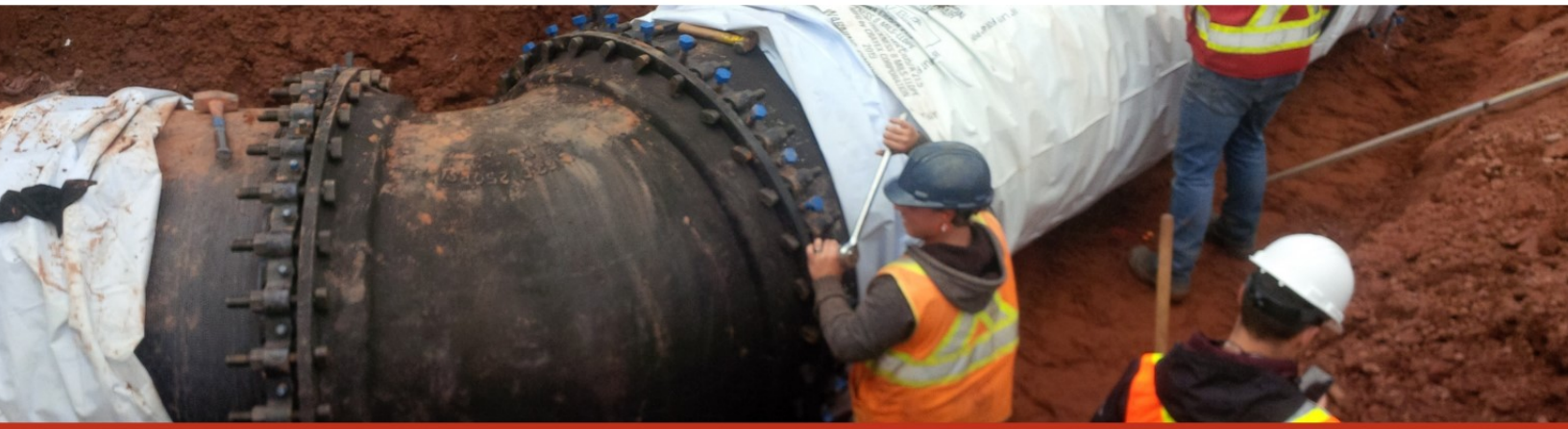
ASSOCIATION OF CONSULTING ENGINEERING COMPANIES | PEI

Association of Consulting Engineering Companies of PEI

The Contribution to Prince Edward Island's Economy



M|R|S|B

October 2021

Prepared by:

MRSB
Accounting Tax Consulting Valuation Bookkeeping

ACEC-PEI would like to thank EngineersPEI and InnovationPEI for their support to this engagement.

EngineersPEI

innovationpei

Contents

1.0 Overview and Methodology

There are 29 firms in Prince Edward Island (PEI) whose primary business is the selling of consulting engineering services. Eleven (11) of these firms are members of the Association of Consulting Engineers of PEI. These 29 firms provide employment for 225 people in PEI with a mean salary for engineers in training of $69,821 and a mean salary of $101,154 for professional engineers.[1]

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, electrical, geotechnical, structural, energy, environmental, industrial, marine, mechanical, municipal, process, and transportation engineering.

A survey of the 29 firms whose primary business is the selling of consulting engineering services within PEI was undertaken by MRSB. 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. Twelve (12) 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 by MRSB Consulting Services to our sub-contracted 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.

[1] Clear Picture. (November, 2018). *Atlantic Canada Engineering Salary Survey 2018 Report.*

2.0 PEI Consulting Engineering Firms are Working Globally

Fifty-eight percent (58%) of PEI consulting engineering firms who responded to the survey are providing services outside of the province but within Canada while 17% of respondent firms are providing services internationally. PEI consulting engineering firms are working in all provinces and territories of Canada. Work has also been done internationally in South Africa; Asian countries such as China, India, Iran, and the United Arab Emirates; North American countries such as the United States, Bermuda, and including Caribbean countries such as Antigua and Barbuda, Barbados, Belize, Cuba, St. Kitts and Nevis, and St. Vincent and the Grenadines; South American countries such as Argentina, Brazil and Uruguay; and European countries such as Denmark, England, France, Poland and Sweden.

Created in: amcharts.com

Figure 1: Countries where PEI consulting engineering firms do business

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 areas of PEI's economy such as aerospace, bioscience, advanced manufacturing, food processing, fisheries and aquaculture, energy, construction and development, environmental work, and multi-unit residential with the provision of professional engineering services. These firms also support infrastructure development for roads, bridges and wharfs and public institutions like healthcare, education, manors, seniors housing, and recreational infrastructure all key underpinnings for supporting the development of stronger communities and a stronger economy.

3.2 PEI consulting engineering firms provide services to support net zero and clean energy

PEI has an established reputation in renewable energy and climate action but more innovation is needed in order to advance the PEI governments' objective of tackling climate change. A strategy to build PEI's Clean Tech sector will require the assistance of professional services such as those provided by PEI's consulting engineering firms. The natural environment is also of concern to the provincial government and they will look to communities and non-profit organizations to apply a net zero and climate change lens to infrastructure projects. Knowledgeable consulting engineers will be key to successful projects. Over 40% of the firms that responded to the survey provide engineering consulting services to support climate change initiatives and clean/sustainable energy. One-third of the firms responding to the survey provided engineering consulting services for net zero and one-quarter provided services for the clean/renewable energy area.

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 was put in place by the provincial government. The consulting engineering firms of PEI have been contributing to repatriation by attracting former Islanders back home. Interviews with select engineering firms revealed that in the past three years some firms have repatriated as many as five employees. Recruitment of engineers may result in not only attracting engineers back to PEI but also spouses with skill in our other areas of need such as the health care profession.

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 gross domestic product (GDP), employment, and tax revenues 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 $31.2 million to provincial GDP annually

Consulting engineering firms in PEI contributed approximately $31.2 million to GDP over the 2020 year. In total the professional, scientific and technical services category of services contributed $183.0 million to the GDP in 2020[2] with consulting engineering firms GDP contribution representing 17% of this total. GDP is one of the primary measures used to evaluate the health of the economy.

Table 1: Consulting Engineering Firms Contribute $31.2 million to GDP Annually

	PEI	Canada *(PEI based activities)*
Direct	$20,748,000	$20,748,000
Indirect	3,849,000	8,915,000
Induced	6,579,000	12,297,000
Total	$31,176,000	$41,960,000

[2] Prince Edward Island Statistics Bureau, Department of Finance. (n.d.). Charlottetown, PEI: *2020 Preliminary Real GDP by Industry*.

3.6 Consulting engineering firms create approximately 313 person years of employment annually

A total of 313 person years of employment were generated by the consulting engineering firms located on PEI. Of the 313 person years of employment 225 is direct jobs with 88 being indirect and induced.

3.7 Consulting engineering firms contribute approximately $5.3 million in taxes annually

The three levels of government recovered an estimated $5.3 million in tax revenues from consulting engineering firms in 2020. The federal government collected $2.4 million, the provincial government collected $2.7 million, while the municipal government collected $142,000.

Table 2: Consulting Engineering Firms Contribute $5.3 million to Taxes Annually

	Direct	Indirect	Induced	Total
Federal				
Federal income tax	$882,000	$129,000	$77,000	$1,088,000
GST & other direct taxes	23,000	7,000	422,000	452,000
Federal tax on profits	671,000	101,000	128,000	900,000
Total Federal Tax Revenues	1,577,000	236,000	626,000	2,439,000
Province				
Provincial income tax	708,000	106,000	67,000	881,000
Sales tax & other direct taxes	100,000	154,000	1,123,000	1,377,000
Provincial tax on profits	319,000	42,000	53,000	417,000
Total Provincial Tax Revenues	1,127,000	304,000	1,243,000	2,675,000
Municipalities				
Property taxes	15,000	42,000	85,000	142,000
Total Tax Impact - PEI	$2,719,000	$582,000	$1,954,000	$5,256,000

3.8 Growth Since 2015

Consulting engineering firms have seen significant growth since the last economic impact report was completed for the 2015 year.

	Unit	2020	2015[3]	% Growth
Consulting engineering firms in PEI	Number	29	19	+52.6%
Members of ACEC-PEI	Number	11	9	+22.2%
Employment	Number	225	160	+40.6%
Mean salary – engineers in training	CAD $	$69,800[4]	$55,000[5]	+26.9%
Mean salary – professional engineers	CAD $	$101,200[6]	$90,000[7]	+12.4%
Providing services outside PEI but in	Percentage	58%	76%	
Canada	Number	17	14	+21.4%
Providing services internationally	Percentage	17%	12%	
	Number	5	2	+150.0%
Contribution to provincial GDP	CAD $ - millions	$31.2	$17.5	+78.3%
Person years of employment supported	Number	313	208	+50.5%
Contribution of taxes	CAD $ - millions	$5.3	$3.3	+60.6%

[3] Association of Consulting Engineering Companies of PEI The Contribution to Prince Edward Island's Economy, June 2016, prepared by MRSB Consulting Services.
[4] Engineers PEI draft report (ver. 1.3) 2021 Salary Survey
[5] Atlantic Canada Engineering Salary Survey 2015 Report
[6] Engineers PEI draft report (ver. 1.3) 2021 Salary Survey
[7] Atlantic Canada Engineering Salary Survey 2015 Report

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 international trade missions, financial support for travel to develop business, matchmaking support and connection, and non-financial support through provision of an information conduit to international business development opportunities. Access to the Graduate Mentorship Program has assisted in the hiring of more young engineering graduates.

4.1 Provide Business Development Support

Firms have indicated that there is a fear that virtual international trade missions will displace the valuable opportunities that were provided through in-person visits which allowed for face-to-face meetings and resulted in faster building of trust as potential clients recognized the investment that was being made in time and travel costs to pursue their business. There is a high cost of travel for in-person meetings and the continued investment of government toward travel costs is important for firms to build export revenue. One firm indicated that there is a current barrier of obtaining commercial general liability insurance in the US that requires some advocacy support.

4.1.1 Provide support to grow export revenues

In the 2016 Association of Consulting Engineering Companies of PEI: The Contribution to Prince Edward Island's Economy several recommendations were made for support to grow export revenues:

- Continue to support trade missions
- Subsidize travel to meet with potential customers
- Support in understanding regulatory and licensing requirements in other countries and to open doors
- Support in marketing of their services to potential clients

During the 2021 engagement firms interviewed indicated that they had not seen much progress on these recommendations. It was indicated that Trade Team PEI has diminished significantly since 2016 with interests being in a more regional approach compared to the past when interests were more specific to PEI needs. One firm did indicate that they were now receiving more information about Trade Missions but thought it may be that due to completing one Trade Mission they were now on a mailing list.

The recommendations listed above all remain relevant. In addition, it was indicated that Trade Team PEI needs to be enhanced and more focused on and tailored to provincial interests and growing provincial exports rather than just a part of regional initiatives.

The revenue of consulting engineering firms on PEI is heavily reliant on a client base of companies who are exporting. Continued and increasing emphasis on supporting the growth of Island companies who are exporting will be important to the success of our consulting engineering firms.

4.1.2 Provide support to grow domestic revenues

Firms have indicated that they could benefit from the same types of support for domestic business development that are available for international markets. Supports would include travel and accommodation cost support and matchmaking services. It is equally important to be able to meet with potential clients in other provinces throughout Canada and the travel costs to do so can often be an inhibiter. For many firms it is not just the actual outlay for travel, but the loss in billable time when you focus on non-chargeable activities such as marketing. In addition to cost support consulting engineering firms noted the value they could receive from having meetings set up with potential clients in other provinces through a match maker as well.

4.2 Increase Government Outsourcing of Engineering Services

In the 2016 Association of Consulting Engineering Companies of PEI: The Contribution to Prince Edward Island's Economy the need for government to increase outsourcing of engineering services and to remove restrictive procurement requirements was noted.

During the 2021 engagement firms interviewed indicated that they have seen an increase in outsourcing but felt it some cases it may have been done as a requirement of the Federal government or the fact that there is an abundance of infrastructure work due to increased stimulus funding in this area and not due to a change in practice. Firms interviewed did indicate that there has been some improvement in the last five years in opportunities in road, bridge and roundabout design but there is still room for improvement.

While some outsourcing of engineering services does take place, the vast majority of provincial government highway engineering work is done in-house thereby reducing opportunities for the private sector. The desire of government to not just manage the work, but to also do the work means that the provincial government requires a greater technical workforce. This has them now competing for the same labour pool as the private sector and in many cases able to provide higher wages and benefits than the private sector.

Materials testing services with the province have also been limited. Quality control and quality assurance for asphalt testing, concrete testing and soils testing is completed in-house based on current provincial specification requirements. Third-party quality control is not currently required on provincial jobs which puts the province in the position of client and regulator. Having provincial government complete quality assurance and engaging the private industry for quality control would eliminate the conflict of being both client and regulator. This could be completed through the use of standing offers or project-specific procurement of services.

Other public models like Public Services and Procurement Canada (PSPC) in PEI has adopted a model where government engineers have transitioned into a project management role and the majority of work design and inspection services are outsourced to the private sector. This is a direction consulting engineering firms would like to see the provincial government embrace. This would also have the added benefit of engineers interested in design work gravitating towards private sector companies for employment opportunities.

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 with other skill sets to export to other regions.

4.3 Improve Procurement Processes

4.3.1 Implement procurement strategies for outsourcing of services under trade agreement thresholds

Consulting engineering services under the Comprehensive Economic and Trade Agreement (CETA) threshold of approximately $340,000 Canadian are exempt from Canadian Free Trade Agreement (CFTA) procurement rules that require equal opportunity be given to suppliers in all jurisdictions. Other jurisdictions recognize that professional engineering service are exempt from this agreement and engage local services. PEI firms have indicated that they see PEI government outsourced engineering work awarded to off-island engineering firms but they are not receiving awards from other jurisdictions as other jurisdictions are focused more on awarding work locally.

It is recommended that:

- The provincial government continue to inform public sector clients of this procurement exception that was negotiated on behalf of the engineering and architecture industry, which does not require open competition below this dollar amount.
- Public sector clients take advantage of this procurement threshold which was negotiated to facilitate opportunities for the province.

4.3.2 Ensure fair and transparent procurement processes in municipal government

The PEI Municipal Government Act requires all municipalities to establish a procurement bylaw in accordance with the regulations and any applicable agreements, respecting trade or procurement, and to establish rules and procedures for the purchasing of services. Consulting engineering firms have indicated that there are challenges with the fairness and transparency of some municipal procurement practices reducing opportunities for local work. This has also resulted in a less competitive process as many firms are reluctant to submit bids due to these challenges.

The provincial government should ensure that municipal governments are complying with relevant procurement practices which have standards ensuring equal access and opportunity, competitive selection process, and a fair and transparent process for procuring services.

4.4 Provide Regulatory Support

In the absence of government policy, the consulting engineer is put in a position of both regulator and consultant when dealing with a client. Strong and consistent regulatory support allows a consultant to provide recommendations in accordance with government regulation, rather than being put in a position to provide technical expertise based on individual discretion. The use of individual discretion, in the absence of government policy, provides an inconsistent product to the client. This introduces risk to the client and consultant where recommendations do not align with the discretion of regulators or industry best management practices. Improving regulatory support for consultants has the added benefit of improved protection to human health and safety, the environment, and private and public infrastructure.

The adoption of the National Building Code is a positive step to provide consultants with regulatory support and a framework but more needs to be done by government to establish policy in other areas. Further policy support in the areas of subdivision development, stormwater management, environmental remediation, and municipal engineering are required.

4.5 Implement Targeted Immigration Practices to Address Skills Required by Consulting Engineering Firms

Growth in the consulting engineering sector is not limited by the volume of work available regionally, nationally, and internationally; but is constrained by the labour to service the work. One firm mentioned for the first time ever needing to engage a head-hunting firm. There is difficulty hiring engineering technicians, drafting technicians, engineering surveyors, and intermediate engineers.

The Association of Consulting Engineering Companies of PEI should work with the Office of Immigration to fully understand the existing immigration pathways and their applicability. If existing programs are not a fit a pilot project for more targeted immigration in the engineering field to fill the skill sets that are in demand should be developed.

5.0 Conclusion

PEI consulting engineering firms are significant contributors to the PEI economy. Consulting engineering firms have significantly increased their contribution to PEI's economy over the past five years. With a continued strong export focus and the demonstrated ability to work globally consulting engineering firms would welcome the continued support of the provincial government with business development, increased opportunities for government sourced work, improved procurement practices, and in addressing labour needs to grow their businesses.