staffing requirements over the period (20%).

Exhibit No. 23

Q14. How have your staffing requirements changed compared to a year ago?



Source: Prism Economics and the EHRC Employer Survey

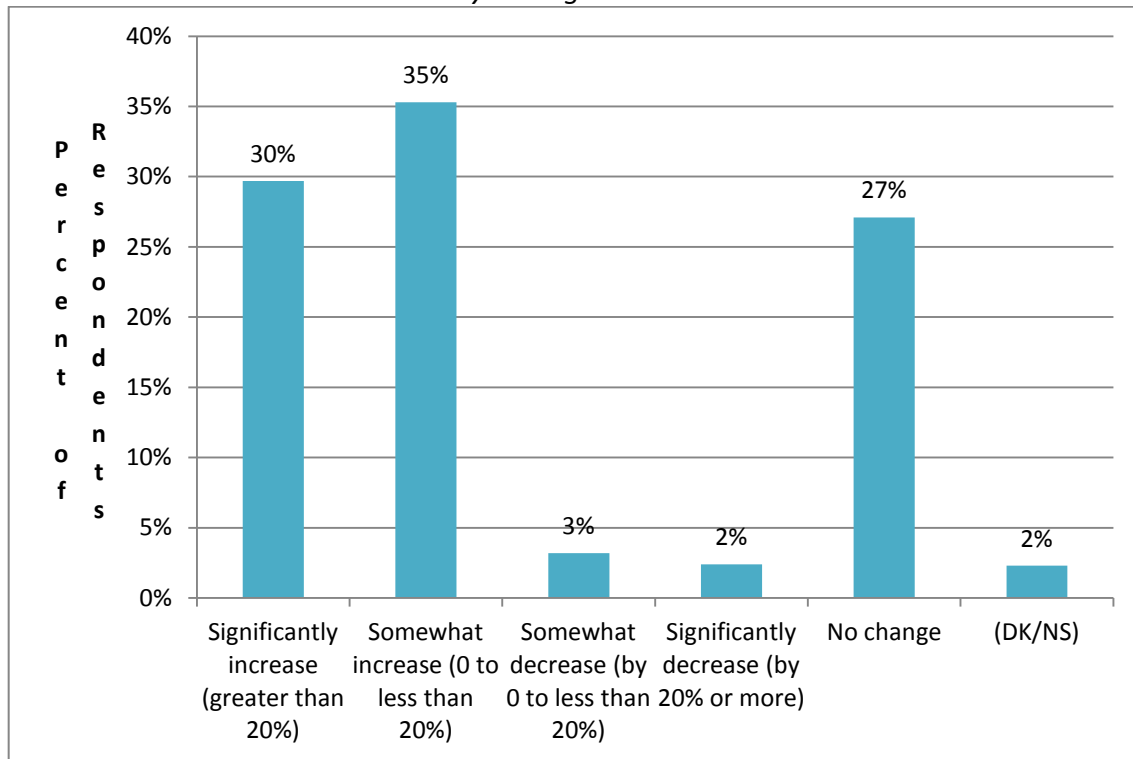
Renewable energy companies have a positive human resources outlook

A more confident picture can be seen when the same question was asked with respect to expectations about staffing requirements over the next two to three years (Exhibit No. 24). In this case, a significant number (65%) expect that their staffing requirements will increase over the next two to three years, either significantly (30%) or somewhat (35%). Only 27% of respondents expect that there will be no change in their requirements. Very few see their

staffing requirements as diminishing over the period, with only 5% expecting a significant (3%) or significant (2%) decrease.

Exhibit No. 24

Q11. How do you expect that staffing requirements will change over the next two to three years at your organization?



Source: Prism Economics and the EHRC Employer Survey

The scale of the recruitment challenge – for those companies which have one – depends on the reasons companies need to recruit. Staffing requirements over the next two to three years can be an indicator of companies’ expectations for their business in renewable energy. Exhibit No. 25 ranks the responses for the reasons for expected changes to staffing requirements over the next two to three years. Three reasons stand out as most important and were ranked equally: 1) business growth and market expansion, 2) political and government policies, and 3) changes in energy costs and price increases. These three responses are interrelated. Government policy is a key factor driving demand in the market for renewable energy; overall energy costs and specifically the cost and price of renewable energy are directly related to government policy; these two factors determine market expansion. Other reasons, albeit important, were ranked well below these three.

Exhibit No. 25

Q12. Please rate the importance of the following reasons for expected changes to your firm's staffing requirements over the next two to three years on a scale from 1 to 10

REASON FOR CHANGES IN STAFFING REQUIREMENTS	Percent
Business growth / Market expansion	9.3
Political / Government (unspecified) / Government policies	9.3
Change in energy cost/ price increase	9.3
Changes in demand for renewable energy	7.8
Changes to general economic conditions	7.5
Requirements to meet new regulations	6.8
Changes in technologies and innovations in the renewable energy sector	6.6

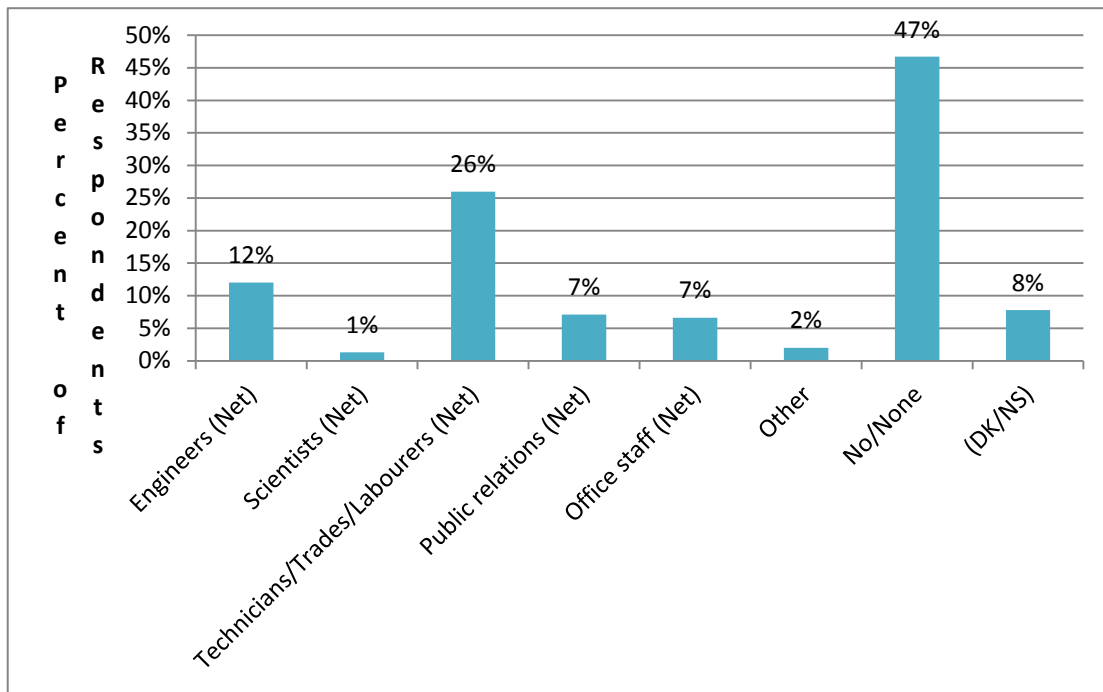
Source: Prism Economics and the EHRC Employer Survey



Exhibit No. 26 shows that the largest share of respondents have no difficulty in recruiting (47%) new staff. However, marginally fewer companies (45%) did experience some difficulties in recruiting new staff. Companies that reported difficulty in recruiting have challenges in recruiting Technicians/Trades/Labourer (26%) and Engineering (12%) occupations.

Exhibit No. 26

Q9. Are there any occupations that your organization has difficulty recruiting?

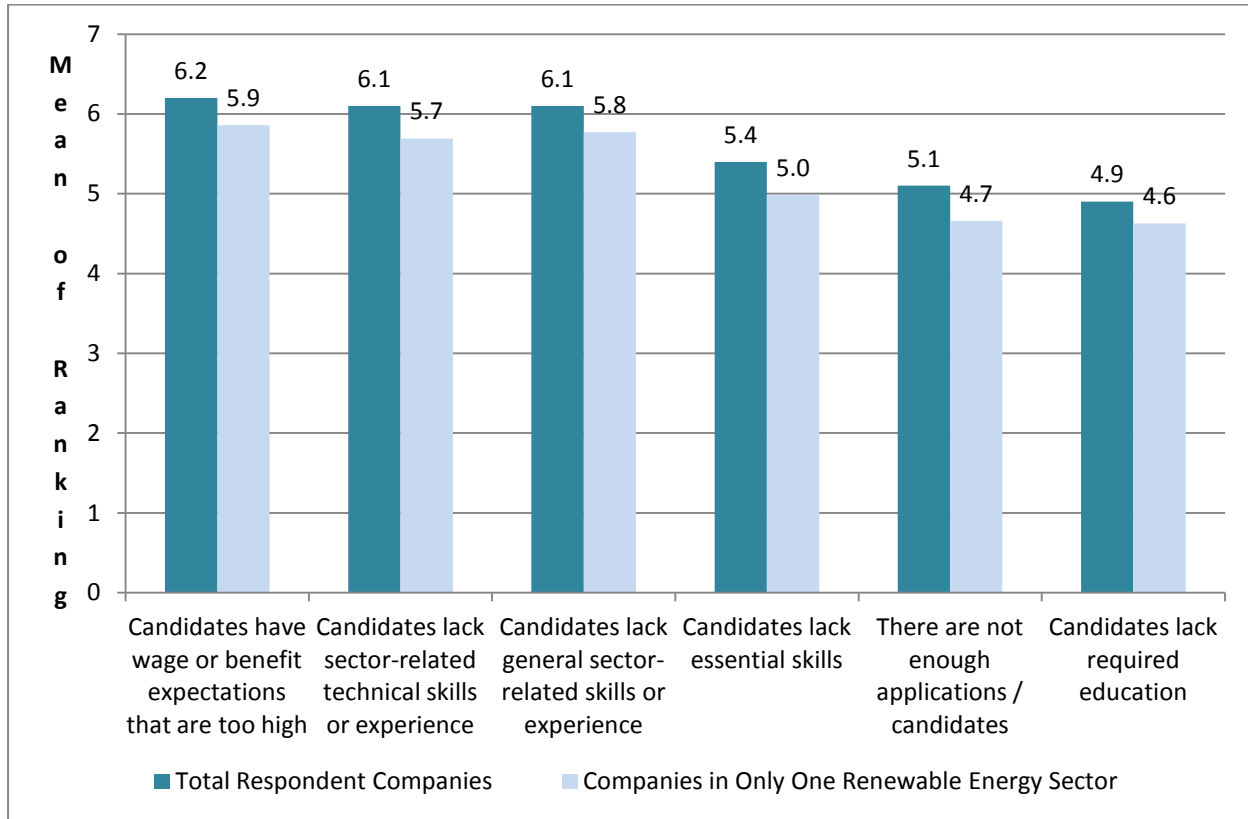


Source: Prism Economics and the EHRC Employer Survey

Exploring the recruitment issue in more detail, respondents were asked to rate their employee recruitment experience with respect to several parameters (Exhibit No. 27). The top three ranked challenges in recruiting were: 1) candidates have wage or benefit expectations that are too high; 2) candidates lack sector-related technical skills or experience; and 3) candidates lack general sector-related skills or experience. The lack of sector specific skills could refer either to overall RE skills in all or many sectors or skills in just one sector (e.g. wind). The former interpretation fits for the half of the respondents working across all sectors while skill limitations would be specific to just one sector for the more specialized respondents. Other reasons were ranked lower. Exhibit No 27 divides the sample to include just specialized firms to determine if they had different recruitment experience. The exhibit shows that the more specialized companies had a very similar recruitment experience and order to their responses, albeit the average ranking was slightly lower for each response.

Exhibit No. 27

Q10. Rate the following statements in terms of how well they reflect your organizations employee recruitment experience.

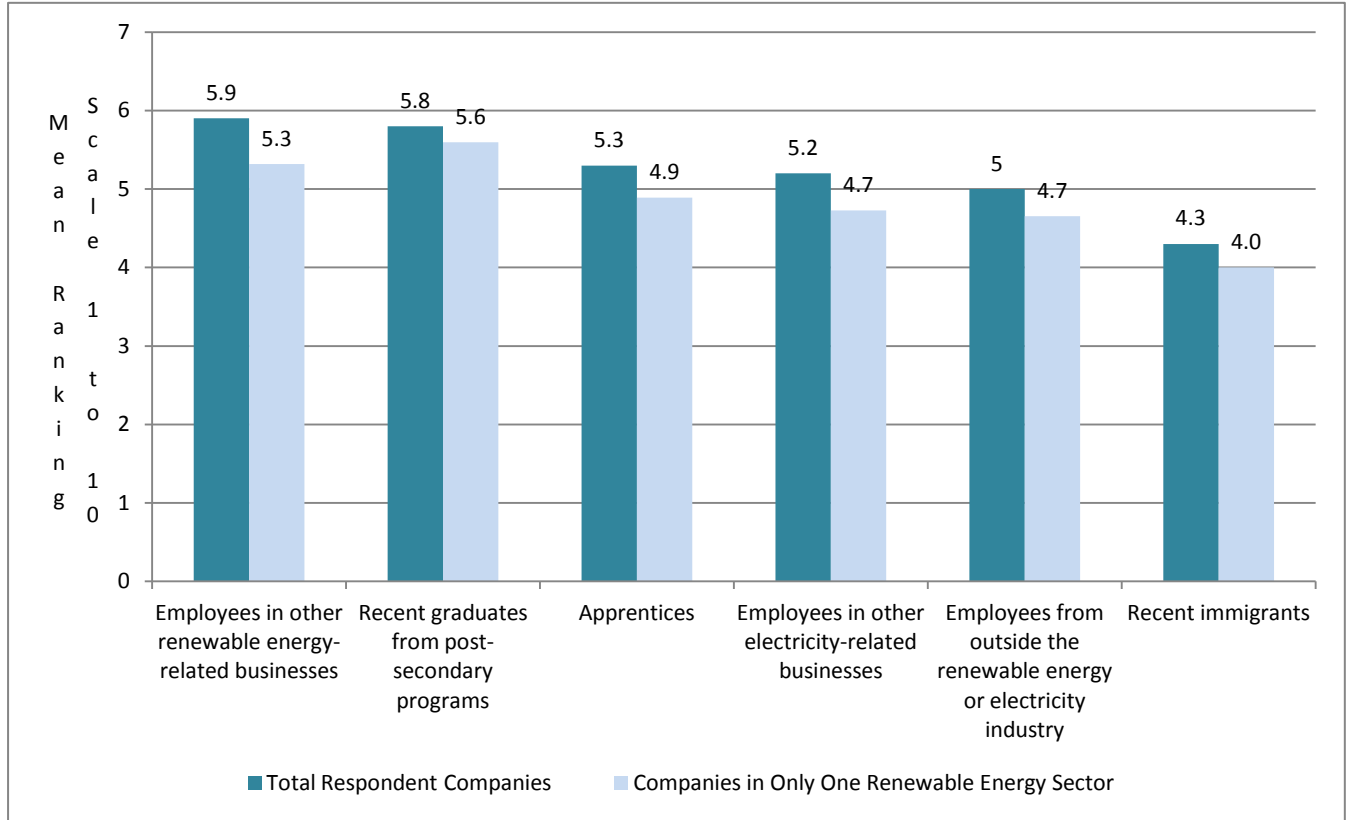


Source: Prism Economics and the EHRC Employer Survey

Looking at the sources of new hires shows how companies seek to respond to recruitment challenges. Exhibit No. 28 ranks the experience and qualifications of new hires. It shows that respondent companies obtain their new hires from a variety of venues, from other renewable energy related business, recent graduates, apprentices, other electricity related business and outside the renewable energy industry. The narrow range of the ranking demonstrates that there is no strong preference for any one particular source of employees. Companies hire from wherever they can find qualified candidates, often looking to educational institutions and apprentices to fill their needs. The ‘recent immigrants’ category was ranked the least important among the sources of new hires. As above, the data was analysed to determine whether companies operating in only one renewable sector have the same ranking as all respondent companies. Exhibit No. 28 shows that there are marginal differences in ranking with recent graduates being the top ranked category, however it is ranked first only slightly above employees from other renewable energy related businesses.

Exhibit No. 28

Q15. Thinking about the most important types of experience and qualifications for new hires for your business, please rate the importance of the following sources for new employees on a scale from 1 to 10



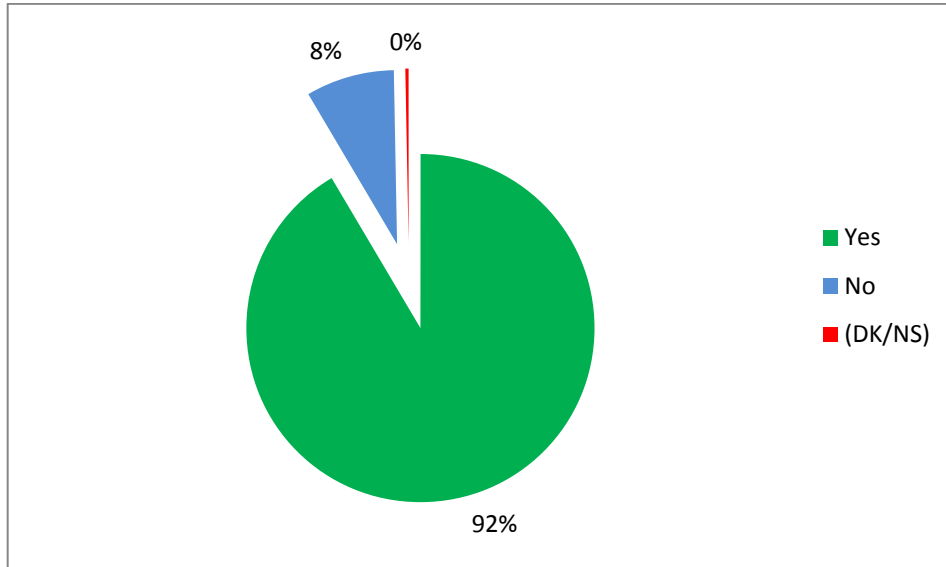
Source: Prism Economics and the EHRC Employer Survey

Renewable energy companies have a strong training culture

Companies overwhelmingly indicated that they provide training for the employees (92%) with a small number providing no training (8%) (Exhibit No. 29).

Exhibit No. 29

Q17. Does your company provide training for employees?



Source: Prism Economics and the EHRC Employer Survey

The types of training companies provided focus on essential health and safety training, renewable energy processes and technology, and technical training in operations, maintenance, installation and construction. Next are more generic skills: problem solving and computer skills. Fewer companies provide training in verbal communications, essential skills and basic competencies.

Exhibit No. 30

Q18. Does your company provide training in the following areas?

TRAINING AREA	Percent
Health and safety	86%
General knowledge of renewable energy processes and technologies	85%
Technical training for operations and/or maintenance	78%
Technical training for installation and construction	71%
Problem solving skills	63%
Computer skills	58%
Verbal communication skills	45%
Math skills	16%
Reading and writing skills	16%
(DK/NS)	0%

Source: Prism Economics and the EHRC Employer Survey

Renewable energy companies indicate that they have strong training capacities (Exhibit No. 31). Respondents provide training themselves through on-the-job training (96%). The next cluster of capabilities lies in delivering or arranging for training in-house, maintaining records, using courses from various suppliers of training like industry associations, computer-based training, and renewable energy technology suppliers. About half of the respondents develop in-house courses, use customized training from suppliers or from colleges or CEGEPS.

Exhibit No. 31

Q19. Which of the following training capabilities do you have at your organization?

TRAINING CAPABILITY	Percent
Provide on-the-job training	96%
Delivering or arranging for training in-house	79%
Maintain records of employee training	78%
Use courses from industry associations	78%
Use computer-based training instruction	73%
Use courses from suppliers of renewable energy technology	72%
Developing courses in-house	51%
Use courses from companies that specialize in or customize employee training	49%
Use courses from colleges or CEGEPS	47%
A training centre	24%
Online training	1%
Other	4%

Source: Prism Economics and the EHRC Employer Survey

6. Strategic Implications

Several findings from the survey stand out as especially noteworthy and will be incorporated into the Renewable Energy Human Resources Strategy.

1. The Renewable Energy sector has a large number of very small companies. The sector has experienced significant growth over a very short period of time. Numerous new entrants are in the industry, from international companies that have set up Canadian affiliates in order to serve the market created by government policy, to established businesses in other energy industries expanding their product and service offerings to renewable energy, to entrepreneurial start-ups with expertise, interest and enthusiasm for renewable energy.
 2. Many companies operate with a portfolio of businesses in renewable energy and traditional industries. Companies in Renewable Energy are split roughly equally between a group that are specialized in one renewable sector (such as wind, solar, geothermal, bioenergy and marine) and a group conducting business in more than one RE sector.
 3. Companies pursue business in renewable energy as one of their business lines, often taking a portfolio approach providing products and services in renewable energy and other more traditional industries, such as consulting engineering, project development, electrical and mechanical equipment manufacturing and distribution, construction contracting and conventional electricity production.
 4. Although Renewable Energy companies have many different occupations in their work force, there is a concentration in a clearly defined set of business, engineering, and technical and trades occupations which are common across renewable energy sectors.
 5. Human resources issues are not the most significant business issues. Markets, government policy, pricing and costs have priority.
 6. The most important human resources issues identified are recruitment, retention, compensation and training. Respondents rated their companies as performing fairly well on each of these four issues.
 7. Renewable energy companies are positive about the outlook for their business. They are optimistic about their needs for more staffing over the next two to three years.
 8. Renewable energy companies have a strong training culture; they provide in-house training and support skills upgrading.
 9. The human resources strategy for Renewable Energy will need to recognize a diverse sector with multiple human resources and occupational requirements.
-

10. Companies in diverse industries and multiple renewable energy sectors share many common occupations and compete for these skills.
11. Specialization in renewable energy occupations does not appear to be required.
12. Most Renewable Energy companies provide in-house and other training to their employees. Enhancing skills through the development of renewable energy competencies is an important goal for training.



Appendix: Employers Questionnaire

Electricity Human Resources Canada
Renewable Energy Sector Survey
Final Questionnaire

Recruitment

[GATEKEEPER]

(IF CONTACT NAME PROVIDED IN SAMPLE)

Hello, may I speak with [contact name]?

(IF CONTACT NAME NOT PROVIDED IN SAMPLE)

Hello, may I please speak to the senior person within your organization who is responsible for human resources? This person could include your President, Owner or a Human Resource Manager.

(IF ASKED TO IDENTIFY YOU) My name is _____ and I am calling from Ipsos Reid about a study of human resources in the renewable energy sector on behalf of the Electricity Human Resources Canada – a not-for-profit partnership between business, labour, education and government with a mandate to address the need for labour market analysis and human resource planning.

(IF CONTACT NOT AVAILABLE) We'd like to survey [contact name if available/ a senior human resources person] as part of this study. This survey should take no more than 15 minutes to complete and all of your answers will be kept anonymous and strictly confidential, and will be used for statistical, research purposes only.

(IF ASKED WHY THEY WERE SELECTED) Your company was randomly selected from a list of firms across the country.

(IF DECLINES TO PARTICIPATE OR NOT THE RIGHT PERSON) Would there be someone else at a senior level within your company who might be a more appropriate person for us to interview on this topic?

(RECORD NAME/CONTACT INFO FOR NEW CONTACT): _____

When would be a good time to call him/her back?

(RECORD SUGGESTED CALL BACK TIMES): _____

(PRIMARY CONTACT)

Hello, my name is _____ and I am calling from Ipsos Reid. I am contacting you to ask for your assistance in a study we are conducting with key decision makers in the electricity and renewable energy sector. This study is being conducted for Electricity Human Resources Canada – a not-for-profit partnership between business, labour, education and government with a mandate to address the need for labour market analysis and human resource planning. Your input is extremely valuable and will help to identify this issues and challenges facing your industry.

This survey should take no longer than 15 minutes to complete and all of your answers will be kept anonymous and strictly confidential, and will be used for statistical, research purposes only.

If now is a good time, I'll begin.

Screening/Qualification Questions

S1. Does your firm work in the renewable energy sector? (Read if necessary: By renewable energy we mean wind, solar, geo-exchange such as air source heat pumps or geothermal, bio-energy such as biomass, marine such as wave or tidal, or hydro energy)

Yes

No [Thank and Terminate]

[IF TERMINATED: "Thank-you very much for your interest to participate in our survey. At this time we have filled our quota of individuals who match your profile. We look forward to your future participation should you be invited to complete another of our surveys."]

S2. Which of the following statements best describes your role with regards to making human resource-related decisions for your company? Would you say... **(READ LIST) [ACCEPT ONE RESPONSE]**

You are the sole decision-maker

You are the final decision-maker amongst a group of others

You have significant influence

You have some influence

You have only a little influence

You have no influence

(DO NOT READ) Prefer not to say

[IF SOLE DECISION-MAKER, FINAL DECISION-MAKERS, SIGNIFICANT INFLUENCE, OR SOME INFLUENCE CONTINUE, OTHERWISE TERMINATE]

S3. Which of the following types of work do you conduct in the renewable energy industry? How about... (read list) [randomize]] Respondent can answer one or more.

Equipment manufacturing and distribution

Renewable energy - project development and planning

Renewable energy - construction and installation

Operation and maintenance of renewable energy installations (renewable electricity generation)

Renewable energy consulting

Renewable electricity – transmission and storage
Other (specify)

S4. What proportion of your work is in the renewable energy sector?

Less than 20%
Between 20% and 50%
Between 50% and 80%
More than 80%
All of the work

S5. Does your company develop/provide/operate or install whole systems or components of renewable energy?

Whole systems
Components
Both

S6. Which types of renewable energy does your company work with? How about... (Read list)
[Randomize] Select all that apply.

Wind (on shore and off shore)
Solar (PV and thermal)
Bio energy (only organic biomass for power and heat)
Geothermal (power and heat)
Hydro; Large and Small
Marine: Tidal, Waves
Other (Specify)
None of the above (Do not read) [THANK AND TERMINATE]

Section A: Human Resource Challenges

1. In general, what do you think are the two most important challenges facing your business today?

[Record responses separately]

2. Using a scale of 1 to 10 please indicate how important each of the following human resource-related issues is to your business where 1 means not important at all and 10 means extremely important. How about... (read list) [randomize]

Employee retention
Recruiting employees with appropriate qualifications and skills
Anticipating changes in human resource requirements
Providing training for new technical skills
Providing training for other areas
Providing adequate compensation
Other (specify)

3. Now, please rate the performance of your business in addressing these human resource-related issues on a scale from 1 to 10 where 1 means very poor job and 10 means excellent job. How about (read list) [randomize]

Employee retention
Recruiting employees with appropriate qualifications and skills
Anticipating changes in human resource requirements
Providing training for new technical skills
Providing training for other areas
Providing adequate compensation
Other (specify)

Section B: Employment

4. On average, how many employees were employed at your firm over the past year?

[range 1 to 9999]

5. What percentage of all employees at your firm is employed... (read list) How about...

Full-time [record %]
Part-time [record %]
Seasonally [record%]

READ: Now I would like to ask you some details about the different occupations that you currently employ...

6. Which of the following types of occupations do you employ? (read list, accept multiple mentions)

Business, finance, and administration occupations
Engineering occupations
Construction occupations
None of the above (Do not read)

[If mention business, finance, and administration in Q6 ask Q6a]

- 6a. Which of the following business occupations do you employ? (read list, accept multiple mentions)

Accountants, finance, and insurance professionals
Administration staff
None of the above (do not read)

[If mention Engineering occupations in Q6 ask Q6b]

- 6b. Which of the following engineering occupations do you employ? (read list, accept multiple mentions)
-

Bio-Chemical Engineers [Ask only if mention bio-energy in S6]
Chemical Engineers [Ask only if mention bio-energy in S6]
Civil Engineers
Computer Engineers [Ask only if mention wind or marine in S6]
Electrical Engineers
Environmental Engineers
Marine Engineers [Ask only if mention wind or marine in S6]
Mechanical Engineers
Solar Engineers [Ask only if mention solar in S6]
Structural Engineers [Ask only if mention wind or geothermal in S6]
None of the above (do not read)

[If mention construction in Q6 ask Q6c]

6c. Which of the following construction occupations do you employ? (read list, accept multiple mentions)

Concrete finishers, roofers, or iron workers [ask only if mention wind in S6]
Construction managers and supervisors [ask only if mention wind in S6]
Construction estimators
Electrician for maintenance and construction [ask only if mention wind or solar or geothermal or biomass in S6]
Construction equipment operator or crane operator or drillers [ask only if mention wind or solar or geothermal or biomass or marine in S6]
Construction helpers or labourers [ask only if mention wind or solar or biomass or hydro in S6]
Glazers [ask only if mention solar in S6]
Plumbers or pipefitters [ask only if mention solar or marine or geothermal or biomass in S6]
Welders, cutters, solders or braziers occupations
None of the above (do not read)

6d. Are there any other occupations that you employ that we have not discussed?

[Record Response]

[Ask Q6e if mention ONLY Other in S6 or none of the above in Q6a]

6e. Which occupations do you employ? (Probe for multiple mentions)

[Record response]

7. Now I would like you to think about all the occupations that you employ, which are the five largest occupations by size employed by your firm? (Probe for up to five largest occupations)

[Record up to five mentions separately]

8. Now thinking about all the occupations that you employ, which are the two most critical to your business? (Probe for two mentions)

[Record two mentions separately]

9. And, thinking about all the occupations that you employ, are there any occupations that your organization has difficulty recruiting? (Probe for multiple mentions)

[Record Response]

10. Thinking about the current labour market please rate the following statements in terms of how well they reflect your organizations recruitment experience. Please rate on a scale of 1 to 10, where 1 means you strongly disagree and 10 means you strongly agree. How about... (read list)

There are not enough applications / candidates
Candidates lack general sector-related skills or experience
Candidates lack sector-related technical skills or experience
Candidates lack of required education
Candidates lack of essential skills
Candidates have wage or benefit expectations that are too high
Other (specify)

Scale 1 to 10

11. How do you expect that staffing requirements will change over the next two to three years at your organization? Do you expect requirements to significantly increase (greater than 20%), somewhat increase (between 0 and less than 20%), somewhat decrease (by between 0 to less than 20%) or significantly decrease (by 20% or more). If you feel there will be no change please say so. (Do not read list)

Significantly increase (greater than 20%),
Somewhat increase (0 to less than 20%),
Somewhat decrease (by 0 to less than -20%),
Significantly decrease (by 20% or more)
Little to no change

[If mention little or no change or DK or REF in Q11, skip to Q13, else continue]

12. Please rate the importance of the following reasons for expected changes to your firm's staffing requirements over the next two to three years on a scale from 1 to 10 where 1 means not important at all and 10 means extremely important. How about... (read list)

Changes in demand for renewable energy
Changes in technologies and innovations in the renewable energy sector
Changes to general economic conditions
Requirements to meet new regulations
Other reasons (specify)

Scale 1 to 10

13. What is the estimated number of unfilled positions at your company today? If you do not have any then please indicate zero.

[Record Number 0 to 100]

14. How have your staffing requirements changed compared to a year ago? Have they significantly increased (greater than 20%), somewhat increased (between 0 and less than 20%), somewhat decreased (by between 0 to less than 20%) or significantly decrease (by 20% or more). If you feel there will be no change please say so. (Do not read list)

Significantly increase (greater than 20%),
Somewhat increase (0 to less than 20%),
Somewhat decrease (by 0 to less than -20%),
Significantly decrease (by 20% or more)
Little or no change

15. Thinking about the most important types of experience and qualifications for new hires for your business, please rate the importance of the following sources for new employees on a scale from 1 to 10 where 1 is not important at all and 10 is extremely important. How about... (read list) [randomize]

Apprentices
Recent graduates from post-secondary programs
Employees in other renewable energy-related businesses
Employees in other electricity-related businesses
Employees from outside the renewable energy or electricity industry
Recent immigrants

Scale 1 to 10

16. Is your company unionized?

Yes
No

Section C: Employee Training

17. Does your company provide training for employees?

Yes
No

[Ask Q18 if yes at Q17, else skip to Q20]

18. Does your company provide training in the following areas? (read list, select all that apply)

Health and safety
Reading and writing skills
Math skills

Verbal communication skills
Problem solving skills
Computer skills
General knowledge of renewable energy processes and technologies
Technical training for operations and/or maintenance
Technical training for installation and construction

19. Which of the following training capabilities do you have at your organization? (read list select all that apply)

Developing courses in-house
Delivering or arranging for training in-house
A training centre
Use courses from colleges or CEGEPS
Use courses from suppliers of renewable energy technology
Use courses from industry associations
Use courses from companies that specialize in or customize employee training
Use computer-based training instruction
Maintain records of employee training
Provide on-the-job training
Other (specify)

Section C: Renewing Futures and Other Areas

20. Looking forward over the next 2 to 3 years, what do you think will be the two greatest human resource challenges?

[Record response]

21. Are you familiar with the Renewing Futures research plan and HR strategy plan by the Electricity Human Resources Council?

Yes
No

22. What was your company's total revenue for 2012? Your best estimate is fine. Would you say your total revenue for 2012 was... (read list, stop me when I reach your category)

Less than 100 thousand
100 thousand to less than 500 thousand
500 thousand to less than 2 million
2 million to less than 10 million
10 million to less than 50 million
50 million or more
Don't know
Refused

23. Province of location

[Record from sample]
