

Economic Impacts of Northern Pulp Nova Scotia



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Gardner Pinfold Consultants Inc.

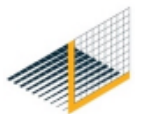


TABLE OF CONTENTS

	<i>Page</i>
Executive Summary	1
1. Introduction	4
1.1 Background	4
1.2 Objectives and scope	5
1.3 Methodology	5
2. Northern Pulp Nova Scotia Economic Impacts	7
2.1 Spending	7
2.2 Provincial impacts	8
2.3 Regional impacts in Nova Scotia	10
3. Forestry Sector Dependence on NPNS	11
3.1 Wood exchange	11
3.2 Sawmill dependence	11
3.3 Harvesters, transport, and woodlot owners	12
3.4 Ledwidge Lumber, Halifax	13
3.3 Scotsburn Lumber, Pictou	13
3.4 Harry Freeman & Son, Queens	14
3.5 Elmsdale Lumber, Hants	14
3.6 J.D. Irving, Colchester	15
3.7 Lewis Mouldings, Digby	16
3.8 J.A. Turner & Sons, Lunenburg	16
3.9 Dave’s Lumber, Pictou	17
3.10 Goguen Lumber, NB	17
3.11 H.C. Haynes, Colchester	17
3.12 A.L.P.A. Equipment, Colchester	18
3.13 G. & C. Hughes Enterprises, Lunenburg	18
3.14 Wagner Forest Management, Colchester	19
4. Summary and Discussion	21
4.1 Combined NPNS impacts	21
4.2 Rural significance	21
5. Long Term Impacts of Possible Mill Closure	22
6. Annex: Community Profiles	24
Profile #1: Colchester County	25
Profile #2: Queens & Lunenburg Counties	27
Profile #3: Pictou County	29
Profile #4: East Hants County & Halifax Regional Municipality	31
Profile #5: Cumberland County	33

List of Tables

<i>Nova Scotia labour statistics for neighbouring counties</i>	3
<i>Table 1: NPNS economic impacts (\$000s; employment in FTE)</i>	8
<i>Table 2: Top ten other industries* supplying goods and services to NPNS</i>	9
<i>Table 3: Secondary impacts to sawmills (\$000s; employment in FTE)</i>	12
<i>Table 4: Sawmill impact summary</i>	20
<i>Table 5: Nova Scotia labour statistics for neighbouring counties (2015)</i>	22
<i>Table A1: Statistics Canada 2016 Census Data for Colchester County</i>	25
<i>Table A2: Analysis of key data from Registry of Buyers for Colchester County (2017 data)</i>	25
<i>Table A3: Statistics Canada 2016 Census Data for Queens County and Lunenburg County, combined</i>	27
<i>Table A4: Analysis of key data from Registry of Buyers for Queens County and Lunenburg County, combined (2017 data)</i>	27
<i>Table A5: Statistics Canada 2016 Census Data for Colchester County</i>	29
<i>Table A6: Analysis of key data from Registry of Buyers for Pictou County (2017 data)</i>	29
<i>Table A7: Statistics Canada 2016 Census Data for East Hants County & Northern HRM, combined</i>	31
<i>Table A8: Analysis of key data from Registry of Buyers for Hants County and the Halifax Regional Municipality, combined (2017 data)</i>	31
<i>Table A9: Statistics Canada 2016 Census Data for Cumberland County</i>	33
<i>Table A10: Analysis of key data from Registry of Buyers for Cumberland County (2017 data)</i>	33

List of Figures

<i>Figure 1: NPNS expenditures (\$279 million) by category</i>	7
<i>Figure 2: NPNS distribution of spending in Nova Scotia, 2018</i>	10

Executive Summary

Purpose

The purpose of this study is to examine the economic impact and contribution the operations of Northern Pulp Nova Scotia (NPNS) provides within the Pictou County region and the province of Nova Scotia. This report also examines the economic impacts of potential mill closure, particularly the impacts on sawmills that are highly dependent on the mill. In addition community level impacts are documented by summarizing activity occurring at a county level particularly as it relates to the sawmill and forest harvesting industries. It includes the direct impact of the mill, indirect impacts arising from the supply of goods and services that support mill operations (including wood supply), and the induced impact arising from the spending of incomes earned in direct and indirect activities. Arguably these impacts will be lost to the provincial economy if NPNS closes.

Overall Findings

This study has found that:

- Northern Pulp Nova Scotia is a key player in rural Nova Scotia, creating a significant number of well-paying jobs in typically high unemployment areas.
- Its unique partnerships with sawmills, forestry contractors and private woodlot owners are critical to its success and the rural economy.
- NPNS spends \$279 million annually, with most spent in Nova Scotia.
- A supply chain of 1,379 companies support the mill operation.
- About 2,679 full-time equivalent jobs (FTEs) are supported by the mill.
- Workers throughout the economy gain \$128 million worth of income.
- Approximately \$38.4 million in tax revenues is generated to the provincial and federal governments.

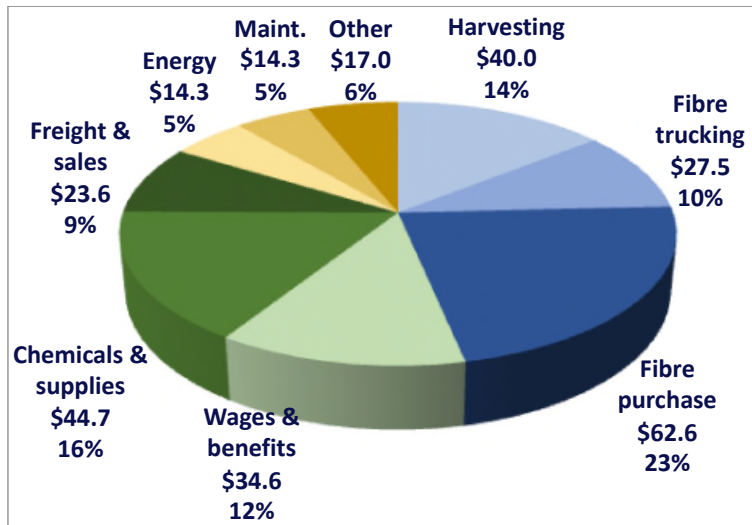
Background

Northern Pulp Nova Scotia Corporation (NPNS) located in Pictou County, Nova Scotia manufactured 275,000 tonnes of Kraft pulp in 2018, primarily for export. Customers around the world are supplied with pulp to manufacture common household products such as tissue, towel and toilet paper along with writing and photocopy paper. Since start up in 1967, Northern Pulp has earned and maintained a reputation as one of North America's leading manufacturers of northern bleached Kraft pulp. NPNS is an integrated company. In addition to the Kraft pulp mill, it also manages 250,000 hectares of forest lands, has a tree nursery producing six million seedlings per year, and significant sales of sawlogs and other fibre products (studwood, pulpwood and biomass).

Spending

NPNS is located in rural Nova Scotia (Pictou County) with annual spending for operations totaling \$279 million in 2018 with the total acquisition of fibre as the main cost (46%).

Annual Spending (\$279 million)



Economic impacts

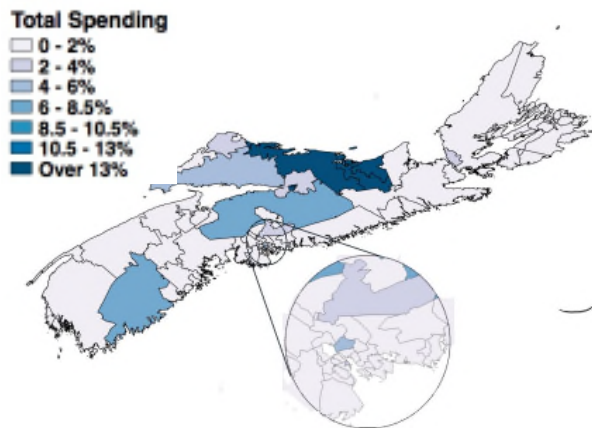
The following impacts to the Nova Scotia economy are for a potential mill closure and include the combined annual direct, indirect, and induced effects of ending NPNS operations and shut down of several sawmills that are highly dependent on the mill. These impacts would persist for several years and the long-run economic outcomes are uncertain. This does not include impacts to other provinces:

- ❑ **Supply chain** – 1,379 companies support the mill with goods and services.
 - ❑ **Output*** – impacted by the closure of NPNS has a total value amounting to \$632 million in 2018.
 - ❑ **GDP*** – The total added-value represents \$191 million, much of which is captured in earnings (67%).
 - ❑ **Earnings*** – Workers throughout the economy gain \$128 million worth of income.
 - ❑ **Employment*** – About 2,679 full-time equivalent jobs (FTEs) are supported by the mill.
 - ❑ **Taxes*** – Approximately \$18.7 million in tax revenues are generated to the province and a further \$19.7 million to the federal government. Total municipal taxes of approximately \$650,000 can also be attributed to the NPNS employees.
- *definitions on page 3 of this report, and tax impacts include income tax and municipal tax calculations that were not in the 2015 Gardner Pinfold analysis for NPNS.

Regional distribution

As NPNS is located in rural Nova Scotia, the company has significant impact in these lower populated areas. Sorting NPNS annual expenditures according to the postal code of the payment recipients provides an excellent basis for depicting the wide distribution of economic impacts throughout Nova Scotia. The intensity of spending by area is indicated by the relative darkness of the shading – the darker the shading the higher the impact:

NPNS distribution of spending in Nova Scotia



Rural significance

One of the striking aspects of the NPNS impacts is that they occur primarily in these rural areas. Rural areas traditionally tend to struggle economically because of limited opportunities for generating employment and income. NPNS contributes greatly to improved labour participation rates, lower unemployment rates, and higher earnings.

Nova Scotia labour statistics for neighbouring counties

County	Unemployment	Income**
Antigonish	11.6	39,931
Pictou*	12.5	38,461
Colchester	9.4	36,026
Guysborough	18.3	33,114
Nova Scotia	10.0	40,299

Source: Statistics Canada Census 2016. *County with NPNS mill. **Average income.

The average NPNS mill employee earnings (\$84,600) are strong when compared to paper manufacturing earnings in Nova Scotia (\$67,068), and contribute towards bringing up the average income across the entire province (\$40,299). NPNS strong positions clearly represent excellent jobs anywhere in the province, and certainly good jobs in rural communities.

Furthermore, many other socio-economic indicators improve as a result of higher earnings and employment such as: reduced dependence on government transfers, reduced low-income households (poverty), improved health (reduced health care costs), household savings, and reduced crime. NPNS development and innovation based on local renewable resources are a major part of building community cohesion and long-term stability.

1. Introduction

1.1 Background

Northern Pulp Nova Scotia Corporation (NPNS) located in Pictou County, Nova Scotia manufactures 280,000 tonnes of Kraft pulp annually, primarily for export. Customers around the world are supplied with pulp to manufacture common household products such as tissue, towel and toilet paper along with writing and photocopy paper. Since start up in 1967, Northern Pulp has earned and maintained a reputation as one of North America's leading manufacturers of northern bleached Kraft pulp.

NPNS is an integrated company. In addition to the Kraft pulp mill, it also manages 250,000 hectares of forest lands, has a tree nursery producing six million seedlings per year for replanting, and significant sales of sawlogs and other fibre products (studwood, pulpwood and biomass). NPNS is a member of the Paper Excellence Canada (PEC) family.

Environmental performance is important to NPNS and the company has moved forward in multiple ways. A number of forestry sustainability certifications have been achieved including: Sustainable Forestry Initiative® (SFI®) fiber sourcing standards, chain of custody certifications from Forest Stewardship Council® (FSC®), SFI, and PEFC, and ISO 14001 environmental management system. Also in recent years, substantial investment to reduce its environmental footprint in areas of air emissions and wastewater treatment have been undertaken showing commitment to continual environmental improvement.

NPNS is a significant employer and economic contributor in its own. It also supports many other businesses that are highly interdependent in the Nova Scotia forest industry. The challenging economic conditions for forest industries have led to mill closures in Nova Scotia and other Atlantic Provinces leaving the remaining companies even more reliant on one another. Maintaining options for wood exchange between mills is critical to the viability of all involved including private woodlot owners, harvesters, transport companies, sawmills, and pulp and paper mills.

NPNS is uniquely connected with many partners in the forest industry. All of its forest management activities including road maintenance, road construction, harvesting, trucking & silviculture are conducted by contractor operations. These forestry contractors provide a significant number of rural jobs across Nova Scotia and are critical partners to NPNS's success and the rural economy. As well, private woodlot owners and sawmills are also an important part of the NPNS supply chain.

The NPNS business model is based on "best end use of trees". Therefore, NPNS produces sawlogs and studwood for sawmills from its own lands, provincial lands or privately owned lands. These sawlogs and studwood are sold to sawmill partners to produce higher value lumber products. NPNS then purchases from the sawmills, the wood chips and bark that is produced as a "by-product" during the process of making the lumber products. This generates significant revenue for sawmill partners along with needed jobs in rural Nova Scotia through the sawmill & forestry contractor operations. This interconnection makes NPNS the largest supplier of sawlogs in Nova Scotia as well as the largest wood chip purchaser in the province.

NPNS is one of the central operations in this wood exchange and the following report outlines the significance of this role. The Kraft mill operates typically 355 days per year.

- ❑ The annual production for the mill was 275,000 tonnes of Kraft pulp- finished product ready for shipment. The company's annual target is in the 300,000 tonne range.
- ❑ The mill runs 7 days/week, 24 hours per day on a two-shift rotation.
- ❑ NPNS generates significant trucking business. On average the mill receives 120 trucks of wood chips daily. Approximately 50 trucks transport finished Kraft pulp to the Port of Halifax on weekdays making NPNS one of the largest shippers of containers at the port.
- ❑ NPNS supplies over 30% of the roundwood to major sawmills in central Nova Scotia, and purchase over 90% of chips produced in the province.
- ❑ NPNS supplies customers around the world with pulp to manufacture common household products such as tissue, towel and toilet paper, along with writing and photocopy paper.

1.2 Objectives and scope

The main objective of this report is to provide an estimate of the economic impacts arising from NPNS operations. In turn these are the impacts to the economy that could be lost if the mill closes. The impacts are estimated based on detailed operational and expenditure information provided by NPNS.

Impacts are generally reported for direct, indirect, and induced economic impacts according to five indicators:

- ❑ Gross value of output
- ❑ Gross Domestic Product (GDP)
- ❑ Employment
- ❑ Labour income
- ❑ Taxes

Using fine detail on the location of individuals and companies supplying goods and services to NPNS, we also depict on maps the regional impacts within Nova Scotia. Additional economic impacts are discussed to make clear the dependence of other forest industry companies on NPNS operations.

1.3 Methodology

In order to determine the impacts of NPNS operations, the direct expenditures are used to drive an economic Input-Output model (I/O model). Expenditures provided by NPNS reflect 2014 operations and capital expenditures. The I/O model captures the relationship amongst industries in the province, measuring how direct expenditures on goods and services by NPNS create output, jobs and income in the economy:

- **Direct impact:** refers to the impact generated at the NPNS mill site. Direct GDP refers to the value added created by the mill, while direct employment and labour income refers to the jobs and payroll at the mill.
- **Indirect impact:** refers to the impacts arising from purchased inputs triggered by the direct activity. For example, a woods contractor buys equipment from manufacturers, maintenance from service companies and fuel and consumables from various suppliers. These suppliers in turn buy their inputs from other companies, and so on. Taken together, the process of producing these goods and services creates profits, employment and income generating indirect impacts.
- **Induced demand:** refers to the demand created in the broader economy through consumer spending of incomes earned by those employed in direct and indirect activities. It may take a year or more for these rounds of consumer spending to work their way through an economy.

To prepare data to drive the I-O model, direct expenditures are first classified by industry using standard North American Industry Classification codes (NAICS). The model accepts this detailed expenditure information and generates the direct, indirect and induced impacts according to standard economic indicators:

- **Gross value of output:** Economic impact arises as industry expenditures work their way through the economy. NPNS spending on inputs becomes the revenue of many another companies, which they in turn they will spend on inputs for the goods and services they produce, and so on. Gross value of output, then, is the cumulative sum of these sales and purchases of intermediate and final goods and services. These transactions occur in the province, and also spill over to other provinces where supply and service industries may be located.
- **Gross Domestic Product:** GDP captures the value of final goods and services produced in the economy, providing a measure of the value-added or income generated (wages and earnings for labour and returns to and of capital in the form of profit and depreciation).
- **Employment:** this captures the numbers employed, expressed in full-time equivalent jobs (FTE).
- **Labour Income:** this captures payments in the form of wages and earnings in an industry. Returns to labour in the form of earnings form a key component of GDP.
- **Taxes:** this captures federal and provincial taxes. A supplemental analysis has been done to capture municipal tax impacts. The model does not estimate corporate income taxes because of wide differences in accounting assumptions amongst companies.

The model used to determine impacts for Canadian operations is the Statistics Canada Inter-provincial input-output model. A custom model run specifically for the NPNS operations is the basis of results in this report. All results are reported in Canadian 2015 dollars.

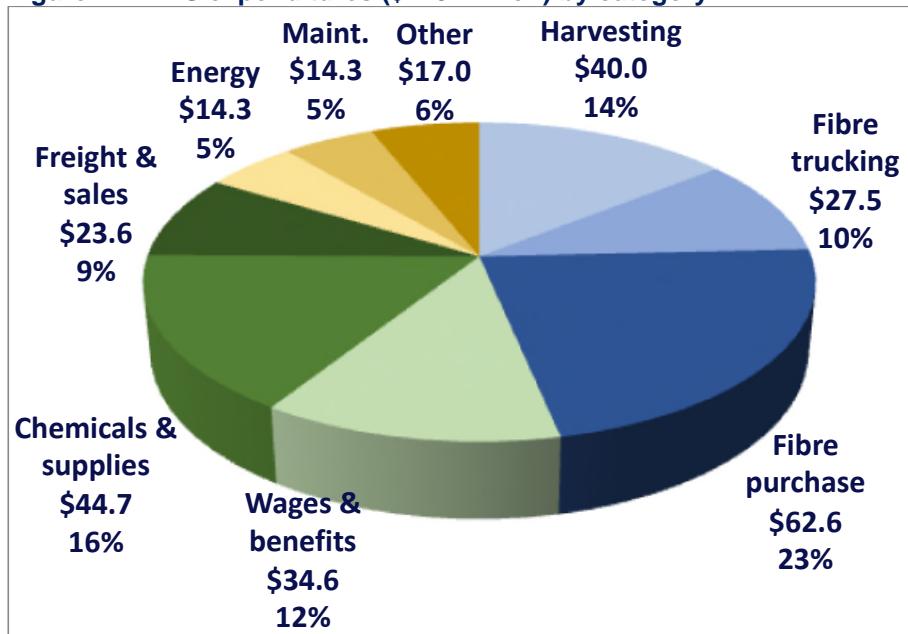
2. Northern Pulp Nova Scotia Economic Impacts

2.1 Spending

The starting point for economic impact analysis is the spending profile for combined operations and capital, including \$279 million with the following breakdown by category (see Figure 1):

- ❑ **Harvesting 14%** – for stumpage, harvesting contractors, chipping, roads, silviculture and nursery
- ❑ **Fibre trucking 10%** – to bring harvested chips and pulpwood to the mill.
- ❑ **Fibre purchases 23%** – acquired from sawmills and other sources.
- ❑ **Wages and benefits 12%** – for NPNS employees.
- ❑ **Supplies & chemicals 16%** – used for pulping process.
- ❑ **Pulp freight & Sales Exp. 9%** – for delivery of finished product to customers.
- ❑ **Energy 5%** – for power and fuel
- ❑ **Maintenance 5%** – for maintenance and equipment
- ❑ **Others 6%** – General & Administration (G&A), and miscellaneous

Figure 1: NPNS expenditures (\$279 million) by category



Source: NPNS, 2018.

NPNS is a critical partner to both forest harvesting contractors and Nova Scotia's sawmill industry. In this province, sawmills are only viable provided they have a market for their by-product residual wood chips and bark. NPNS is the largest customer for sawmill wood chips.

NPNS timberland business model is based on "best end use of trees," which in turn provides the highest return to the woodlot owner:

- ❑ Sell sawlogs, studwood & some pulpwood to sawmills.
- ❑ Sell biomass and firewood to the users.
- ❑ Purchase by-product chips (residual chips) and hog fuel from sawmills (60% of pulp mill chip supply from sawmills).
- ❑ NPNS on-site chip plant strives to produce 40% of pulp mill annual chip supply requirements.

NPNS purchases chips or hog fuel from approximately 15 to 20 sawmills on an annual basis - generating significant revenue for these lumber operations. In total, in 2018, NPNS sold almost \$45 million in logs and studwood to the same group of sawmills.

Discussion with operators of some of the largest sawmill customers confirmed the critical role NPNS plays in their business. Some operators stated they would be out of business should they lose NPNS as a supplier of sawlogs and as a customer for wood chips and bark. Other customers suggested that they would not be able to pay private woodlot owners or wood contractors as much for logs as they can under current market circumstances. Thus, woodlot owners and contractors would also suffer financially should NPNS not be a player in the wood market place.

According to an Atlantic Provinces Economic Council (APEC) report in 2013¹, the Nova Scotia forest industry has experienced a dramatic economic decline between 2003 and 2012. Major pulp mill closures impacted the sawmill sector due to the vertical integration and co-dependence of operations over this time. APEC estimated that the wood products' (sawmills) overall employment dropped from approximately 4,500 employees to 2,100. A significant portion of the remaining 2,100 jobs in the wood products sector are dependent on the operations of NPNS.

2.2 Provincial impacts

The economic impacts in Nova Scotia reported by Statistics Canada are summarized in Table 1. Only the direct employment from the mill is replaced by more accurate information from NPNS.

Table 1: NPNS economic impacts (\$000s; employment in FTE)

	Direct	Indirect	Induced	Total
Output	278,665	161,613	39,198	479,475
GDP	44,488	66,389	24,396	135,274
Earnings	34,372	45,641	10,274	90,287
Employment	352*	1,227	252	1,831
Provincial taxes	3,959	4,652	4,657	13,268
Federal taxes	5,372	5,731	2,835	13,938

Sources: Statistics Canada 2015 interprovincial I/O model.; Tax impacts incorporate provincial and federal payroll and income taxes based on StatCan Table 1-10-0054-01 Federal and provincial individual effective tax rates. FTE signifies full-time equivalent jobs;

*Direct employment reported in table by NPNS is lower than model estimate of 422.

Note: Income taxes included here were not part of previous analysis by Gardner Pinfold for NPNS.

¹ The Economic Impact of the Nova Scotia Forest Industry: 2003 to 2012, Atlantic Provinces Economic Council.

- ❑ **Output:** A supply chain of 1,379 companies and organizations had dealings with NPNS operations in 2018, including 943 Nova Scotia businesses. The total value of output produced by NPNS and its supply companies amounts to \$479 million. At \$279 million, the mill accounts for over half the total output, with the spinoff activity by suppliers triggering a further \$201 million in output.
- ❑ **GDP:** The mill generates \$135 million in GDP, \$44 million at the mill and another \$91 million elsewhere in the economy.
- ❑ **Earnings:** Through its direct and spinoff activities, the mill creates about \$90 million in labour income in Nova Scotia. The employees at the mills are well paid; average earnings for all employees is \$86,000. The estimated average annual earnings in the Nova Scotia paper manufacturing sector are \$67,068². Average earnings for those employed in NPNS indirect activities is about \$37,200.
- ❑ **Employment:** NPNS reports 352 full-time equivalent direct salaried, hourly and term employees. Another 1,227 are employed in indirect activities (some 600 of these in wood supply on contract to NPNS), and another 252 jobs induced by the spending of incomes earned by those employed in direct and indirect activities.
- ❑ **Taxes:** Includes taxes on personal income, production, and products (e.g., sales and excise taxes) in direct and spinoff activities, NPNS generates about \$13.3 million annually to the Province, and about \$13.9 million to the federal government. Total municipal taxes of approximately \$650,000 can also be attributed to the mill employees. The municipal taxes are estimated using the assumption most mill workers own a home and average property assessment and tax rate information. Not included are federal taxes generated outside the province or any corporate income taxes.

Based on the impact model results, the top ten other industries according to direct, indirect, and induced added-value (GDP) stemming from the mill are shown in Table 2. This excludes manufacturing, which would be dominated by the mill itself, and focuses on the industries that supply goods and services to the mills. Together these top ten account for 66% of all other support activities. Though forestry related activities and transportation dominate with 46% of GDP impacts, clearly a broad range of goods and services is needed to run the NPNS operations.

Table 2: Top ten other industries* supplying goods and services to NPNS

	Industry	GDP share %
1	Forestry and logging	22%
2	Support activities for forestry	16%
3	Truck transportation	14%
4	Owner-occupied dwellings	7%
5	Banking and other depository credit intermediation	2%
6	Lessors of real estate	2%
7	Electric power generation, and distribution	2%
8	Repair construction	2%
9	Telecommunications	1%
10	Motor vehicle and parts dealers	1%

Source: NPNS and Statistics Canada. *Excludes pulp and paper industry since this includes the mill itself.

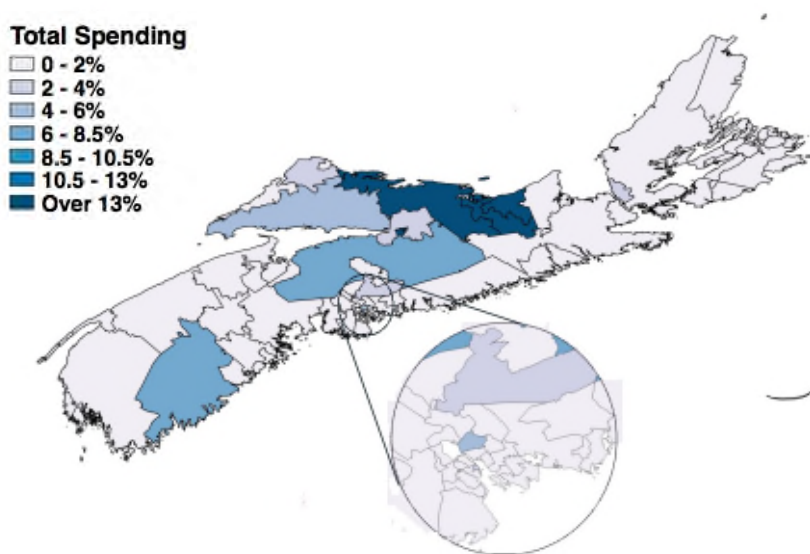
² Source: Statistics Canada, 2016 Census of Population, Statistics Canada Catalogue no. 98-400-X2016364.

It is important to keep in mind transportation companies also play a role in the delivery of finished products to clients. With most of its finished product heading to customers overseas, NPNS is one of the largest shippers of containers from the Port of Halifax. For a manufacturing process this size, power and energy would normally appear higher on the list but the mill is nearly energy self-sufficient by producing 21 MW of electricity daily with the majority being green energy.

2.3 Regional impacts in Nova Scotia

Being located in rural Nova Scotia, NPNS has significant impact in these lower populated areas. Sorting NPNS annual expenditures according to the postal code of the payment recipients provides an excellent basis for depicting the wide distribution of economic impacts within Nova Scotia. The intensity of spending by area is indicated by the relative darkness of the shading – the darker the shading the higher the impact:

Figure 2: NPNS distribution of spending in Nova Scotia, 2018



Pictou, Colchester, and Halifax counties account for about three quarters of spending in Nova Scotia.

3. Forestry Sector Dependence on NPNS

In this section interview findings are summarized that addressed the interrelationship between NPNS and other businesses in the Nova Scotia forestry sector. There is also an Annex to the report that summarizes many of these finding at a community or county level in the province.

3.1 Wood exchange

According to the latest Nova Scotia Registry of Wood Buyers Report (2017) there are 116 sawmills, three (3) pulp/paper or hardboard plants, and four (4) wood energy generation facilities. There are another 44 businesses involved in firewood, wood export, and other activities, for a total of 167 wood buyers. At least three (3) are outside the province, and about 38 were inactive (no wood acquisition) in 2017. Sawmills undertake about 57% of the annual harvest by volume, while pulp, paper, and paperboard plants harvest 35%.

These businesses depend on one another since they continuously exchange wood they don't utilize for wood they need. Wood that is harvested from a parcel of land is separated according to different uses in order achieve the highest value possible. For example, sawlogs go to sawmills, high quality chips go to pulp and paper mills, and other wood is used for energy generation (electricity) or as fuel to run mills. A sawmill needs a buyer for wood chips just as a pulp mill needs a buyer for sawlogs, otherwise the harvesting is not economical. Furthermore, some sawmills would have wood chips pile up on their site in a matter of days and, with no outlet for these, they would have to cease operations.

The following examines these issues with companies that are closely tied to Northern Pulp and this captures at least the top five sawmills in the province according to wood harvesting volumes. Following a general discussion of sawmills, harvesters, transport and landowners, the discussions with each company are summarized. Interviews were conducted with management personnel from ten saw mills, 9 of which are based in Nova Scotia and one (1) is in New Brunswick. The discussion is supplemented by a conversation with a forest products broker, a heavy equipment provider, the province's largest private landowner, and a trucking and forestry contracting firm.

3.2 Sawmill dependence

Of the total volume of wood chips Northern Pulp purchases from saw mills, over 90% comes from 6 operations, 5 of which are located in Nova Scotia. These 5 Nova Scotian saw mills employ approximately 579 full-time individuals year-round, and 3 of these 5 operations would likely cease operations immediately should there be a closure of Northern Pulp. All 5 of these saw mills sell 100% of their wood chips to Northern Pulp, receiving a price for their wood chips at a significantly higher value per tonne than they would receive from alternative markets such as biomass or Port Hawkesbury Paper (due to increased trucking distance). A combination of low value and higher shipping costs render most alternative markets unfeasible for saw mill wood chip sales.

Northern Pulp is also a significant supplier of saw logs for Nova Scotia's larger saw mills. Despite primarily sourcing from independent operators, a significant portion of the saw logs purchased by the 5 large operations is sourced from Northern Pulp. This potential loss of saw log supply could be confounded by the widespread secondary effects to Nova Scotia's forestry industry, as industry professionals, including a major regional forest product broker, collectively believe that without Northern Pulp paying its current price for pulpwood, wood chips, and residues, the overall value of lumber in Nova Scotia could decrease significantly, which would further reduce supply.

Small- to medium-scale saw mills and lumber product suppliers run the risk of reducing or ceasing operations altogether if Northern Pulp closes. Smaller mills creating specialty products, or those limited to a single species for input, run the risk of losing their saw log supply if forestry practices are significantly altered or reduced. This is the case for two firms dealing exclusively with hemlock and white pine respectively. Of the 5 small- to medium-scale saw mills contacted, 4 are located in Nova Scotia, and 4 sell at least 60% of their wood chips to Northern Pulp as a significant revenue source. The loss of revenue from wood chip sales, or even a reduction in the price per tonne, would likely result in the full closure of 2 of the businesses contacted.

The 579 full-time employees reported for just these mills represents 34% of the jobs in the wood products sector in Nova Scotia. The corresponding output (34%) is about \$151 million, but some of this is already accounted for in the economic impact analysis for the Northern Pulp mill. Conservatively estimating half of the sawmill production output would be lost due to ceased or much reduced operations, the following table shows the impacts this would have on the provincial economy.

Table 3: Secondary impacts to sawmills (\$000s; employment in FTE)

	Direct	Indirect	Induced	Total
Output	75,531	60,740	15,719	151,991
GDP	15,541	30,724	9,799	56,064
Earnings	12,799	20,732	4,199	37,729
Employment	290*	443	115	847
Provincial taxes	1,447	2,128	1,874	5,449
Federal taxes	2,000	2,603	1,159	5,762

Sources: Statistics Canada 2015 interprovincial I/O model.; Tax impacts incorporate provincial and federal payroll and income taxes based on StatCan Table 1-10-0054-01 Federal and provincial individual effective tax rates. FTE signifies full-time equivalent jobs;

*Direct employment reported in table by sawmills is slightly lower than model estimate of 298.

Some secondary effects related to Northern Pulp have already begun due to uncertainties around the mill's future. A significant portion of the companies surveyed in this study noted that they have been unable to justify investing in their company, including hiring new employees. Sales of harvesting equipment, trucks, heavy machinery, and trailers have been reduced across Nova Scotia.

3.3 Harvesters, transport, and woodlot owners

Any reduction in demand for forest products and commensurate drop in prices immediately impacts the harvesting and transport businesses that supply the mills. Some are reluctant to invest in new equipment or training of new workers as the future for wood demand remains uncertain.

Land owners are also concerned since 62% of the provincial harvest is from private lands. Upwards of half the harvest from Nova Scotia's private woodlots is currently destined for the pulpwood market, and without this many woodlots would not be harvested, and prices would drop for those that are. For small private woodlot owners this may represent an important source of income, a lost retirement investment, or lost safety net for financial emergencies.

The current uncertainty and any real reductions in demand diminishes the economic incentives for selective harvesting and forest management programs. Industry professionals believe that silviculture programs could be abandoned by many landowners, thereby undermining the Lahey report objectives while inadvertently driving up clearcutting activities in Nova Scotia's private woodlands.

3.4 Ledwidge Lumber, Halifax

Operating for over 70 years, Ledwidge Lumber is a heat-treatment lumber production facility with a saw mill, planer mill, and its own forest lands. The company purchases 15% to 20% of their saw logs from and currently sells 100% of their wood chips to Northern Pulp. Ledwidge's production results in 10 to 12 truckloads of wood chips leaving their mill per day. In 2018, the woodchip sales to Northern Pulp comprised approximately 15% of the company's total revenue for the year.

Ledwidge currently employs 80 individuals full-time, year-round per shift, and between harvesters, contractors, and truckers, indirectly contributes to the employment of 400 individuals in the community. The company employs one primary harvesting company to work their own private woodlands, and purchases a significant volume of their saw logs from private woodlot owners.

A company representative stated that the immediate impacts of a Northern Pulp shutdown would include losing a significant portion of their saw log supply, as well as losing an integral revenue stream in the form of their wood chip sales. Given the uncertainty regarding the future of Northern Pulp, combined with a perceived lack of a government plan at this time, Ledwidge has been forced to hold off investments to make their mill more efficient and more resilient to economic fluctuations.

3.3 Scotsburn Lumber, Pictou

Scotsburn Lumber was established in the early 1940s, and now operates a modern saw mill producing 100 million FBM of lumber per year. Scotsburn sources approximately one third of their saw logs from and sells 100% of its wood chips to Northern Pulp. The company directly employs 96 full-time employees year-round, as well as 2 grapple operators, a boiler supervisor contractor, and a maintenance worker. On an average day, Scotsburn receives 40 truckloads of saw logs into its mill, and sends out 25 loads of wood chips and saw mill by-products per shift.

Given the large-scale activity of Scotsburn Lumber, a principal concern regarding a potential Northern Pulp closure is that the company cannot run longer than a day without having somewhere for their wood chips to go, as wood chips can be degraded or damaged if not kept on their cement compound. As a result, Scotsburn has explored

alternative markets for their chips. Preliminary discussions with alternative markets such as PHP have resulted in a significantly lower projected value for their wood chips.

A company representative believes that any loss of revenue from wood chip sales could potentially result in a full closure of Scotsburn Lumber, given the loss of a significant portion of their input and the sole buyer of their wood chip output is Northern Pulp. With a Northern Pulp closure, Scotsburn Lumber would require securing an alternative source of saw logs at a reduced rate than they are currently paying and/or a new purchaser of their wood chips at a similar value. Further concerns stem from the fact that any decrease in the price of logs could result in a significant decrease in supply, due to less cutting activities in the province.

3.4 Harry Freeman & Son, Queens

With their first saw mill established in 1832, Harry Freeman & Son, or Freeman Lumber, is one of North America's oldest saw mill businesses. The family-run business produces 100 million BFM of lumber and value-added lumber products per year, with high speed planning facilities, two processing mills, biomass-powered steam kilns, and value-added manufacturing operations. Freeman Lumber operations directly employ 150 full-time individuals year-round, and despite the size of their operations, the company sources almost all of its saw logs from independent enterprises. While only approximately 3% of saw logs are sourced from Northern Pulp, Freeman Lumber relies exclusively on Northern Pulp as their sole purchaser of the 120,000 tonnes of wood chips their operations produce per year.

The closure of the Bowater Mersey paper mill in 2012 resulted in Freeman Lumber losing its sole purchaser of wood chips, and the company needed to restructure to start selling chips to Northern Pulp, at a reduced rate. Initial conversations with PHP indicate that chip prices will be lower, which is made still more difficult due to the increased cost of shipping chips a further distance to Port Hawkesbury.

A company representative believes that if Northern Pulp were to close, Freeman Lumber would be forced to immediately suspend their operations. Freeman Lumber's revenue streams operate on tight margins. Should the price they receive for wood chips drop, they could very easily run the risk of not breaking even. The price of raw materials would need to drop significantly to counter-act a drop in wood chip prices, however, the vast majority of the saw logs Freeman Lumber purchases is sourced from independent landowners, and previous price reductions for saw logs have resulted in woodlot owners removing their product from the market and sitting on it, resulting in a shortage of supply.

3.5 Elmsdale Lumber, Hants

Elmsdale Lumber is a saw mill founded in 1917, and currently produces 30 million BFM of lumber annually, primarily of spruce. Elmsdale lumber also manages 30,000 acres of their own forestlands. The saw mill employs 50 individuals full-time, year-round, in addition to working with a large network of woods workers, trucking companies, and equipment dealers, and sources the majority of their saw logs from independent owner-operator log suppliers. Elmsdale Lumber purchases 20% to 25% of their saw logs from and sells 100% of their wood chips to Northern Pulp. Elmsdale

Lumber produces a constant and steady supply of wood chips, with sales of wood chips representing approximately 13% of the company's total revenues.

A company representative stated that several decades ago, Elmsdale Lumber operated a steam mill with only one engine, logs were not debarked during that time, and slabs and edgings from logs could generally be sold as "stove wood". When the Scott Paper Pulp mill – the predecessor for the Northern Pulp mill – was established, there was an increased demand for wood chips, and Elmsdale Lumber purchased and installed a debarker, new compressors, hydraulic units, motors, conveyor belts, and a chipper. This investment to line up with the needs of Northern Pulp cost 3 to 4 times as much as the entire mill at Elmsdale Lumber was worth at the time. Given the large investment made, Elmsdale Lumber does not view wood chips as waste wood, but rather as a value-added by-product.

Elmsdale Lumber is concerned about the lack of viable contingency plans in place should Northern Pulp close. Options for selling wood chips such as biomass have been explored, but the value the company would receive for their wood chips would be a third to a quarter of what they receive selling to Northern Pulp. A company representative states, "the loss of revenue by getting a lower priced supplier of wood chips would put us under". Without steps taken to create an alternative market for wood chips similar in value to the "value-added" price being received through sales to Northern Pulp, Elmsdale Lumber would likely need to cease their operations.

A company representative also states that the value-added market for wood chip sales also contributes to better forestry practices on their forestlands, and that the new Lahey report is dependent on the presence of a major pulp plant sourcing low quality wood and wood residues. When there is a market for lower quality wood and wood residues, then forestry does not only focus on highgrading, or taking the highest quality wood only, and promotes the extraction of poor quality wood and older growth to free up the forest for future harvesting. However, if another paper mill shuts down, the representative also notes that Nova Scotia would go from 3 fully functioning mills down to half a mill, given the reduced production capacity of PHP after it closed its newsprint production, as well as the loss of the Bowater Mersey paper mill.

3.6 J.D. Irving, Colchester

The J.D. Irving saw mill in Valley, outside of Truro, currently employs approximately 150 individuals full-time, year-round. The mill produces 110-115 million BFM of SPF lumber annually. For nearly 20 years, this plant has been selling most of its wood chips and its wood residues to Northern Pulp, while receiving a significant portion of its saw logs from the company.

Should Northern Pulp close, the Valley saw mill could sell its wood chips to another J.D. Irving operation in New Brunswick and would be required to restructure its Nova Scotian source of saw logs. Being overshadowed in recent years with uncertainty for the future of the Northern Pulp along with shifting provincial forest policy, has not inspired confidence in making capital investments across the province in the forestry sector. These investments are critical J.D. Irving's mills and logging contractors to be able to maintain current technology and not fall behind with their competitors.

3.7 Lewis Mouldings, Digby

Established in 1950, Lewis Mouldings is a second-generation specialty producer of white pine-based value-added products such as jambs, casings, baseboards, and mouldings. The company purchases 20% to 25% of their saw logs directly from Northern Pulp-related activities. Based in Weymouth in Digby County, Lewis Mouldings is located a significant distance away from Northern Pulp, and only sells 10% of its wood chips to the company. The company employs 85 full-time individuals year-round.

Their primary concern regarding a Northern Pulp closure is with regards to the larger-scale ramifications to Nova Scotia's forestry industry. As a specialty-producer of value-added products made exclusively of white pine, Lewis Mouldings relies on a by-product of the forestry industry. As a result, the company requires a certain level of forestry activity in the province to ensure a consistent supply of white pine. A company representative voiced concern regarding the potential closure of other companies they purchase their logs from, such as Harry Freeman & Son. Having experienced firsthand the consequences of the Bowater Mersey plant, they are concerned that the potential closure of Northern Pulp could have much larger and more widespread effects.

Given the uncertainty regarding the potential widespread impacts to the forestry sector and therefore their white pine supply, Lewis Mouldings has been forced to invest in contingency planning, including the purchase of harvesting equipment to enable them to harvest their own white pine. However, a company representative does not view this as a long-term solution, as there are few white pine-rich stands in Nova Scotia.

3.8 J.A. Turner & Sons, Lunenburg

J.A. Turner is a saw mill producing rough and planed lumber in Lunenburg County, Nova Scotia. The company sells 60% to 70% of its wood chips to Northern Pulp, and employs 15 individuals full-time, year-round. The company experienced significant setbacks when the neighbouring Bowater Mersey paper mill shut down in 2012, resulting in J.A. Turner having to run the business at a loss for a period of time before adjusting to new market conditions. A company representative fears that a Northern Pulp closure could result in the same issue, and they are not confident the business could survive another period at a loss.

The potential Northern Pulp closure has prohibited the company from making any investments in the business. Their representative stated, "I'm not spending 5 cents this year unless I have to. Only upkeep. No major changes or major investments until this gets squared up". They also noted that many businesses relying on wood chips sales as a major revenue source would see a loss of revenues if Northern Pulp shut down. With only biomass or PHP as potential markets for wood chips, losses in chip revenues would result in the companies requiring cheaper log costs for their inputs. Cheaper log prices have generally resulted in significant drops in supply in the past, and sustained lower prices could result in a loss of markets for lower-grade wood products, decreasing the value of forest stands overall in Nova Scotia.

3.9 Dave's Lumber, Pictou

Established in 1994, Dave's Lumber is a saw mill specializing in the production of hemlock lumber. As a specialty producer limited to hemlock, which is generally regarded as a by-product by most harvesters, Dave's Lumber must purchase saw logs from a variety of sources to ensure a constant supply, and 20% to 33% of their saw logs are sourced from Northern Pulp. In addition, 100% of Dave's Lumber wood chips are sold to Northern Pulp, with those sales making up 10% to 15% of annual revenues.

A representative of Dave's Lumber, states that Northern Pulp is the only purchaser of hemlock wood chips. Their company employs 8 to 11 full-time employees, and runs the risk of going out of business should any major changes affect their supply of hemlock and their markets for wood chips. They fear that with no local market for pulpwood, there will be a crash in harvesting. Noted effects from the potential Northern Pulp closure, include both their company and contractors being unable to justify investing money in their businesses.

3.10 Goguen Lumber, NB

Established in the late 1940s, Goguen Lumber is a third-generation saw mill with 6 million BFM of annual production. Goguen purchases their saw logs from 6 to 7 contractors as well as significant number of small owner-operated wood lots. Goguen Lumber sells approximately 60% of their wood chips to Northern Pulp, with the remainder being sold to J.D. Irving.

Goguen Lumber relies on Northern Pulp for wood chip sales, as their other principal buyer does not purchase white pine or hemlock chips. Selling their wood chips as hog fuel would result in a significant loss of revenues, and a potential Northern Pulp closure could mark a significant blow to Goguen Lumber. Their representative stated that should they not be able to find an alternative buyer for their chips at a similar value, the company may have to consider shutting down or limiting their business. Further complications may arrive from their current log suppliers potentially going out of business, as many of their suppliers also sell wood chips to Northern Pulp.

3.11 H.C. Haynes, Colchester

Founded in 1963, H.C. Haynes is a family owned and operated Maine-based logging, marketing, brokering, transportation, and forestry consulting company with operations throughout New England and Canada. The manager for H.C. Haynes in Truro, works with independent woodlot owners throughout Nova Scotia. H.C. Haynes is the largest supplier of saw logs to Taylor Lumber, Ledwidge Lumber, Elmsdale Lumber, and Northern Pulp, as well as supplying a significant portion of saw log needs for J.D. Irving and Freeman & Son.

The region's manager predicts prices could decrease by \$25 to \$30 per tonne for logs, resulting in landowners bearing a significant brunt of the price drop. In their words, the closure of Northern Pulp would be the "economic destruction of Nova Scotia", and adjusting the industry would take at least 10 years. Facilities in a position to purchase wood chips, residues, or other inputs may have an increased opportunity to lower

overall prices, which would have ramifications not only in Nova Scotia, but also in New Brunswick and Prince Edward Island.

They further state, that the closure of Northern Pulp could result in a significant downturn in the Nova Scotian contractor workforce, particularly for outfits operating on a medium to large scale with a focus on few products. They are also concerned that “silviculture will stop dead in its tracks”, as there will be significantly reduced cutting in Nova Scotia’s forests, resulting in a decreased demand for forest management. A potential Northern Pulp closure could also result in an inability for Nova Scotia’s woodlot owners and harvesters to reconfigure to the new market conditions, where prices will be lower and long-haul trucking requirements will increase costs.

The value of Nova Scotia’s forestlands could change significantly with a Northern Pulp closure. Without Northern Pulp, there would be not economically feasible buyer for low quality wood. With only saw logs and studwood retaining value, there would be a significant drop in demand for pulpwood, resulting in forestry practices becoming less productive per acre, with lower prices. H.C. Haynes’ Nova Scotia manager predicts that the closure of the Northern Pulp mill would make the Lahey report redundant, as patch cutting or high grading of spruce and choice hardwoods would be the only economically viable methods in a low-value market situation moving forward.

3.12 A.L.P.A. Equipment, Colchester

Founded in 1976, A.L.P.A. Construction is a forestry and construction heavy equipment dealer serving Atlantic Canada and the Gaspésie and Lower-Saint-Laurent of Québec. Up to 75% of A.L.P.A.’s sales come from the forestry sector, and according to their manager, the additional 25% is generally indirectly related to forestry activity in one capacity or another. A.L.P.A. currently employs 14 individuals full-time, year-round, but has been unable to justify hiring an important sales manager position, given the uncertainty regarding Northern Pulp.

Should Northern Pulp close, a company representative states they are uncertain of the repercussions for the industry and for their business, because any closure “will be utter devastation”. They state that they’ve fielded 4 to 5 conversations per day with their contractors and operators regarding the future of Northern Pulp, and that their company has experienced a reduction in sales related to the uncertainty. Sales of heavy equipment machines have gone down significantly over the past 2 to 3 years.

3.13 G. & C. Hughes Enterprises, Lunenburg

G. & C. Hughes Enterprises is a group of 3 companies: Hughes Trucking, Hughes Diesel Repair, and Colin Hughes Forestry, with 70% of business being directly related to the forestry industry. Collectively, the companies employ approximately 40 individuals. Having already experienced the economic impacts of the Bowater Mersey plant closure, their representative is concerned that without Bowater Mersey and Northern Pulp, the only option for pulpwood would be PHP, which they believe is likely not in a position to increase their supply, resulting in significant blows to Nova Scotia’s forestry sector.

They further believe all of the silviculture programs they and their colleagues do will cease to be in demand, as without a viable market for pulpwood and lower quality wood products, selective harvesting programs and forestry management systems will be significantly less in demand. Individual woodlot owners and contractors will either cease operations or result to clearcutting.

The uncertainty regarding Northern Pulp has prevented the owner from investing in and growing their business. Had it not been for this uncertainty, they would have likely spent at least \$1 million regionally on a new harvester and new trucks and trailers. They would also be bringing on 4 new jobs this year, but cannot justify the risk at without a clearer understanding of what may happen to Northern Pulp. They are not certain if biomass plants and PHP could provide some insulation to the effects that a Northern Pulp closure may have, but they state, “without Northern Pulp, we’ll go from 40 people on staff down 25%, maybe as much as 50% or 60%, but we simply don’t know”.

3.14 Wagner Forest NS Limited, Colchester

Established in 2006, Wagner Forest NS Limited is a forestry management company, Nova Scotia’s largest private landowner, and a major supplier to many of Nova Scotia’s major saw mills. Their harvest represents an estimated 10% of Nova Scotia’s harvest, while the company supplements this tonnage by procuring stumpage from other private landowners. Wagner Forest NS Limited directly employs 8 individuals, while indirectly employing upwards of 90 to 100 independent, community-based contractors through trucking, planting, harvesting, and silviculture practices.

A company representative of Wagner Forest NS Limited, stated that a Northern Pulp closure would be catastrophic for the entire forestry industry. With Northern Pulp being one of two high value—and in many cases, the only economically viable—market for pulpwood in Nova Scotia, and with pulpwood making up roughly 50% of most private landowners’ forests, a closure to Northern Pulp would result in a significant decrease in the value of pulpwood, resulting in decreases to total stumpage rates for landowners. This would incentivize woodlot owners to high grade their forest, unsustainably focusing on high value products. High grading would result in increased logging costs, due to low grade products without markets being left in the woods.

Northern Pulp is the economic anchor for Wagner Forest NS Limited and the entire forest industry of Nova Scotia. A closure would likely result in the company having to shut its doors within 5 to 6 months. Furthermore, the other 30,000 private woodlot owners across Nova Scotia, have come to rely on their land as an investment, a source of retirement funds, or to pay living expenses. If Northern Pulp closes, private landowners stand to lose retirement funds, a story that will unfold throughout the province as most woodlot owners will at some point rely on the value of their forests to subsidize their retirements or support their families.

Table 4: Sawmill impact summary

Saw mill & location	% saw logs purchased from NP	% wood chips sold to NP	# full-time employees ³	Impact of NP closure & contingency plans
Ledwidge Lumber, Oldham, NS	15% to 20%	100%	80+	Saw mill could continue to operate, but with a significant adjustment period. A loss of a significant supply of saw logs, and reduction to important revenue stream due to decreased value for wood chips (40% loss in value). Has held off investments in making mill more efficient due to uncertainty.
Scotsburn Lumber, Scotsburn, NS	33%	100%	96	Company cannot operate longer than one day without wood chips being removed. Loss of revenue would likely result in a mill closure.
Harry Freeman & Son, Greenfield, NS	3%	100%	150	Northern Pulp closure would result in immediate suspension of operations.
Elmsdale Lumber, Elmsdale, NS	20 to 25%	100%	50	Loss of revenue due to reduced wood chip prices from alternate markets would likely put the company under and cease operations.
J.D. Irving, Valley, NS	“major portion”	100%	155	Requirement to realign wood chip sales to New Brunswick, and if unable to secure a new supply of saw logs, may have to close operations.
Lewis Mouldings, Weymouth, NS	20% to 25%	<10%	85	Large-scale after-effects would result in a loss of supply of white pine, which is a by-product of the forestry industry. Without white pine, the company would go under. Temporarily addressing issue through purchase of their own harvesting equipment, but not a long-term solution given lack of white pine-rich stands in Nova Scotia.
J.A. Turner, West Northfield, NS	<5%	60% to 70%	15	Unable to justify making investments into the business. Possible loss of value from wood chip sales could result in the business running at a loss then cease operations.
Dave’s Lumber, Pictou, NS	20% to 33%	100%	8+	Relies on a steady supply of hemlock, and all sales of wood chips go to Northern Pulp. Few if any buyers of hemlock chips, combined with a drop in hemlock supply, would likely put company out of business.
Goguen Lumber, Cocagne, NB	0%	60%	28	Slim operating margins. Without an alternate buyer of wood chips at a similar value, the company runs the risk of shutting down completely. Further complicated by potential loss of saw log supply, as many current saw log suppliers also rely on Northern Pulp for wood chip sales.

³ Full-time, year-round employees (does not include indirect employment or contractors)

4. Summary and Discussion

4.1 Combined NPNS impacts

The following impacts to the Nova Scotia economy are for a potential mill closure and include the combined annual direct, indirect, and induced effects of ending NPNS operations (Table 1) and shut down of several sawmills that are highly dependent on the mill (Table 3). This does not include impacts to other provinces in Canada:

- ❑ **Supply chain** – 1,379 companies support the mill with goods and services.
- ❑ **Output** – impacted by the closure of NPNS has a total value amounting to \$632 million in 2018.
- ❑ **GDP** – The total added-value represents \$191 million, much of which is captured in earnings (67%).
- ❑ **Earnings** – Workers throughout the economy gain \$128 million worth of income.
- ❑ **Employment** – At least 2,679 full-time equivalent jobs (FTEs) are supported by the mill.
- ❑ **Taxes** – Approximately \$18.7 million in tax revenues are generated to the province and a further \$19.7 million to the federal government. Total municipal taxes of approximately \$650,000 can also be attributed to the NPNS employees.

These are not only substantial economic contributions in their own right, but NPNS also exports a great deal of their products thus helping to improve the balance of trade for the province. Incremental revenue drawn from outside the region is a key driver for community economic development. The knock-on effect to harvesters, transport workers, and land-owners would be far reaching.

4.2 Rural significance

One of the striking aspects of the NPNS impacts is that they occur primarily in rural areas. Rural areas tend to struggle economically because of limited opportunities for generating employment and income. The mills contribute greatly to improved labour participation rates, lower unemployment rates, and higher earnings.

Some highlights for Pictou County are shown below and more analysis for highly dependent counties is contained in the Community Profile Annex. These profiles present basic socio-economic data, forest harvest data and a discussion of how Northern Pulp interfaces with the local forestry industry.

Labour statistics for Nova Scotia counties adjacent to the mill (Table 5) indicate how the rural unemployment and earnings typically lag behind the provincial averages. Antigonish is on par with provincial averages due to the university presence and Pictou is strongly in second largely due to the mill.

Table 5: Nova Scotia labour statistics for neighbouring counties (2015)

County	Unemployment	Income**
Antigonish	11.6	39,931
Pictou*	12.5	38,461
Colchester	9.4	36,026
Guysborough	18.3	33,114
Nova Scotia	10.0	40,299

Source: Statistics Canada Census 2016. *County with NPNS mill. **Average income.

The combined 352 employees at the mill represent 1.8% of the total 19,405 employees in Pictou County, signifying about 1 in 55 workers are employed by the mill. In addition, for each mill position, four (4) additional jobs are generated by the mill (1,831 total employment impacts) and the largest share is in these counties, up to 1 in 11 local (Pictou County) jobs are tied to the mill.

In closing, the average NPNS mill employee earnings (\$86,000) is strong compared to average paper manufacturing earnings in Nova Scotia (\$67,068) and help to bring up the average across the entire province (\$40,299). These clearly represent excellent jobs anywhere in the province, and particularly good jobs in rural communities.

Furthermore, many other socio-economic indicators improve as a result of higher earnings and employment such as: reduced dependence on government transfers, reduced low-income households (poverty), improved health (reduced health care costs), household savings, and reduced crime. NPNS development and innovation based on local renewable resources are a major part of building community cohesion and long-term stability.

Northern Pulp Nova Scotia is a significant player in rural Nova Scotia, creating a significant number of well-paying jobs in typically high unemployment areas. Its unique partnerships with sawmills, forestry contractors and private woodlot owners are critical to its success and the rural economy.

5. Long Term Impacts of Possible Mill Closure

The economic impact analysis completed in this report represents a single year of operation by Northern Pulp. The analysis does not assess the multiple year or long-term impacts that would be associated with the closure of the Northern Pulp facility. In such a scenario the impacts stated here could extend for a decade until the sector moves to a new equilibrium with businesses that remain in operation.

It is extremely unlikely that an alternate operator will take over the Northern Pulp facility in the face of regulatory uncertainty with regards to the treatment of mill effluent. It is unlikely a decision to allow continued use of Boat Harbour would be granted for another operator. Thus the annual impacts are likely to extend into the future for at least several years.

This analysis includes estimates of all direct and spin-off impacts associated with their business activity. Because of the high degree of dependence on Northern Pulp there is a

specific focus on the spin-off impacts to the provincial sawmill industry, trucking industry, and forest harvesting operations. This also includes the impacts of spending on goods and services by those who earn their income in this industry.

According to interviews conducted for this report, the closure of Northern Pulp will have “devastating business impacts” on both the sawmill and forest harvesting industries. The loss of wood chip revenue and costs associated with chip management will render many facilities uneconomic and they could be faced with complete closure. Chip revenue is absolutely essential to ensure this industry can viably operate in Nova Scotia at the current scale, or several big firms will go out of business.

Alternative investments to replace Nova Scotia forest resource manufacturing by Northern Pulp would require very significant capital investment. To achieve an equivalent scale of value added activity would require hundreds of millions of dollars in investment. Over a longer period of time, most likely more than a decade, there could be industry transition that takes advantage of the forest resource as it continues to grow. However, industry transition would be a slow process and very challenging to recover to current levels of economic activity.

6. Annex: Community Profiles

Profile #1: Colchester County

Table A1: Statistics Canada 2016 Census Data for Colchester County⁴

County pop	Province	County	County %
Population	923,598	50,585	5.5%
Dwellings	458,568	25,378	5.5%
Market income workers	648,910	34,850	5.4%
Market income average	\$40,299	\$36,026	89%
Labour force	474,595	25,285	5.3%
Employed	427,310	22,910	5.4%
Full YR & FT workers	252,820	14,150	5.6%
Unemployed	47,280	2,375	5.0%
Unemployment rate	10.0%	9.4%	-0.6%

Table A2: Analysis of key data from Registry of Buyers for Colchester County (2017 data)⁵

	Nova Scotia	Colchester County
Percent of total provincial harvest	100%	8%
Total m3 solid harvested (softwood)	2,637,556	200,600
Total m3 solid harvested (hardwood)	654,969	46,105
Total number of saw mills	116	8
Total number of registered wood buying businesses	167	19

Sawmills were responsible for purchasing 56.7% of Nova Scotia's total forest harvest in 2017⁶. Colchester County is home to 8 sawmills, one of which presently directly employs over 150 individuals full time, year-round. Colchester County is home to one of the four sawmills that acquire over 200,000 m³ of Nova Scotian solid wood per year, and the county was responsible for 8% of Nova Scotia's forest harvest in 2017, representing over 200,000 m³ of softwood alone. With over 150 full-time, year-round employees, this sawmill directly employs 1 in 100 full-time year-round workers living in Colchester County.

The county's major sawmill produces 112 million BFM of SPF lumber annually. For over 20 years, this plant has been selling 100% of its wood chips and 80% of its wood residues to Northern Pulp, while receiving a major portion of its saw logs from the company. A significant portion of total revenues for the saw mill come from wood chip sales.

⁴ Statistics Canada. (2019). *Census profile, 2016 census*.

⁵ Nova Scotia Department of Natural Resources. (2018). *Registry of buyers of primary forest products – 2017*.

⁶ Nova Scotia Department of Natural Resources. (2018). *Registry of buyers of primary forest products – 2017*.

For over 3 years, the uncertainty of the future of the Northern Pulp plant has resulted in Colchester County's largest sawmill to hold off on pursuing several major multi-million dollar improvement projects. Should Northern Pulp sawmills in Colchester County would be faced with the difficult task of attempting to secure a major portion of its saw logs from new suppliers. For the county's largest sawmill, if it is unable to restructure its Nova Scotian source of saw logs, it may be forced to consider ceasing operations altogether, resulting in direct and indirect job losses.

Colchester County is also home to one of Nova Scotia's largest forestry and construction heavy equipment dealers. Up to 75% of the equipment dealer's sales come from the forestry sector, while the other 25% is stated to be indirectly related to forestry activity. This is chiefly due to the fact that 8% of Nova Scotia's provincial forest harvest in 2017 occurred in Colchester County, combined with a further 16% in neighbouring Cumberland County—the most in the province.

The equipment dealer currently employs 14 individuals full-time, year-round, but has been unable to justify hiring an important sales manager position, given the uncertainty regarding Northern Pulp. A closure may result in "utter devastation" for the heavy equipment dealership industry, with Colchester County's largest dealer experiencing a reduction in sales related to the uncertainty of Northern Pulp's future. Sales of heavy equipment machines have gone down significantly over the past 2 to 3 years.

Colchester County is home of the headquarters for two of Nova Scotia's largest forestry brokers. These companies provide services including logging, marketing, transportation, and forestry management and consulting, working with independent woodlot owners throughout Nova Scotia. Together, these two companies supply a significant amount of the saw logs for the province's sawmills. One of these management companies directly employs 10 individuals as well as 90 to 100 independent, community-based contractors through trucking, planting, harvesting, and silviculture practices.

Northern Pulp is the economic anchor to Nova Scotia's largest private landowner, a Colchester-based forest management company. Presently harvesting upwards of 350,000 tonnes of wood products in Nova Scotia per year representing 10% of Nova Scotia's harvest, a closure to Northern Pulp would likely result in the company having to shut its doors within 5 to 6 months.

Profile #2: Queens & Lunenburg Counties

Table A3: Statistics Canada 2016 Census Data for Queens County and Lunenburg County, combined⁷

County pop	Province	County	County %
Population	923,598	57,477	6.2%
Dwellings	458,568	33,256	7.3%
Market income workers	648,910	40,600	6.3%
Market income average	\$40,299	\$35,620	88%
Labour force	474,595	26,955	5.7%
Employed	427,310	24,310	5.7%
Full YR & FT workers	252,820	13,670	5.4%
Unemployed	47,280	2,645	5.6%
Unemployment rate	10.0%	9.8%	-0.2%

Table A4: Analysis of key data from Registry of Buyers for Queens County and Lunenburg County, combined (2017 data)⁸

	Nova Scotia	Queens & Lunenburg
Percent of total provincial harvest	100%	12%
Total m3 solid harvested (softwood)	2,637,556	341,904
Total m3 solid harvested (hardwood)	654,969	57,531
Total number of saw mills	116	17
Total number of registered wood buying businesses	167	21

Collectively, Lunenburg and Queens County are responsible for 12% of Nova Scotia's provincial harvest of wood products, including over 340,000 m³ of softwood in 2017. Lunenburg and Queens County are home to 17 sawmills, one of which, located in Queens County, is one of only four sawmills that purchases upwards of 200,000 m³ of Nova Scotian wood per year. There are only 10 sawmills in Nova Scotia that purchase upwards of 10,000 m³ of Nova Scotian wood per year, and 2 of them are located in this region. Collectively, these two sawmills employ over 165 individuals full-time, year-round, representing 1.2% of the combined counties' entire full-time, year-round workforce.

While neither major sawmill in Queens and Lunenburg counties purchases more than 5% of their saw logs from Northern Pulp, both rely on Northern Pulp as their primary if not sole buyer of wood chips. One sawmill, one of the four largest in Nova Scotia, produces 100 million BFM of lumber and value-added lumber products per year, resulting in 120,000 tonnes of wood chips produced per year, and relies exclusively on

⁷ Statistics Canada. (2019). *Census profile, 2016 census*.

⁸ Nova Scotia Department of Natural Resources. (2018). *Registry of buyers of primary forest products – 2017*.

Northern Pulp to purchase their chips. The other sawmill sells 60% to 70% of its wood chips to Northern Pulp.

The closure of the Bowater Mersey paper mill in 2012 resulted in both sawmills losing their major purchaser of wood chips, and the companies needed to restructure to start selling chips to Northern Pulp. Initial conversations with the province's only other potential large-volume wood chip buyer indicate that chip prices will be lower, which is made still more difficult due to the increased cost of shipping chips a further distance.

If Northern Pulp were to close, two of Nova Scotia's ten largest sawmills would be forced to immediately suspend their operations. With tight margins, should the price they receive for wood chips drop, they could very easily run the risk of not breaking even. With no other potential markets for wood chips at the same value, losses in chip revenues would result in the companies requiring cheaper log costs for their inputs. Cheaper log prices have generally resulted in significant drops in supply in the past, and sustained lower prices could result in a loss of markets for lower-grade wood products, decreasing the value of forest stands overall in Nova Scotia, and previous price reductions for saw logs have resulted in woodlot owners removing their product from the market and sitting on it, resulting in a shortage of supply.

A major forestry, trucking, and repair company is also based out of the region, with upwards of 70% of business tied directly to the forestry industry. Employing 40 individuals across Queens and Lunenburg County, the potential closure of Northern Pulp has rendered this company unable to invest in growing its business. Whereas 4 new employees would have been hired in 2019 and over \$1 million spent on significant investments in new harvesters, trucks, and trailers, the company instead has been unable to contribute investments in their regional economy. Without Northern Pulp, the company would be forced to cut 25% to 60% of its workforce to adapt to significant market changes.

Profile #3: Pictou County

Table A5: Statistics Canada 2016 Census Data for Colchester County⁹

County pop	Province	County	County %
Population	923,598	43,748	4.7%
Dwellings	458,568	22,525	4.9%
Market income workers	648,910	29,940	4.6%
Market income average	\$40,299	\$38,461	95%
Labour force	474,595	20,765	4.4%
Employed	427,310	18,170	4.3%
Full YR & FT workers	252,820	10,600	4.2%
Unemployed	47,280	2,595	5.5%
Unemployment rate	10.0%	12.5%	2.5%

Table A6: Analysis of key data from Registry of Buyers for Pictou County (2017 data)¹⁰

	Nova Scotia	Pictou County
Percent of total provincial harvest	100%	8%
Total m3 solid harvested (softwood)	2,637,556	230,745
Total m3 solid harvested (hardwood)	654,969	73,641
Total number of saw mills	116	13
Total number of registered wood buying businesses	167	19

Pictou County is home to 13 sawmills, the most in Nova Scotia. Forestry operations in the county represented 8% of Nova Scotia's provincial harvest in 2017. Pictou's sawmills include one of the province's four sawmills that purchase upwards of 200,000 m³ of Nova Scotian wood per year. Two major sawmills in Pictou County collectively directly employ over 100 full-time, year-round individuals, meaning over one in 100 individuals in Pictou County are directly employed by a saw mill. With an unemployment rate 2.5% higher than the provincial average, Pictou County's workforce relies heavily on forestry operations and sawmills.

Two of the county's largest sawmills, including one of the largest in Nova Scotia, source up to a third of their saw logs from Northern Pulp, while relying exclusively on Northern Pulp as their sole purchaser of wood chips. Wood chip sales are critical to the operations of Pictou's sawmills. One major sawmill employs 8 to 11 full-time year-round employees, and relies on Northern Pulp as their sole buyer of wood chips. Wood chip sales make up 10% to 15% of the sawmill's revenues, and Northern Pulp is the only buyer willing to purchase their wood chips. Without Northern Pulp, the sawmill would be forced to cease operations.

⁹ Statistics Canada. (2019). *Census profile, 2016 census*.

¹⁰ Nova Scotia Department of Natural Resources. (2018). *Registry of buyers of primary forest products – 2017*.

Another Pictou sawmill, and one of the province's largest, produces over 100 million FBC of lumber per year. To do so, the sawmill receives upwards of 40 truckloads of saw logs per shift, resulting in 25 truckloads of woodchips and sawmill by-products. Sawmills of this stature are unable to run over a day without a location for their wood chips to go, and this major sawmill would incur significant losses without the nearby Northern Pulp mill purchasing their chips daily. If Northern Pulp were to close, the losses in revenue from lost or reduced wood chip sales would likely result in a full closure of the sawmill. There are concerns among Pictou's sawmills that a Northern Pulp closure would result in a loss of a major market for pulpwood, resulting in a county-wide if not province-wide crash in harvesting due to lower log prices. Sawmills and their contractors have faced the difficult situation of foregoing investments into their business due to the uncertainty of the future.

Profile #4: East Hants County & Halifax Regional Municipality

Table A7: Statistics Canada 2016 Census Data for East Hants County & Northern HRM, combined¹¹

County pop	Province	Region	County %
Population	923,598	108,951	11.8%
Dwellings	458,568	44,245	9.6%
Market income workers	648,910	78,295	12.1%
Market income average	\$40,299	\$43,918	109%
Labour force	474,595	61,700	13%
Employed	427,310	57,520	13.5%
Full YR & FT workers	252,820	37,110	14.7%
Unemployed	47,280	4,175	8.8%
Unemployment rate	10.0%	6.7	-3.3%

Table A8: Analysis of key data from Registry of Buyers for Hants County and the Halifax Regional Municipality, combined (2017 data)¹²

	Nova Scotia	Hants County & HRM
Percent of total provincial harvest	100%	12%
Total m3 solid harvested (softwood)	2,637,556	330,799
Total m3 solid harvested (hardwood)	654,969	79,792
Total number of saw mills	116	17
Total number of registered wood buying businesses	167	25

The 2013 Electoral District used in the 2016 Census Survey was used to analyze the region closest to Elmsdale, and encompasses the pre-dominantly rural communities surrounding and including Sackville, Preston, and to Chezzetcook. This area of the HRM is home to 9.4% of Nova Scotia's population, and 21.5% of people living in the HRM. When also including the east of Hants County, this region has a total population of over 108,000.

This region of Nova Scotia is also home to 2 of the 8 sawmills in Nova Scotia that purchase at least 30,000 m³ of Nova Scotian wood per year, including one that purchases over 200,000 m³. Collectively, these two major sawmills employ over 130 individuals full-time, year-round, and produce over 85 million FBM of lumber per year. In addition to 130 direct full-time, year-round jobs, these two major mills are responsible for

¹¹ Statistics Canada. (2019). *Census profile, 2016 census*. Note: based on the East Hants County census subdivision, and the 2013 Federal Election riding of Sackville—Preston—Chezzetcook.

¹² Nova Scotia Department of Natural Resources. (2018). *Registry of buyers of primary forest products – 2017*.

indirectly employing several hundred contractors who engage in activities including harvesting and trucking.

Both of these sawmills rely on Northern Pulp to sustain their operations, with an average of 20% of saw logs being supplied by Northern Pulp, while 100% of both sawmills' wood chips are sold back to the company. Wood chip sales make up an average of 13% to 15% of total revenues for these sawmills. Both sawmills view wood chips not as waste wood, but as a value-added by-product, and have adjusted their operations accordingly. The result has been a shift in forestry practices in the region, resulting in a market for poor quality wood and wood by-products. Without a market for pulpwood, forestry practices in the region may either cease, or result to highgrading, reducing the quality of the region's forestlands.

A Northern Pulp closure would result in a loss of a major supply of saw logs, and the reduction or complete loss of a significant revenue stream. Managers at both of the region's largest sawmills stress that there are no alternative markets for wood chips that value them as a value-added product. Without Northern Pulp, the resulting loss in value for wood chips, which could be 40% or lower depending on alternative buyers, would result in a significant and tumultuous adjustment period for one of the region's major sawmills, while likely resulting in another sawmill being forced to cease operations.

Reductions or closures of sawmill activity in Hants County and the north of the HRM would also result in a loss of market opportunities for wood products harvested in the region. Approximately 12% of Nova Scotia's 2017 forest harvest occurred in this region.

Profile #5: Cumberland County

Table A9: Statistics Canada 2016 Census Data for Cumberland County¹³

County pop	Province	County	County %
Population	923,598	30,005	3.2%
Dwellings	458,568	18,445	4.0%
Market income workers	648,910	20,215	3.1%
Market income average	\$40,299	\$35,083	87%
Labour force	474,595	13,645	2.9%
Employed	427,310	12,100	2.8%
Full YR & FT workers	252,820	7,545	4.9%
Unemployed	47,280	1,550	3.0%
Unemployment rate	10.0%	11.4%	1.4%

Table A10: Analysis of key data from Registry of Buyers for Cumberland County (2017 data)¹⁴

	Nova Scotia	Cumberland County
Percent of total provincial harvest	100%	16%
Total m3 solid harvested (softwood)	2,637,556	319,602
Total m3 solid harvested (hardwood)	654,969	201,227
Total number of saw mills	116	4
Total number of registered wood buying businesses	167	9

Cumberland County is home to only four sawmills, none of which acquire over 3,000 m³ of Nova Scotian wood per year. However, forestry activity is a major industry in the county and was responsible for 16% of Nova Scotia's total provincial harvest in 2017, representing over 500,000 m³ of solid harvested softwood and hardwood, making Cumberland County the largest harvester of Nova Scotian wood in the province¹⁵. Guysborough County and Pictou County are the two other largest harvesters of Nova Scotian wood in the province, but harvested 18% collectively, making Cumberland County the largest harvester by a significant margin.

Most of Nova Scotia's larger sawmills primarily source their saw logs from independent operators. Conversations with several Nova Scotian forest management companies suggest that Nova Scotia is home to over 30,000 private woodlot owners. Not only is Cumberland County the largest harvester of Nova Scotia's forest products, 19% of Nova Scotia wood products harvested in 2017 came from the county. The potential

¹³ Statistics Canada. (2019). *Census profile, 2016 census*.

¹⁴ Nova Scotia Department of Natural Resources. (2018). *Registry of buyers of primary forest products – 2017*.

¹⁵ Nova Scotia Department of Natural Resources. (2018). *Registry of buyers of primary forest products – 2017*.

ramifications for private contractors in Cumberland County could be significant, given that over 75% of the 520,829 m³ of wood harvested in Cumberland County in 2017 came from private woodlots.

Industry professionals, including one of Nova Scotia's largest forest product brokers, collectively believe that without Northern Pulp paying its current price for pulpwood, wood chips, and residues, the overall value of lumber in Nova Scotia could decrease significantly. Without a market for pulpwood, upwards of half of forest products from most of Nova Scotia's woodlots would decrease significantly in value, resulting in increased logging costs and decreased stumpage value. As a result, many private landowners would run the risk of shutting down their forestry operations altogether. With an unemployment rate already 1.4% higher than the provincial average, a potential closure to Northern Pulp could have significant economic consequences for Cumberland County.