



Building bright futures

Electricity Sector  
Labour Market Information Project:

Québec Region





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## Summary of Findings

The Electricity Sector Council (ESC) is undertaking research to explore the sector's labour market needs. This report is based on the data collected for the 2008 Labour Market Information Project, commissioned by the ESC in partnership with Human Resources and Social Development Canada (HRSDC). The report is a regional analysis, which provides a comparison of the regional data with the national data. It presents some of the key metrics that employers in Canada's electricity sector can use to better plan for future human resource needs. A regional perspective is helpful for employers to more accurately gauge their position in relation to the national average.

The report is not meant to be representative of all establishments in the region, but rather of the establishments that provided data for the 2008 ESC Employer Survey.

Below are some of the key findings from the regional analysis.

### **Key Findings**

- A higher proportion of employees in Québec were eligible for both full and partial pensions, compared with the national figures;
- 46% of Québec's employees are in the 45-54 age group, signaling the potential for large scale retirements in 5-10 years;
- Apprentices in Québec comprise a higher percent of current employees in key occupations than they do nationally;
- Vacancy rates by major occupational group in Québec are consistent with the national figures; and
- The supply/demand gap is predicted to be smaller in Québec compared with industry averages.

## **Section 1: Background**

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### **1.1 Purpose and Objectives of the Study**

The purpose of the Labour Market Information Project was to assist the ESC in understanding the current and future supply and demand of labour in the electricity sector.

One outcome of the presentation of results to the project Steering Committee in June was a desire to undertake further analysis of the results on a regional scale. A regional analysis of key metrics is essential to assist companies within each region to better assess their strengths and weaknesses, and better understand the opportunities and threats they may face in light of the projected labour shortages.

Based on previous studies conducted for the ESC, regional breakdowns are as follows:

- British Columbia
- Alberta
- Saskatchewan and Manitoba
- Ontario
- Québec
- Atlantic Provinces

Each report includes background information on the Human Resource context within each region, in addition to the analysis of key metrics presented in the Labour Market Information project report. Contained in this report is an analysis of Québec.

## 1.2 Research Considerations

The primary reason the regional analysis was not included in the main project report was that for many questions, the number of companies responding was very few. The result was that 1) the data could not be considered as representative of the entire universe, and 2) the anonymity of the respondents would be compromised. In keeping with research integrity, the following report does not claim to be representative of all establishments in the electricity sector, operating in Québec. Rather, this report provides respondents with a picture of where they stand in relation to the national average. It should be noted that some respondent organizations did not provide information for all survey questions; therefore, survey results based on smaller samples or employee counts should be interpreted with caution.

## Section 2: Context

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### 2.1 Overall Labour Force and Employment Trends in the Region

Today, Québec is experiencing record high employment rates, and the lowest unemployment rate in 30 years, according to Statistics Canada's Labour Force Survey. Between 2003 and 2007, the province further saw the net creation of 222,900 jobs, 78% of which were full-time positions<sup>1</sup>.

According to Employ-Québec, 700,000 jobs will need to be filled between 2007 and 2011. Of these, 240,000 will be the creation of new jobs, and 460,000 will be jobs that become available as a result of retirements<sup>2</sup>.

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<sup>1</sup> [http://www.emploiQuebec.net/publications/pdf/00\\_imt\\_defis-emploi\\_2008\\_en.pdf](http://www.emploiQuebec.net/publications/pdf/00_imt_defis-emploi_2008_en.pdf)

However, it is expected that the employment growth will be concentrated in certain sectors of the province's economy. According to the Emploi-Québec's publication on the Labour Market outlook for 2006 – 2010, the service sector will drive the province's economic growth – particularly professional, scientific and technical services, followed by health and welfare services<sup>3</sup>.

While the manufacturing industry is expected to continue to layoff employees, some sectors within the industry are expected to see increases in employment. These include transportation equipment manufactures, the aerospace sector, electronic and electrical product manufacturers and machinery manufacturers. However, other sectors within the industry are expected to experience declines in growth. These include clothing, textile and furniture manufacturers. Other industries that are expected to experience a decline in employment levels include Construction and Government services<sup>4</sup>.

## 2.2 Employment and Unemployment in the Region

Despite the fact that the province is experiencing its highest employment rates and lowest unemployment rates in 30 years, as of August, 2008, Québec's employment rate was slightly lower than the national average and its unemployment rate was still slightly higher.

Exhibit 2.1: Employment and Unemployment Rates as of August, 2008		
	National	Québec
Employment	63.4%	60.5%
Unemployment	6.1%	7.7%

Source: Statistics Canada, Labour Force Survey, August, 2008

## Section 3: Employment Profile

### 3.1 Support and Non-Support Staff

According to the 2006 Census data, there were 27,830 employees in Québec working in the electricity industry (NAICS 2211)<sup>5</sup>. This comprises 29% of all employees working in NAICS 2211, according to Statistics Canada.

According to the data from the employer survey, employees in Québec represent 29% of all non-support employees captured in the 2008 ESC Employer Survey, and 30% of all electricity related employees captured in the survey. This is consistent with the province's representation industry wide.

<sup>2</sup> [http://emploiQuébec.net/publications/pdf/06\\_imt\\_pp\\_20062010\\_en.pdf](http://emploiQuébec.net/publications/pdf/06_imt_pp_20062010_en.pdf)

<sup>3</sup> *ibid.*

<sup>4</sup> *ibid.*

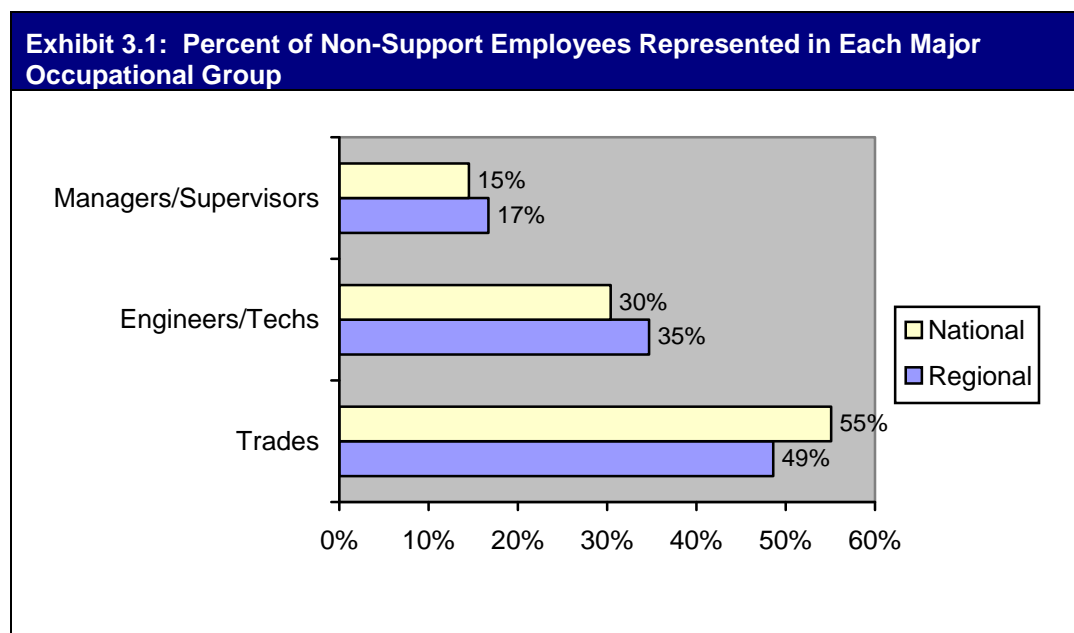
<sup>5</sup>

<http://www12.statcan.ca/english/census06/data/topics/RetrieveProductTable.cfm?TPL=RETR&ALEVEL=3&APATH=3&CATNO=&DETAIL=0&DIM=&DS=99&FL=0&FREE=0&GAL=0&GC=99&GK=NA&GRP=1&IPS=&METH=0&ORDER=1&PID=92102&PTYPE=88971&RL=0&S=1&ShowAll=No&StartRow=1&SUB=742&Temporal=2006&Theme=74&VID=0&VNAMEE=&VNAMEF=&GID=837928>

From the survey data, 61% of employees in Québec's electricity sector are non-support employees. This proportion is only slightly lower than the industry average, where 64% of the sector's workforce is classified as non-support.

### 3.2 Employees by Occupation

The following graph presents the percentage of non-support employees reported by employers, for each major occupational group.



Source: 2008 ESC Employer Survey (n=87 nationally, n=2 regionally)

As illustrated above, there are slightly more Managers and Engineers/Technicians, and slightly fewer Trades employees at the regional level than at the national level.

## Section 4: Supply of Workers

### 4.1 Supply of Engineers

As reported in the main LMI report, the number of graduates from engineer programs in Canadian universities has increased overall by 7% between 2003 and 2005. However, the number of students enrolled in electrical engineering programs decreased by 10% over this same time period. Reproduced below are the national figures for the number of enrolments and graduates in 2003 and 2005 by program, and the percent change of each. All the data contained in this section of the report comes from Statistics Canada's Post Secondary Information System (PSIS). The most recent data available at the time of reporting was from 2005. Readers are reminded that more recent figures, when they become available, may present different trends.

<b>Exhibit 4.1: Student Enrolment and Graduates in Engineering Programs (National Figures)</b>			
<b>Year</b>	<b>2003</b>	<b>2005</b>	<b>% change</b>
<b>Number of Students Enrolled</b>			
Electrical Engineering	17,382	15,693	-10%
Mechanical Engineering	14,742	15,600	6%
Civil Engineering	7,929	9,186	14%
Chemical Engineering	5,124	5,631	9%
Materials Engineering	504	924	83%
Systems Engineering	666	657	-1%
Nuclear Engineering	21	177	743%
<b>Total</b>	<b>46,368</b>	<b>47,868</b>	<b>3%</b>
<b>Number of Graduates/ Completers</b>			
Electrical Engineering	3,702	3,849	4%
Mechanical Engineering	2,979	3,849	29%
Civil Engineering	1,518	1,710	13%
Chemical Engineering	1,083	1,092	1%
Materials Engineering	120	144	20%
Systems Engineering	153	141	-8%
Nuclear Engineering	3	3	0%
<b>Total</b>	<b>9,558</b>	<b>10,212</b>	<b>7%</b>

Source: Statistics Canada PSIS Data

The regional figures are presented in the table below. Universities in Québec recorded an overall decrease in enrolment in engineering programs, but significant increases in graduates, between 2003 and 2005.

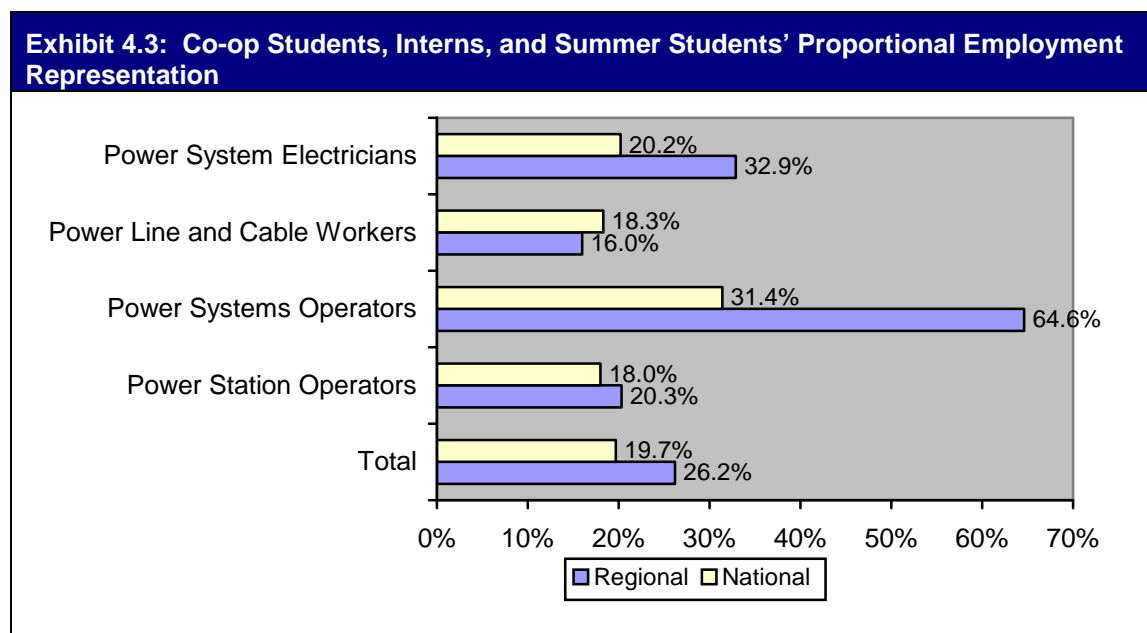
<b>Exhibit 4.2: Student Enrolment and Graduates in Engineering Programs (Regional Figures)</b>			
<b>Year</b>	<b>2003</b>	<b>2005</b>	<b>% change</b>
<b>Number of Students Enrolled</b>			
Electrical Engineering	5,631	4,980	-12%
Mechanical Engineering	5,256	5,220	-1%
Civil Engineering	1,782	2,217	24%
Chemical Engineering	1,110	1,086	-2%
Materials Engineering	303	339	12%
Systems Engineering	9	30	233%
Nuclear Engineering	21	18	-14%
<b>Total</b>	<b>14,112</b>	<b>13,890</b>	<b>-2%</b>
<b>Number of Graduates/ Completers</b>			
Electrical Engineering	1,032	1,236	20%
Mechanical Engineering	951	1,086	14%
Civil Engineering	255	345	35%
Chemical Engineering	210	243	16%
Materials Engineering	51	57	12%
Systems Engineering	3	6	100%
Nuclear Engineering	3	3	0%
<b>Total</b>	<b>2,505</b>	<b>2,976</b>	<b>19%</b>

Source: Statistics Canada PSIS Data

The most significant decreases in enrolment were among Nuclear and Electrical Engineering programs. However, a closer look at the Nuclear figures show that overall the number only decreased by 3 people, which will not likely have any effect on the sector. However, the 12% decrease recorded by Electrical Engineering programs is more relevant to the electricity sector in the province, as it will likely have a marked impact on the pool of trained graduates who could potentially be recruited into the sector.

## 4.2 Apprentices in Key Trades

Employers were asked to report on the number of apprentices they had taken on in 2007 for four key trades in the electricity sector. The following graph presents a comparison of regional data with national averages. The values are represented as a percentage of total employees reported in the given occupation.



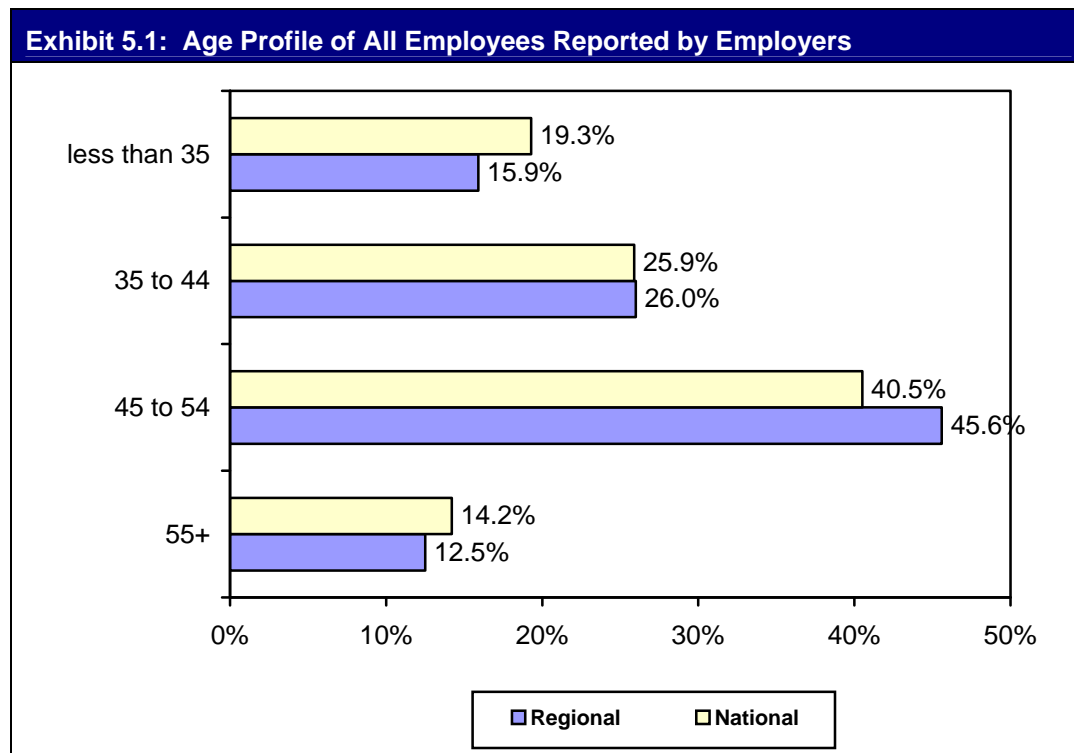
Source: 2008 ESC Employer Survey

As the above illustration shows, Quebec's electricity sector employed a larger proportion of apprentices in 2007, as a total and for all key occupations (with the exception of Power Line and Cable Workers), than the national industry averages.

## Section 5: Age and Retirement Trends

### 5.1 Age of Employees

The graph below details the age profile of all employees in the electricity sector, as reported by employers in the 2008 ESC employer survey.



Source: 2008 ESC Employer Survey (n=84 nationally, n=2 regionally)

The data show that the bulk of employees in Quebec's electricity sector are in the 45 to 54 age group. This figure should act as a warning to employees in Quebec's electricity sector, that in the next 5-10 years, a large portion of their workforce will be of retirement age. Additionally, the figures further suggest that a smaller portion of Quebec's employees are in the youngest age cohort, which indicates that the sector in this province may need to put efforts into building up its younger workforce. However, the apprenticeship data reported in the previous section may be an indication that employers are already starting to heed the call to adopt a human resources strategy aimed at filling the large number of potential vacancies that will be left open in the next 5-10 years due to retirements, by way of augmenting their younger or newly trained workforce.

## 5.2 Retirements per year by occupational group

The data presented in the Exhibit below suggests that there was a larger portion of employees in 2006 in Québec's electricity sector that retired, compared to the national percent. This trend is expected to continue into 2009, but by 2012, retirements in Québec are expected to be fewer than the national average.

Exhibit 5.2: Estimated Retirements Reported by Employers by Occupation														
Occupation Group	Employment Represented		Retired in 2006				Estimated Retirements in 2009				Estimated Retirements in 2012			
	National	Regional	National		Regional		National		Regional		National		Regional	
			#	%	#	%	#	%	#	%	#	%	#	%
<b>Managers</b>	5,556	2,012	201	3.6%	82	4.1%	319	5.7%	105	5.2%	471	8.5%	125	6.2%
<b>Engineers and Technicians/ Technologists</b>	12,176	4,168	288	2.4%	110	2.6%	508	4.2%	160	3.8%	639	5.3%	138	3.3%
<b>Trades</b>	21,149	5,846	343	1.6%	141	2.4%	860	4.1%	286	4.9%	1,272	6.0%	282	4.8%
<b>Other Critical Key Occupations</b>	3,469	1,958	167	4.8%	144	7.4%	283	8.2%	213	10.9%	262	7.6%	165	8.4%
<b>Total</b>	<b>42,350</b>	<b>13,984</b>	<b>999</b>	<b>2.4%</b>	<b>477</b>	<b>3.4%</b>	<b>1,970</b>	<b>4.7%</b>	<b>764</b>	<b>5.5%</b>	<b>2,644</b>	<b>6.2%</b>	<b>710</b>	<b>5.1%</b>

Source: 2008 ESC Employer Survey (n=82 nationally, n=2 regionally)

While most of the major occupational groups in the province are expected to see lower percentages of retirements than the industry averages, the projected percent among 'Other Critical Key Occupations' is expected to be higher.

Assuming the typical age of retirement is around 60, these figures are consistent with the age data reported, whereby a smaller portion of Quebec's employees are in the 55+ age group, compared with the industry average.

Again, though not reflected in the figures presented above, given the larger portion of employees in the 45-54 age group, Quebec's electricity sector may experience a larger wave of retirements between 2012 and 2022.

### 5.3 Pension Eligibility

The table below details the percent of employees within each occupational group that were eligible for either their full or partial pension in 2006.

<b>Exhibit 5.3: Eligibility for Pension – by Occupation</b>				
<b>Occupation Group</b>	<b>Eligible for Full Pension in 2006</b>		<b>Eligible for Partial Pension in 2006</b>	
	National	Regional	National	Regional
	%	%	%	%
Managers	9.9%	16.4%	36.5%	77.9%
Engineers and Technicians/ Technologists	9.0%	17.7%	32.3%	66.4%
Trades	6.0%	12.0%	32.5%	78.0%
Other Critical Key Occupations	19.3%	25.6%	31.5%	41.2%
<b>Total</b>	<b>8.6%</b>	<b>16.2%</b>	<b>33.0%</b>	<b>69.4%</b>

Source: 2008 ESC Employer Survey

As can be seen from the data presented above, a much higher percent of employees in Québec's electricity sector were eligible for both their full and partial pensions in 2006, compared with the national figures.

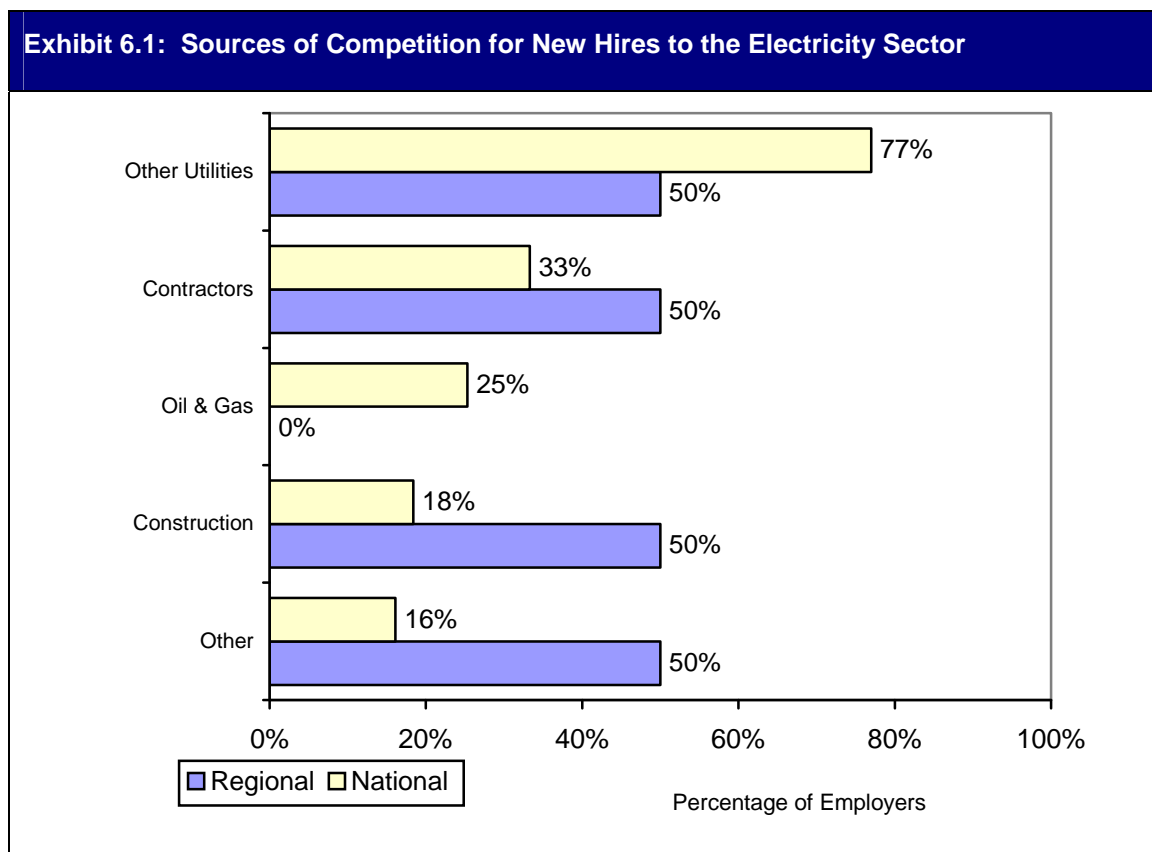
## Section 6: New Hires

### 6.1 Common sources of Recruitment for New Hires

Insufficient data was reported by regional respondents to conduct analysis of the common sources of recruitment for new hires.

### 6.2 Common Sources of Competition for Employees

Employers were asked whether or not the following were sources of competition for employees. The graph illustrates the percent of respondents who felt that the following were sources of competition.



Source: 2008 ESC Employer Survey, (n=87; national), (n=2; regional)

With the exception of the Oil & Gas industry, each of the sources of competition were cited as a source of competition for new hires.

## Section 7: Vacancy Rates

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### 7.1 Vacancy Rates Reported

This section outlines the vacancies reported by employers, and the vacancy rates, broken down by occupation and major occupational group.

<b>Exhibit 7.1: Vacancy Rates by Occupational Group</b>				
<b>Occupation Group</b>	<b>Vacancies</b>		<b>Vacancy Rate</b>	
	National	Regional	National	Regional
<b>Managers</b>	132	45	2.2%	2.2%
<b>Engineers and Technicians/ Technologists</b>	405	118	3.1%	2.8%
<b>Trades</b>	821	241	3.5%	4.0%
<b>Total</b>	<b>1,358</b>	<b>404</b>	<b>3.2%</b>	<b>3.3%</b>

Source: 2008 ESC Employer Survey

As can be seen in the table above, Quebec has reported vacancy rates that are consistent with those across the industry for all major occupational groups.

## Section 8: Supply/Demand

The following section outlines the hypothetical labour supply and demand gap. Two scenarios are presented: a low growth and a high growth scenario. The same assumptions were made in these forecast models as were made in the models presented in the main LMI report. Where possible, the assumptions were broken down to the regional level, and applied to each region's supply and demand models. The information used to project growth in demand came from responses to the LMI survey. Demand figures were derived from the percent of reported retirements and projected growth by region. The national separation rate was applied because there was not enough regional information on separation rates to accurately determine the different regional rates. Thus, the national rate was applied. It therefore should be noted that the demand figures are limited to being based entirely on employer responses to the survey.

The supply figures were derived from a combination of employer reported apprenticeships (for the trades, broken down by region), and Statistics Canada's PSIS data for the number of engineers reported to have graduated (broken down by region). Other sources of labour such as immigration were also included. Again, these figures were taken from the main LMI supply/ demand model and had regional weights applied based on Statistics Canada's reported immigration figures.

### 8.1 Low Growth Scenario

The following exhibit presents a projected supply-demand gap in the electricity sector, based on low growth scenario assumptions.

<b>Exhibit 8.1: Estimated Supply and Demand Gap – Low Growth Scenario Engineers and Other Non-Support Positions</b>		
<b>Group/Period</b>	<b>Annual Estimates</b>	
	<b>2009</b>	<b>2012</b>
<b>Current Total Workforce<sup>1</sup></b>		
Engineers	4,168	4,168
Trades/other non-support	9,825	9,825
<b>Total</b>	<b>13,993</b>	<b>13,993</b>
<b>Estimated Demand – Low Growth Scenario<sup>2</sup></b>		
Engineers	238	254
Trades/other nonsupport	560	599
<b>Total</b>	<b>798</b>	<b>854</b>
<b>Estimated Supply<sup>3</sup></b>		
Engineers	166	170
Trades/other non-support	240	255
<b>Total</b>	<b>406</b>	<b>425</b>
<b>Supply-Demand Gap<sup>4</sup> (per year)</b>		
Engineers	(72)	(84)
Trades/other non-support	(320)	(344)
<b>Total*</b>	<b>(391)</b>	<b>(428)</b>

- <sup>1</sup> Total estimated workforce in electrical occupations, 2008 ESC Employer Survey  
<sup>2</sup> No additional employment growth required for demand increases or replacement requirements. Retirements based on organization estimate of likely retirements, not the proportion eligible for retirement.  
<sup>3</sup> Portion of graduates who secure employment in electricity sector upon graduation as discussed in Section 4 of the main report  
<sup>4</sup> Difference between estimated demand and current education supply capacity  
 \*Note: Totals may not add up exactly due to rounding

## 8.2 High Growth Scenario

<b>Exhibit 8.2: Estimated Supply and Demand Gap – High Growth Scenario Engineers and Other Non-Support Positions</b>		
<b>Group/Period</b>	<b>Annual Estimates</b>	
	<b>2009</b>	<b>2012</b>
<b>Current Total Workforce<sup>1</sup></b>		
Engineers	4,252	4,381
Trades/other non-support	10,135	10,619
<b>Total</b>	<b>14,387</b>	<b>15,000</b>
<b>Estimated Demand – High Growth Scenario<sup>2</sup></b>		
Engineers	298	325
Trades/other nonsupport	769	848
<b>Total</b>	<b>1,067</b>	<b>1,173</b>
<b>Estimated Supply<sup>3</sup></b>		
Engineers	166	170
Trades/other non-support	240	255
<b>Total</b>	<b>406</b>	<b>425</b>
<b>Supply-Demand Gap<sup>4</sup> (per year)</b>		
Engineers	(132)	(155)
Trades/other non-support	(529)	(593)
<b>Total*</b>	<b>(661)</b>	<b>(748)</b>

- <sup>1</sup> Total estimated workforce in electrical occupations, 2008 ESC Employer Survey  
<sup>2</sup> No additional employment growth required for demand increases or replacement requirements. Retirements based on organization estimate of likely retirements, not the proportion eligible for retirement.  
<sup>3</sup> Portion of graduates who secure employment in electricity sector upon graduation as discussed in Section 4 of the main report  
<sup>4</sup> Difference between estimated demand and current education supply capacity  
 \*Note: Totals may not add up exactly due to rounding

The exhibit below highlights the projected supply-demand gap for 2009 and 2012, based on the high and low growth scenarios. Overall, the gap ranges from 3% to 5% of the current non-support workforce in both 2009 and 2012.

The table below presents a comparison of the projected gap in Quebec with the national projections. The figures are represented as a percent of the workforce.

<b>Exhibit 8.3: Predicted Supply/Demand Gap as a Percent of Employment</b>								
<b>Group</b>	<b>2009</b>				<b>2012</b>			
	<b>Low</b>		<b>High</b>		<b>Low</b>		<b>High</b>	
	<b>National</b>	<b>Regional</b>	<b>National</b>	<b>Regional</b>	<b>National</b>	<b>Regional</b>	<b>National</b>	<b>Regional</b>
Engineers	2.3%	1.7%	4.5%	3.1%	3.7%	2.0%	6.0%	3.5%
Trades/other non-support	4.5%	3.3%	6.5%	5.2%	5.9%	3.5%	8.0%	5.6%
Total	3.8%	2.8%	5.9%	4.6%	5.2%	3.1%	7.4%	5.0%

According to the hypothetical scenarios presented, the supply/demand gap is not projected to be as significant in Quebec as it is across the rest of the industry. In both scenarios, in both years, and in both occupational groups, the gap is predicted to be smaller at the regional level than at the national level. Readers are reminded however, that these are hypothetical scenarios. The actual growth scenarios may be affected and/or influenced by the changing economic condition. Other factors to consider, which have not been accounted for at the regional level, include the degree to which companies rely on consulting firms or contractors to complete projects. As mentioned in the 2004/2008 Comparative Analysis, large international and multinational engineering consulting companies such as SNC Lavalin play a significant role in the supply of labour for large infrastructure and construction contracts in the country's electricity sector. Thus, readers should also be cognizant of the availability of these workers in their region when interpreting the data.

### Conclusion

Overall, according to the figures reported, the electricity sector in Quebec will not experience retirement rates or supply/demand gaps as large or as significant as the rest of the country. However, it can be gleaned from the data that in the 5-10 years following 2012, a larger portion of employees will likely retire or will become eligible to retire. Thus, employers in Quebec's electricity sector should be cautioned that, despite the similar current vacancy rates and the smaller than average predicted labour supply/demand gaps, the mere fact that there are more employees in Quebec's electricity sector who are in the 45 to 54 age group points to the possibility that in 5 years time, when the first group of these people reach the age of 60, Quebec will start to feel the pressure of large numbers of retirements over the course of a 10 year period. Furthermore, as of 2006, almost 70% of Québec's electricity sector workforce was eligible for their partial pension, signaling that within the next 5-10 years these same employees will likely be eligible for their full pension.

One potential consequence is that employers in the province may need to start adjusting their human resource practices in order to account for the impending retirements. The province's seemingly common current practice of hiring apprentices is one such strategy which, as the data might suggest, employers seem to embrace. It should be noted that insufficient data was available to report on the proportion of co-op students, interns, and summer students. However, these potential sources of labour are also excellent pools from which to draw, especially as a long term strategy for recruiting and training a younger workforce.

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