



ASSOCIATION OF CONSULTING  
ENGINEERING COMPANIES | PEI

# Association of Consulting Engineering Companies of PEI

The Contribution to Prince Edward Island's Economy



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THE CONTRIBUTION TO  
PRINCE EDWARD ISLAND'S  
ECONOMY

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## 1.0 Overview and Methodology

The Association of Consulting Engineers of PEI consists of 19 firms whose primary business is the selling of consulting engineer services. These 19 firms provide employment for 160 people in PEI with a mean salary for engineers in training of \$55,000 and a mean salary of \$90,000 for professional engineers.<sup>1</sup>

Some of the firms within the province are affiliates of larger regional or national engineering firms however any of the information contained within this report references only services provided by individuals employed within the PEI office.

Consulting engineering firms on PEI provide services in civil, structural, electrical, process, marine, environmental, transportation, survey and mechanical engineering.

A survey of 19 firms whose primary business is the selling of consulting engineering services within PEI was undertaken by Skit Ferguson, an out-of-province engineer and consultant with over 35 years of experience. The survey population did not include firms who may have professional engineers on staff but their primary business activity is not the provision of Consulting Engineering services nor did it include government, manufacturing, or academia who may sell engineering services as a secondary activity to their primary business activities. Seventeen (17) of the firms responded with information on revenues and employee numbers. Those firms within the province who are affiliates of larger regional or national engineering firms were asked to respond with only the revenue and employee numbers relevant to the PEI based division.

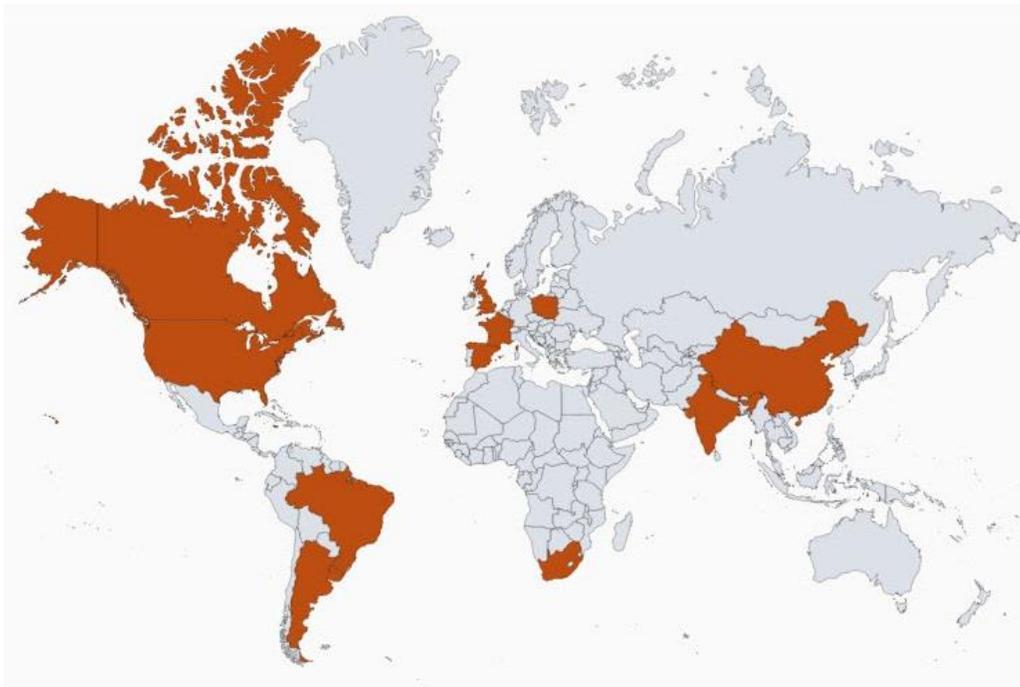
The raw data from the survey was provided to MRSB Consulting Services who sub-contracted the services of an economist, Marcel LeBreton, M.Econ of EcoTec Consultants to conduct input-output modelling and provide economic impact numbers. MRSB Consulting Services conducted telephone interviews with five Consulting Engineering firms to gain context for the value of Consulting Engineering services to the PEI economy, to understand barriers to growth locally and in the export market and to understand the support required to grow their revenue and employee base.

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<sup>1</sup> Clear Picture. (July, 2015). *Atlantic Canada Engineering Salary Survey 2015 Report*.

## 2.0 PEI Consulting Engineering Firms are Working Globally

Seventy-six percent (76%) of PEI Consulting Engineering firms are providing services outside of the province but within Canada while 12% of firms are providing services internationally.<sup>2</sup> PEI Consulting Engineering firms are working in all other provinces and territories of Canada. Work has also been done internationally in South Africa; Asian countries such as China and India; the United States; Caribbean countries such as Jamaica, St. Kitts and St. Lucia; South American countries such as Argentina, Brazil and Uruguay; and European countries such as England, France, Poland and Spain.



*Figure 1: Countries where PEI Consulting Engineering firms do business*

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<sup>2</sup> Ferguson, S. (2016). *Survey of Consulting Engineering Firms in PEI*.

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## 3.0 Contribution to Economy

### 3.1 PEI Consulting Engineers support a variety of sectors

Consulting Engineering firms on PEI play a key role in the economy by supporting the development and growth of other business opportunities in strategic sectors such as aerospace and bioscience (including pharmaceuticals and nutraceuticals), and advanced manufacturing and processing with the provision of professional engineering services. These firms also support infrastructure development for roads, bridges and wharfs and public institutions like healthcare, education, jails, manors and seniors housing all key underpinnings for supporting the development of stronger communities and a stronger economy.

### 3.2 PEI Consulting Engineering firms will provide continued employment for UPEI engineering graduates

Growth of Consulting Engineering firms in PEI will result in the ability to hire graduates from the new Engineering Degree program being offered at the University of Prince Edward Island. This is building on the strong representation of Alumni from the engineering diploma program from UPEI currently working with PEI Consulting Engineering firms.

### 3.3 PEI Consulting Engineers are able to assist with repatriation of Islanders

The government of PEI recognizes that sustainable economic growth relies upon the ability to increase our population, expand our skills and grow our workforce. A comprehensive long-term strategy to repatriate, recruit and retain a skilled and talented workforce in PEI is being put in place by the provincial government. The consulting engineering firms of PEI can play a role in repatriating highly skilled islanders back home. Examples have been given where recruitment of an engineer resulted in not only attracting engineers back to PEI but also in one case a spouse who was a doctor and in another a spouse who was a pharmacist.

### 3.4 PEI Consulting Engineers have a significant economic impact

MRSB Consulting Services sub-contracted EcoTec Consultants a firm specialized in the field of economic impact studies and economic development to determine the economic impact of the Consulting Engineering firms located in PEI on the PEI economy using input-output analysis. Input-output analysis is a financial model of an economy's production system. It shows the

interconnections that exist between the various sectors of the economy when goods and services are produced. The revenues and expenditures of a particular sector are used to drive an input-output model to derive economic impact. The model generates impact estimates for employment, tax revenues and gross domestic product (GDP) at the direct, indirect, and induced levels.

**GDP** is one of the primary indicators used to gauge the health of the economy. It is essentially the size of the economy and represents the total dollar value of all goods and services produced within the borders of the province in a year.

**Employment** refers to the total person years (full-time equivalent jobs) generated by the facility and its sustaining activities. For purposes of this model, a person-year is defined as someone who works about 2,000 hours per year (equivalent to 40 hours a week over a 50 week period).

An input-output model also allows for an estimation of the **taxes levied** on economic activity. Data from Provincial and Federal tax legislation are used to obtain an estimate of these taxes. This calculation is in the form of an average tax rate multiplied by the salaries, in the case of individual income tax. Indirect taxes are estimated for the various transactions that take place in the economy between industries. Taken together, these calculations provide an estimate of total income taxes associated with the sector, and of the taxes collected by the various levels of government.

**Direct Impacts** arise from the expenditures made in carrying out the identified activities: e.g., the sales, income and employment created by consulting engineering firm's related purchases in the province.

**Indirect impacts** result from the subsequent purchases by suppliers of materials and services to sustain the original and derivative expenditures.

The **induced impacts** emerge when the workers in the sectors stimulated by the initial and indirect expenditures spend their additional incomes on consumer goods and services.

### 3.5 Consulting Engineering firms contribute \$17.5 million to provincial GDP annually

Consulting Engineering firms in PEI contributed approximately \$17.5 million to GDP over the 2015 year. In total the professional, scientific and technical services category of services contributed **\$108.2 to the GDP** in 2015<sup>3</sup> with consulting engineering firms GDP contribution

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<sup>3</sup> Prince Edward Island Statistics Bureau, Department of Finance. (n.d.). Charlottetown, PEI: 2015 Preliminary Real GDP by Industry.

representing **16%** of this total. GDP is one of the primary measures used to evaluate the health of the economy.

*Table 1: Consulting Engineering Firms Contribute \$17.5 million to GDP Annually*

	PEI	Canada
<b>Direct</b>	\$12,897,000	\$12,897,000
<b>Indirect</b>	1,392,000	3,726,620
<b>Induced</b>	<u>3,212,000</u>	<u>5,862,803</u>
<b>Total</b>	<u>\$17,501,000</u>	<u>\$22,487,000</u>

### 3.6 Consulting Engineering firms create approximately 208 person years of employment annually

A total of 208 person years of employment were generated by the Consulting Engineering firms located on PEI. Of the 208 person years of employment 160 is direct jobs with 48 being indirect and induced.

### 3.7 Consulting Engineering firms contribute approximately \$3.3 million in taxes annually

The three levels of government recovered an estimated \$3.3 million in tax revenues from Consulting Engineering firms in 2015. Federal government collected \$1.5 million, provincial government collected \$1.7 million, while municipal government collected \$62,000.

*Table 2: Consulting Engineering Firms Contribute \$3.3 million to Taxes Annually*

	Direct	Indirect	Induced	Total
<b>Federal</b>				
<b>Federal income tax</b>	\$646,000	\$37,000	\$70,000	\$753,000
<b>GST &amp; other direct taxes</b>	30,000	17,000	209,000	256,000
<b>Federal tax on profits</b>	<u>459,000</u>	<u>33,000</u>	<u>39,000</u>	<u>531,000</u>



<b>Total Federal Tax</b>				
<b>Revenues</b>	<u>1,135,000</u>	<u>87,000</u>	<u>318,000</u>	<u>1,540,000</u>
<b>Province</b>				
<b>Provincial income tax</b>	554,000	31,000	60,000	645,000
<b>Sales tax &amp; other direct taxes</b>				
	77,000	44,000	544,000	666,000
<b>Provincial tax on profits</b>	<u>296,000</u>	<u>21,000</u>	<u>25,000</u>	<u>342,000</u>
<b>Total Provincial Tax</b>				
<b>Revenues</b>	<u>927,000</u>	<u>96,000</u>	<u>629,000</u>	<u>1,653,000</u>
<b>Municipalities</b>				
<b>Property taxes</b>	<u>7,000</u>	<u>4,000</u>	<u>50,000</u>	<u>62,000</u>
	<u>\$2,070,00</u>			<u>\$3,255,00</u>
<b>Total Tax Impact – PEI</b>	<u>0</u>	<u>\$187,000</u>	<u>\$998,000</u>	<u>0</u>

## 4.0 Support Required

Consulting engineering firms face barriers in obtaining work locally and in growing export revenues. The provincial government could assist with the removal of some of these barriers and could assist with providing financial support to promote their services in export markets and to promote local consulting engineering firms while prospecting new investment in the province.

Some firms have indicated they have received support to participate in trade missions and for self-directed trips. As well it was noted that the Association of Engineering Companies – PEI have jointly branded “Confederation Engineers” and subsequently received funding from IPE to market the brand \$20k for visits to Alberta, Newfoundland to market all PEI firms not specific firms. However, not all interviewed were or aware of or had utilized these types of support. It does not appear all firms are aware of or part of the Confederation Engineers initiative.

The Federal government plans to spend \$11.9 billion over the next two years for infrastructure projects. This will result in a large amount of infrastructure work to be designed across to country to support this investment – there may be an opportunity to support Confederation Engineers and/or individual firms in marketing themselves to take advantage of this opportunity.

### 4.1 There is a need to remove barriers

Barriers such as lack of provincial government outsourcing, limiting requirements in tender calls, and lack of consultation with consulting engineers can inhibit the ability of PEI firms to obtain local work and to grow their operations.

#### 4.1.1 Increase outsourcing of engineering design services

It was indicated that the provincial government can be one of the biggest competitors to private Consulting Engineering firms in the area of infrastructure. While some outsourcing of engineering design services does take place the vast majority is done in house.

- With regards to building construction and expansion there is some sub-contracting of design services, however the majority is for architectural services, not engineering design services. Additional outsourcing of engineering services can be undertaken.
- The province also has a bridge inspection program where they do go out for tender and some of this design work filters to the private sector. However, the majority of timber bridges, are designed in-house. Overall the percentage of bridges requiring engineering services that are completed by the private sector is limited.
- There are instances where the Provincial Government offers a community in-kind engineering work in lieu of a grant. This reduces opportunities for private sector consulting engineer firms.

- Provincial government are the gate keepers of the federal infrastructure program. In the past, these infrastructure funds have been used to build infrastructure in PEI but the majority of the design work has been completed by in-house engineers, essentially providing “free engineering to programs”. By placing all of the Infrastructure dollars into the actual construction, this practice effectively takes 100% of funds assigned for the engineering community and reassigns it to the construction industry. This negates an objective of the Infrastructure Program which is to be an economic driver to the entire Construction Industry not just a single sector.

The lack of opportunity to do work locally for the provincial government is also a hindrance for local firms when submitting proposals for work in other provinces as they are not able to demonstrate experience in their own province to support their abilities. Trying to sell services outside of the province can be difficult when their own province will not hire them to do the work.

The lack of opportunity to do work for the provincial government has also resulted in private sector firms not having the ability to expand their expertise and knowledge. An example given was the designing of provincial roundabouts which until very recently was all done internally by government engineers. If local private sector firms had been given the opportunity this would have given them another skill set to sell to other regions.

The Federal Government in PEI adopted a new model with Public Works and Government Services Canada (PWGSC) where work design and inspection services previously conducted by federal government engineers is now outsourced to the private sector. Engineers at PWGSC have transitioned into a project management role and design and inspection work is contracted to private sector. This is a direction consulting engineering firms would like to see the provincial government embrace.

#### 4.1.2 Remove restrictive procurement requirements

Procurement requirements on provincial government tenders can sometimes preclude PEI Consulting Engineering firms from responding. For example, the tender was released for the next linear accelerator and in the requirements it asks the respondent to list the 10 linear accelerators they designed in the last 24 months and there wouldn't be 10 linear accelerators designed in the history of the province regardless of the last 24 months. Another example given was to list the number of buildings over 50,000 sq. ft. within a 100k radius of your office and there might not actually even be one building of that size within the radius. Requirements such as these favour firms that are centralized in the larger more populated cities. This forces local engineering firms to either pass on responding to the proposal or to partner with a larger firm. Partnering with other firms has become more challenging as some larger firms have bought up some of the small local companies and as a result do not go outside their firm for local partners as they may have in the past.

It was noted that there are still instances where the proposal process assigns values in the evaluation of responses to local content from engineers; so advocacy on the part of government to open up bidding processes would be a supportive action.

#### 4.1.3 Consult with sector on issues that will impact them.

Consultation with the Consulting Engineering sector is required. With this current and for future rounds of Infrastructure programs, consultation should be undertaken. As the hands on designers, the Consulting Engineering community can provide valuable advice as to which sectors of Infrastructure both need the greatest attention and as well provide the most fiscal and/or social benefit to the Island community.

When consultation is not undertaken there are many examples of undue pressure on the construction therefore the Consulting Engineering sectors. Consulting engineering firms would like to be consulted when rules and regulation changes are being considered.

## 4.2 There is a need for support to grow export revenues

### 4.2.1 Continue to support Trade Missions

Firms have indicated they have participated in trade missions, which have received funding support and indicated the need to continue this practice. It was also noted however, that recently, there has been a move away from a physical presence of PEI representatives at recent missions. This lack of representation is perceived by those potential consumers in that market, that exports are not high on the agenda of PEI. That is detrimental to the overall outcomes.

### 4.2.2 Continued Support for meetings with potential customers

While some firms have participated in the international trade missions it was noted that it is equally important to be able to meet with potential clients in other provinces throughout Canada and that the travel costs to do so can often be an inhibitor. Therefore the continued support for this travel is essential. It may also be a consideration that the value of having meetings set up with potential clients in other provinces through a match maker be supported as well.

### 4.2.3 Support in understanding regulatory and licensing requirements in other countries and to open doors

There is a significant learning curve to working internationally in terms of understanding regulatory and licensing requirements and understanding who the key players are in the international development banks. Firms would appreciate support to increase their level of understanding and make the necessary connections.

### 4.2.4 Support in marketing of their services to potential clients

Provincial government personnel, especially through the new business prospecting division have the opportunity to promote that PEI has a strong Consulting Engineering service sector to support new establishments in the manufacturing and processing, bioscience, pharmaceutical

and nutraceuticals. PEI firms in some cases have an advantage in diverse exposure over the larger centers which may specifically focus on one sector.

It was also indicated that the Provincial Government can provide support by talking to their counterparts across the country about the ability for PEI Consulting Engineering firms to provide capacity and/or financial support so that firms can do their own marketing would be a beneficial support.

### 4.3 Other support could provide benefits

Indirect support is also required to assist in ensuring that erosion of the current revenue of Consulting Engineering firms in PEI does not occur. Providing provincial incentives for other Consulting Engineering firms to establish satellite offices in this province is counter-productive to the other programs being established by our Provincial Government.

Also, some of the largest clients of PEI Consulting Engineering firms are companies who are exporting, so a strong recognition by the government that the future of the PEI economy is heavily dependent on exports and therefore there is a need for continued support of exporting companies. .

## 5.0 Conclusion

PEI consulting engineering firms are significant contributors to the PEI economy. With a strong export focus and the demonstrated ability to work globally consulting engineering firms would welcome the support of the provincial government to grow their businesses.