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FINAL REPORT

Economic Footprint for the Canadian Commercial Helicopter Industry


Photo Credit: Talon Gillis

PREPARED FOR
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Executive Summary

Commercial helicopters in Canada are the workhorses that play an integral role by supporting activities in many different industry sectors and provide many benefits to the economy.


Photo Credit: Talon Gillis

- Helicopters are often the only effective type of transportation option available to reach many remote or distant locations.
- Helicopters play an important social role in society, by leading and supporting lifesaving missions. E.g., medical emergencies and search and rescue.
- The commercial helicopter fleet is a growing and important part of the Canadian national registry of aircraft.
- Helicopters facilitate business and commerce in a broad spectrum of industries. E.g., mineral, oil and gas, mining, tourism, and filmmaking. Without helicopters, these sectors would be higher cost and some developments particularly in the resource sector, simply would not occur.

A diverse and growing industry, Canada's commercial helicopters contribute directly to employment across the country and to the national economy through their operations and activities. Helicopters serve and support a number of sectors of the Canadian economy. Beyond passenger and cargo transportation, they are essential to medevac and emergency services, and for linking northern and remote communities to those in the south. This study examines the current economic impacts generated by the commercial helicopter industry in Canada and in the individual provinces and territories.

Canada's commercial helicopter industry is significant, growing, diverse and saves lives

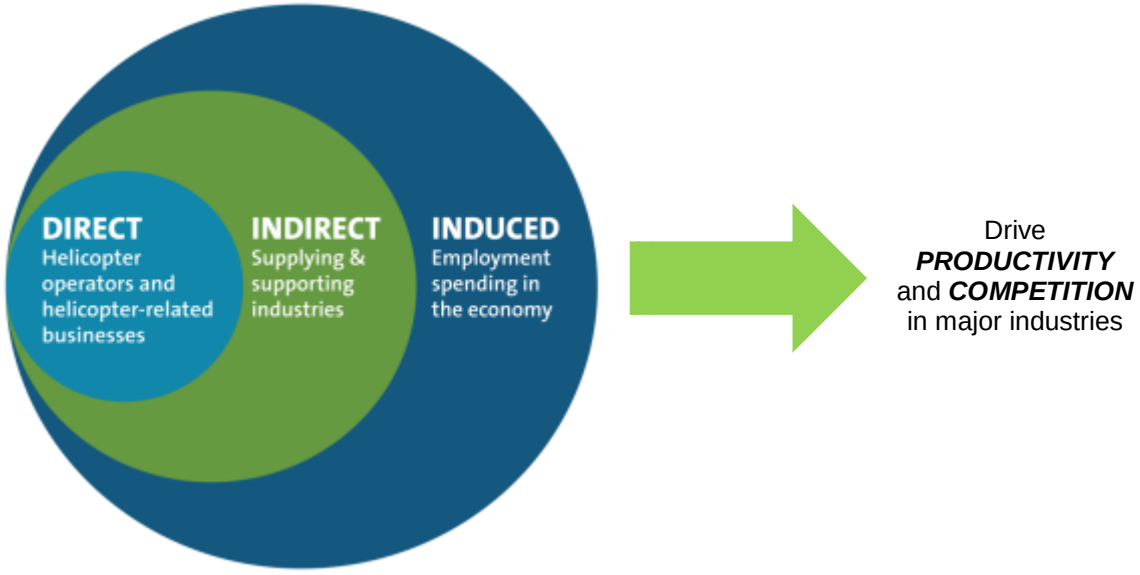
In Canada, there are currently over 2,800 helicopters registered, of which over 1,800 are commercially registered. This study is based only on the economic impact of the commercially registered helicopter fleet in Canada. There are roughly 36,000 aircraft registered in Canada, thus commercial helicopters make up approximately 5% of Canada's total registered aircraft fleet. This fleet of commercial helicopters are based throughout Canada from coast to coast.

Economic impact is a measure of the spending and employment associated with a sector of the economy, a specific project, or a change in government policy or regulation. In this case, economic impact refers to the economic contribution associated with the ongoing activities of commercial helicopter operators and helicopter-related businesses in Canada. Economic impact can be measured in a number of ways:

- Employment;
- Wages;
- Gross Domestic Product (GDP); and
- Economic output.

The three major components of economic impact are classified as *direct, indirect and induced impacts* – which capture how the economic impact of Canada's commercial helicopter industry can spread throughout the entire economy. The commercial helicopter sector in Canada in turn drives productivity and competition in other industries. **Figure ES-1** illustrates the various elements that account for the economic impact of the sector.

Figure ES-1: Economic Impact Overview of Canada's Helicopter Industry



Ongoing Economic Impact

Direct economic impact measures the employment directly associated with Canada's commercial helicopter industry. This includes employment from the holders of a Commercial Air Operator Certificate (AOC) and helicopter-related businesses in Canada. Indirect impacts include employment in industries that supply or provide services to the helicopter industry. Induced employment is employment created because of expenditures by individuals employed both directly and indirectly by businesses directly related to Canada's helicopter industry. Total impacts are calculated by adding together the direct, indirect, and induced impacts.

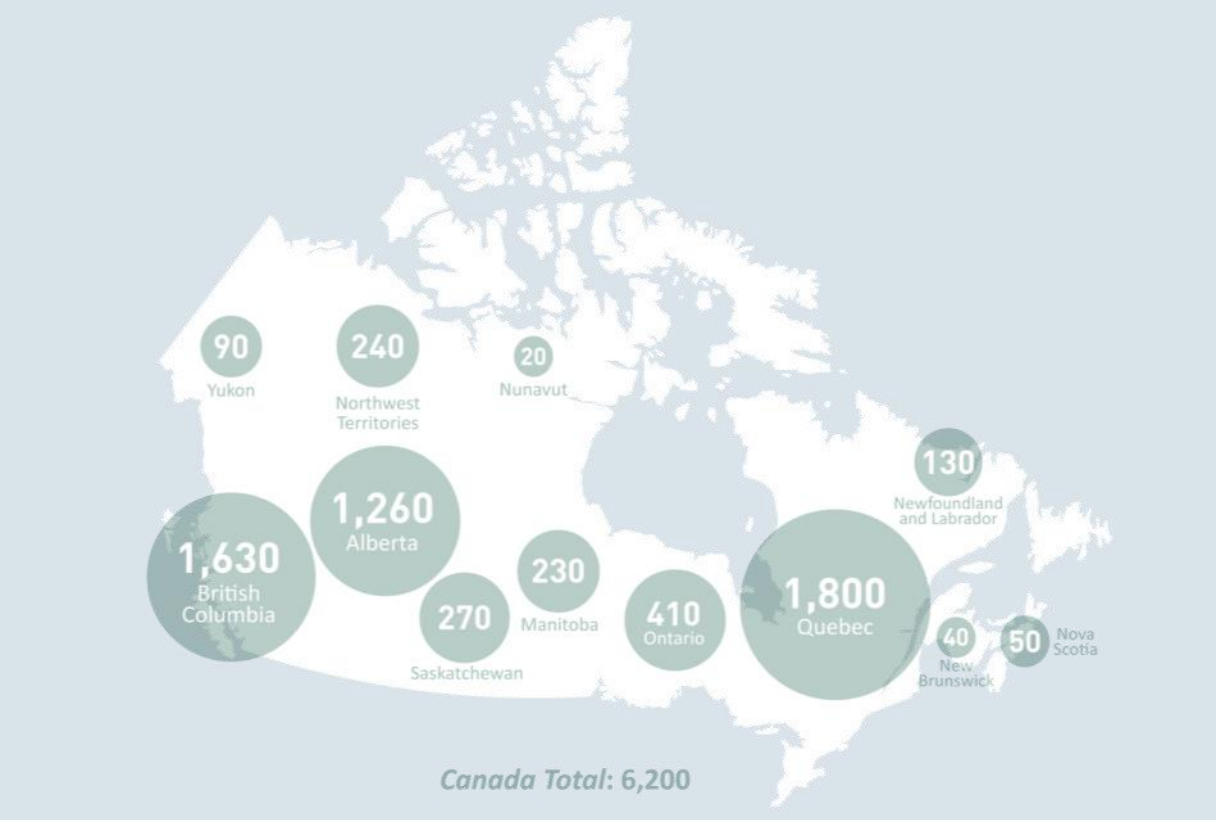
Direct Economic Impact

Day-to-day activities of Canada's commercial helicopter operators and helicopter-related businesses across Canada employed nearly 6,200 full-time equivalents (FTEs),[1] with employees earning approximately $500 million in wages and salaries. The average wage per FTE is over $80,000. This compares to an average annual wage in Canada of $48,600 across all industries. Direct employment generates nearly $0.8 billion in direct gross domestic product (GDP) and $2.1 billion in direct economic output in the nation annually.

The geographic breakdown of these jobs is provided in **Figure ES-2**. Québec and British Columbia had the most direct jobs in 2015, accounting for 29% and 26% of direct FTEs, respectively. Alberta accounted for 20%, while the remaining provinces and territories accounted for 25% all together. The top three provinces accounted for approximately 75% of the industry's direct employment in Canada.

The Canadian commercial helicopter industry is a source of a wide variety of job categories with different positions spread on-site and in the field across the country. A breakdown of direct jobs in the sector, by employment type, is shown in **Figure ES-3**.

Figure ES-2: Map of Direct Employment in the Helicopter Industry across Canada, 2015



[1] One full-time equivalent job corresponds to 1,832 hours of work annually.

Figure ES-3: Direct Employment by Job Category, 2015

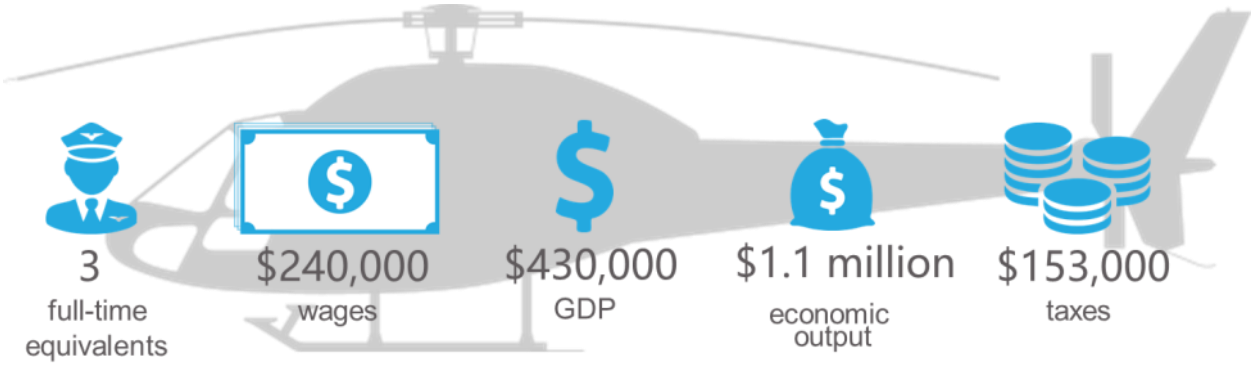
The top industries in which the commercial fleet work is as follows:

- Oil & gas including pipeline patrol & exploration,
- Medevac,
- Firefighting,
- Mining, including mining exploration, drill moves
- Forestry,
- Hydroelectric,
- Maintenance MRO, and
- Charter passenger.

Annual Direct Economic Impact per Helicopter

Each helicopter contributes significantly to the economy. Every arrival and departure of a helicopter *directly* generates three FTEs, earning approximately $240,000 in wages per annum. This contributes $430,000 in *direct* GDP and $1.1 million in *direct* economic output to the Canadian economy each year. Annual tax contributions of one helicopter amount to $153,000 to both federal and provincial/territorial governments. The annual direct economic impacts per helicopter are provided in **Figure ES-4**.

Figure ES-4: Annual Direct Economic Impacts of 1 Helicopter per Annum



Total Economic Impact

Including indirect and induced multiplier impacts, ongoing economic impacts of the commercial helicopter industry in Canada estimate a total of nearly 8,900 FTEs. Total earnings of all employees amount to over $640 million in wages and salaries. Furthermore, the industry contributes an estimated $1.1 billion and $2.7 billion in total gross domestic product (GDP) and total economic output, respectively. The total economic impacts of the Canadian commercial helicopter industry are summarised in **Figure ES-5**.

Figure ES-5: Total Economic Impact of the Canadian Commercial Helicopter Industry, 2015

Impact	Employment (Full-time Equivalents)	Wages (Millions)	GDP (Billions)	Economic Output (Billions)
Direct	6,200	$500	$0.8	$2.1
Indirect	1,200	$60	$0.1	$0.3
Induced	1,500	$80	$0.2	$0.3
Total	**8,900**	**$640**	**$1.1**	**$2.7**

Annual Tax Impacts

Commercially operated helicopters in Canada also contribute to government revenue, including revenues received by federal, provincial/territorial and local governments. Total taxes paid on an annual basis are estimated at approximately $285 million per year.

The majority of taxes collected accrue to the federal government at 59%. Provincial/territorial taxes are estimated to be $112 million across Canada (39% of total taxes collected). Estimated municipal taxes make up the remaining 2%. **Figure ES-6** provides a summary of the taxes collected.

Annual Tax Impacts of the Helicopter Industry in Canada

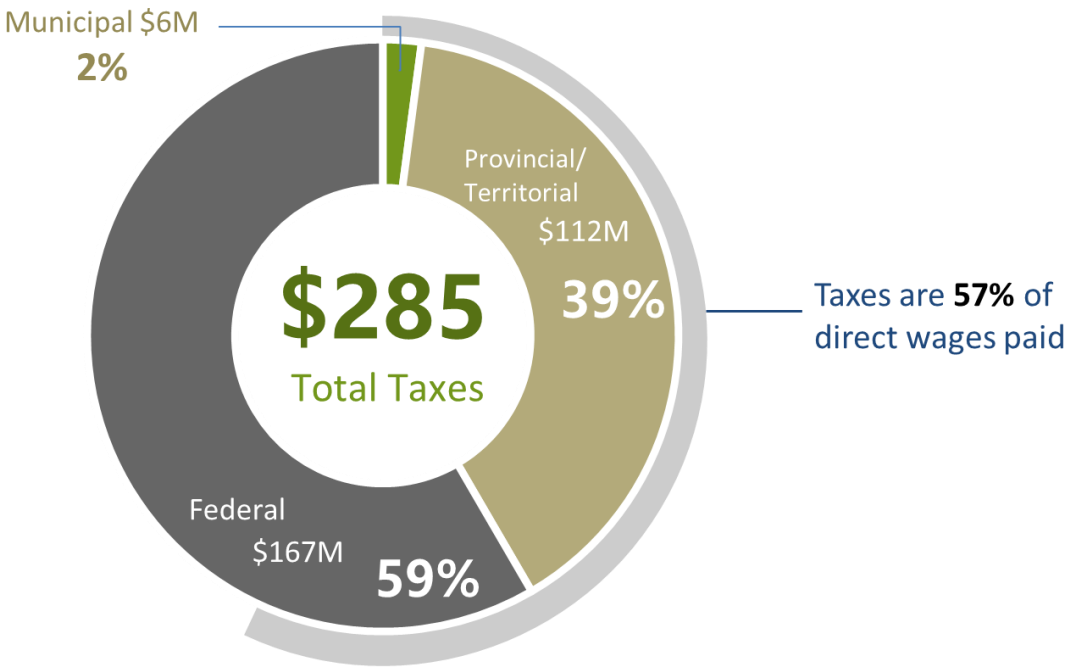
Federal Government:
$167 million (59% of total)

Provincial Government:
$112 million (39% of total)

Municipal Government:
$6 million (2% of total)

Total Taxes: $285 million

Figure ES-6: Breakdown of Tax Revenues by Government Level



Note: Tax impacts are presented in 2015 dollars, using 2014 tax rates.

Contents

1 Introduction: *Canada's Workhorse*

1.1 Why do Businesses Use Helicopters?

Commercially operated helicopters in Canada are owned and operated to help facilitate a wide spectrum of activities that help support the provincial, territorial and national level economies in Canada. Business and industry in Canada use the commercial fleet for the following types of activity:

- Vital transportation links to remote communities and to locations and under challenging weather conditions that are not necessarily accessible by fixed wing aircraft,
- Search and rescue, firefighting and other lifesaving activities,
- Corporate travel to help facilitate business transactions, site visits, maintenance and construction activities and helps to build efficiency into business operations,
- Facilitate challenging maintenance operations – e.g., repairs or parts replacement for oil rigs,
- Improve company and national productivity,
- Improve cost effectiveness of frequent travel, and
- Support work in a wide variety of industries from mineral, oil and gas exploration to power line construction and maintenance to tourism and filmmaking.

1.2 Helicopters Enable Economic Activity throughout Canada

Helicopters serve and support a number of sectors of the Canadian economy. Beyond passenger and cargo transportation they are essential to medevac and emergency services and for linking northern economies to those in the south. The research and academic fields rely on helicopters to access important geological, ecological and ethnographic areas. Mining and resource sectors are heavily dependent on helicopter services for surveying and transportation to/from remote areas inaccessible by road, or any other means. Helicopters play a role in high value segments of the tourism industry; scenic tours and heli-skiing are particularly popular in Canada. They are also used in agriculture, for tree-planting and aerial application for example. These are merely some of the multiple uses of commercial helicopters in Canadian industry and society.

CASE STUDY

Cougar Helicopters ~ Servicing Offshore Oil and Gas Fields

One of the world's largest oil platforms is located off the coast of Newfoundland, and requires a significant number of personnel who are essential to the day-to-day operation of the platform – from operations engineers to drill crew. Given the unique working environment due to distance and weather conditions, helicopter service is essential to providing safe and efficient offshore transportation of employees. Cougar Helicopters works directly with oil field operators to coordinate daily scheduled flights for crew changes, manage ad hoc passenger and flight requests, and address any issues that may arise to ensure reliable and swift passenger movements.

Since 1997, Cougar Helicopters has played a key role in transporting personnel to and from the offshore Hibernia oil field from its base in St. John's, Newfoundland and Labrador. Operating a fleet of four Sikorsky S-92 aircraft from its base in Newfoundland, the company provides the only meaningful transportation link to the oil fields. It also provides search and rescue services to offshore operators. Over the past 18 years, Cougar Helicopters have operated nearly 16,400 flights from St. John's to Canada's east coast offshore oil fields, transporting more than 300,200 passengers.

A VIH Aviation Group company, Cougar Helicopters began operating as the offshore helicopter service provider for the Nova Scotia offshore oil industry in 1984, and returned to Halifax in 2009 to provide helicopter service for the Deep Panuke offshore project, an offshore natural gas field off the coast of Nova Scotia. Services to offshore vessel locations include safe and efficient transportation of employees and equipment from the company's Halifax base. Cougar Helicopters currently operates two aircraft types - the Sikorsky S-76 and S-92, from its Halifax base.

The Hebron Project, another heavy oil field located off the coast of Newfoundland and Labrador, is currently under construction. Cougar Helicopters will be servicing a fourth offshore oil and gas fields operator. Once in full operation, the Hebron oil field is expected to have two rigs, one for drilling and one for production, which will require Cougar Helicopters to acquire a fourth aircraft.

Cougar Helicopter has partnered with Norway's Vertech Offshore AS to provide offshore aerial construction services, conducting precision flare tip replacements for global offshore locations safely and efficiently. Other value added services include security, traffic control, dispatching, emergency medical services and flight following. Focusing on the oil and gas industry, Cougar Helicopter's existing clientele includes Hibernia Management Development Corporation (HMDC), Suncor, Husky Energy and Encana.

1.3 Examples of Activities Facilitated by Canada's Commercial Helicopter Fleet

Many types of businesses utilize helicopters to help facilitate their ongoing operations. For some Canadian industries, helicopters are an integral part of a firm's operations and without access to this type of transportation; their business activities would be seriously hindered. Helicopters are used to meet the need for safe, flexible, and cost-effective access to small and remote locations that may be impossible to reach by other commercial air services or any other means of transportation.

- **Easily access remote locations**. Helicopters are versatile and flexible; it is for these reasons that helicopters are the aircraft of choice to travel to remote and desolate locations due to their versatility and their ability to land and take-off in a confined area. Helicopters have the ability to transport goods and supplies to locales that may not be accessible to fixed wing aircraft. Flying overwater and over demanding terrain while confronted by the challenges of limited landing space highlights the versatility of the helicopter.

- **Perform life-saving activities**. Helicopters also perform a wide variety of life-saving activities; these include playing an integral role in extinguishing wild fires, search and rescue operations in remote and mountainous areas and also life-saving medical evacuation services. Helicopters are also able to perform these tasks and services with short notice and they are effective and efficient when called into service because they are able to travel point-to-point, and have no requirement to use airports. The timeliness and flexibility of helicopter service for the transport of emergency medical personnel or patients to/from accident scenes and/or medical facilities is priceless. This service is especially critical for residents of lower-density communities such as those in the interior of British Columbia, Alberta, and northern Québec. In 2014, Canada's helicopters provided nearly 5,400 life-saving missions, including EMS or search and rescue flights.[2]

- **Facilitate business activities and corporate travel**. Canadian businesses use the services of helicopters to help facilitate business transactions; transportation of technicians and customer service personnel to different work site locations; and provide integral support service to challenging maintenance and repair projects for a variety of industries. An example is performing required work on an oil rig that is located off shore. Helicopters are able to provide the precision and technical ability needed to complete the job.

[2] Source: Canadian Helicopter Industry Economic Footprint survey of operators.

- **Work in a variety of industries**. Canada's helicopter fleet is involved in a vast spectrum of activities in a number of different industries. In addition to providing life-saving operations discussed above, the commercial helicopter fleet provides services to a number of industries including oil and gas, resources and mining, geological exploration, tourism and also filmmaking/production.

- **Transportation of cargo and parts**. Some firms may use their fleet of helicopters to move cargo and parts. The use of a helicopter easily moves the required items to remote locations and provides services on a timely basis, allowing firms to optimize their operations.

- **Presence of Canada's helicopter industry, internationally**. Canadian helicopter operations and maintenance expertise is highly valued in the international community. Some of Canada's largest helicopter operators export their services through the setup of operations and MRO bases globally. Often, Canadian helicopter operators operating internationally are performing similar services (e.g., shuttle and emergency services) as they would be domestically, in Canada.

1.4 The Evolving Helicopter Industry[3]

Helicopters are employed in activities which emphasize the strengths of the helicopter's low airspeed, hovering, and vertical take-off/landing capabilities. Traditionally, helicopters have been used in applications including agriculture, construction, firefighting and search and rescue, short-haul passenger shuttle/cargo transport, public law enforcement, and media reporting and broadcasting. In recent years, with greater emphasis on offshore drilling and oil/mineral exploration, helicopters have assumed an important role in providing essential transportation for offshore oil and gas operations, and to the mining industry and its workers.

Major technological innovations in the helicopter industry have also occurred both with respect to the design and operation of commercial helicopters. 3D modelling and the related growing use of 3D printing for helicopter fuel system, rotor, and interior components have axed production cycles and increased export capacity, enabling the industry to be better prepared to meet growing demand in areas such as wildfire fighting, exploration, and shuttle transport. Operations breakthroughs, such as the pioneering of low-noise helicopter IFR approaches by Airbus Helicopters/Eurocopter, opens further frontiers for expanded rotor wing traffic potential at major, noise-sensitive airports and urban heliports.

In addition, the use of alternative fuels also presents fuel savings potential, making the economics of helicopters missions more attractive especially in competition with fixed-wing aircraft and alternative modes of transport. Greater efficiencies from high-compression turbine engines, such as those from the consortium of AustroEngine and TEOS, are also likely to see mass adoption, with legislation such as Europe's Clean Sky Initiative directing more stringent environment protection regulations against air traffic emissions.

[3] Source: Helicopters Magazine

Structurally, aerodynamics and fuel-saving enhancements are also increasingly prevalent. The popularity of tail rotor enhancement and stability systems, for instance, have found increasing adoption by both civilian and defense helicopter users. Such retrofits have been found to significantly improve high altitude and challenging environment performance of the aircraft.

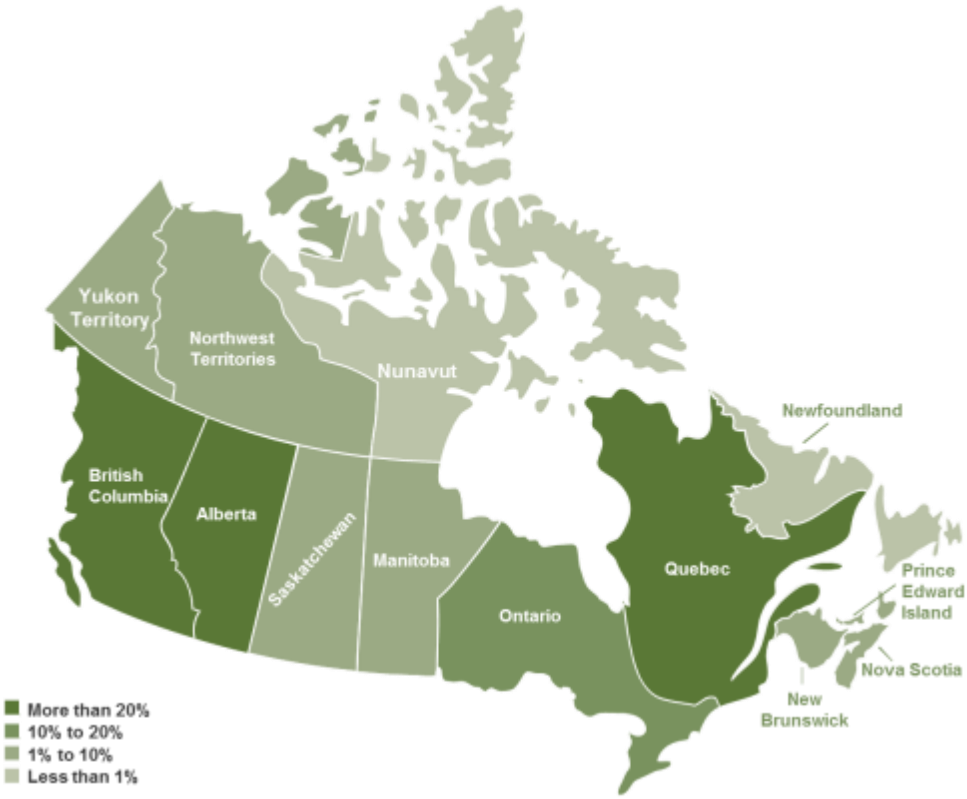
2 The Canadian Commercial Helicopter Industry: *By the Numbers*

2.1 Introduction

The number of active commercial helicopters in Canada has been growing. Based on the Canadian Civil Aviation Aircraft Register, from Transport Canada, 2890 rotor-wing aircraft currently operate in Canada as of 2015. Of this total helicopter fleet, there are 1,858 commercially registered rotary aircraft in Canada. Roughly 30% of the nation's commercial helicopter fleet is based in British Columbia. Both Alberta and Québec are home to approximately 20% of the fleet each. Ontario has the fourth largest commercial helicopter base with 12% and the Northwest Territories is in fifth place with nearly 8% of Canada's commercial rotary fleet. The remaining provinces combined make up the remaining 10% of the total fleet. **Figure 2-1** shows the relative share of commercial helicopters in Canada, by province and territory.

Over 80% of Canada's commercial helicopter fleet resides in B.C., Alberta, Quebec and Ontario

Figure 2-1:
Commercial Helicopters in Canada, by Province and Territory



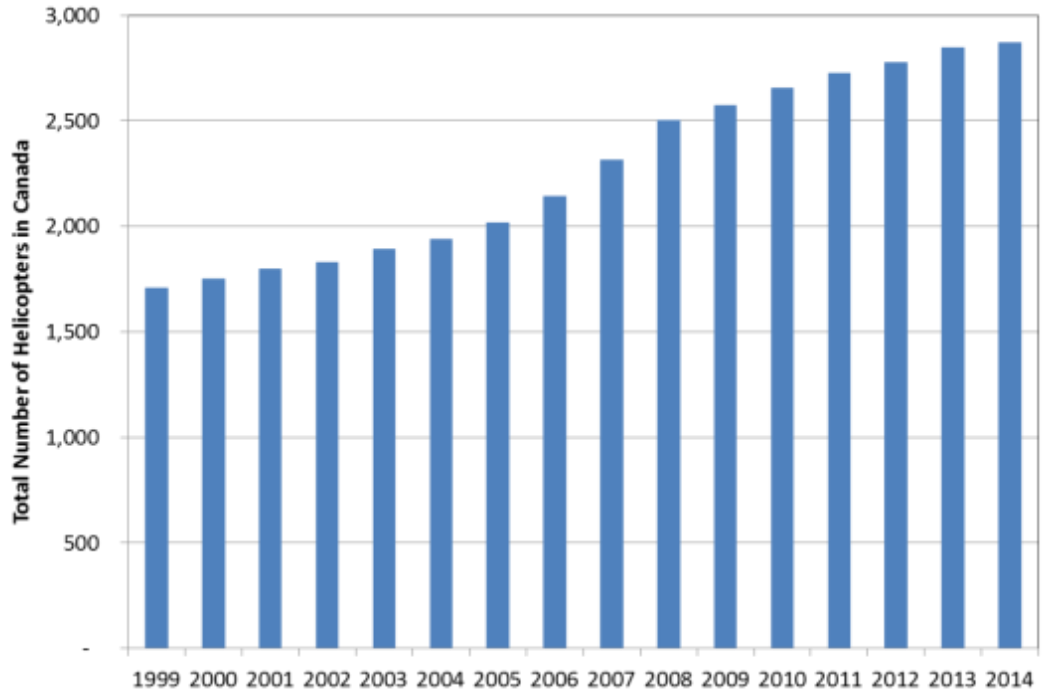
Source: Transport Canada's Canadian Aircraft Registry and HAC Economic Footprint Survey.

2.2 The Size of the Canadian Helicopter Industry[4]

According to the Canadian Civil Aviation Aircraft Register, the total number of helicopters in Canada has been steadily increasing since 1999 with roughly 1,700 helicopters compared to over 2,800 in 2014. This includes helicopters registered for all uses - not just commercial operations. **Figure 2-2** shows the annual helicopter fleet size in Canada from 1999 to 2014.

The current number of commercially registered helicopters in Canada is over 1,800 aircraft. A historical time series of the fleet of commercial helicopters in Canada is not currently available from Transport Canada.

Figure 2-2:
Total Number of Helicopters in Canada,
All Uses,
1999-2014



Source: Canadian Civil Aircraft Register: Number of Aircraft by Category of Aircraft, Transport Canada.

[4] Data on current commercial helicopter operations in Canada is limited in contrast to those available for counterparts in the United States and Europe. The United States provides data for helicopters and is available in more detail, including hours flown and with more granular safety statistics. Monthly breakdowns of traffic data are similarly available for commercial rotor-wing operations in much of Europe. The lack of data in Canada inhibits further analysis of the breadth, activities, and significance of commercial helicopter operations in Canada.

CASE STUDY

Canadian Helicopters: Taking flight at home and abroad

Canadian Helicopters is the largest helicopter operator in Canada with 26 locations across the country. Backed by a rich 69 year history, Canadian Helicopters provides transportation solutions to a wide variety of industries across Canada. Established in 1947 Canadian Helicopters (then Okanagan Air Services) operated the first commercially licensed helicopter in Canada. Since that time, the Company's operations have grown considerably as more industries embrace the many benefits that helicopters offer. Canadian Helicopters was the founding member of HNZ Group, an international provider of helicopter transportation and related support services with 115 helicopters and 600 employees operating in Canada, New Zealand, Australia, Norway, Southeast Asia, and Antarctica, operating under multiple brands.

Canadian Helicopters has built its business around serving the industries that drive the Canadian economy. Some of Canadian Helicopters' projects include:

Rio Tinto Alcan (RTA), Power Transmission (Kitimat-Kemano, BC) - In 1951, Alcan embarked on the construction of its aluminium smelter operation in Kitimat, BC in conjunction with a hydroelectric power generating station in nearby Kemano. The project required the use of helicopters to assist with initial site assessments and construction of the transmission lines that would criss-cross the region's rugged mountain peaks and valleys. Once construction of the smelter and generating station was completed in the mid-1950s, helicopters were required to patrol RTA's transmission lines, transport RTA crew between the isolated communities of Kitimat and Kemano, and assist crews repairing downed transmission towers as a result of avalanches along the powerline routes. Sixty-five years later, Canadian Helicopters continues to provide helicopter service to support RTA's power generation and transmission operations.

United States Air Force, North Warning System (Canadian Arctic) - The North Warning System (NWS) is a series of 47 remote surveillance radar sites dotted along the arctic between Labrador and Alaska. The sites serve as an early detection warning system for military threats by air across North America's polar region. Canadian Helicopters has been providing helicopters in support of the NWS since the program's inception in 1990. Currently, Canadian Helicopters supplies 9 IFR medium and heavy helicopters for the purpose of hauling fuel to the radar sites and for transporting personnel and supplies to and between radar sites. The sites are isolated and the weather conditions austere, yet this project is one of the favourites amongst crew who enjoy the challenges and uniqueness of Canada's vast arctic.

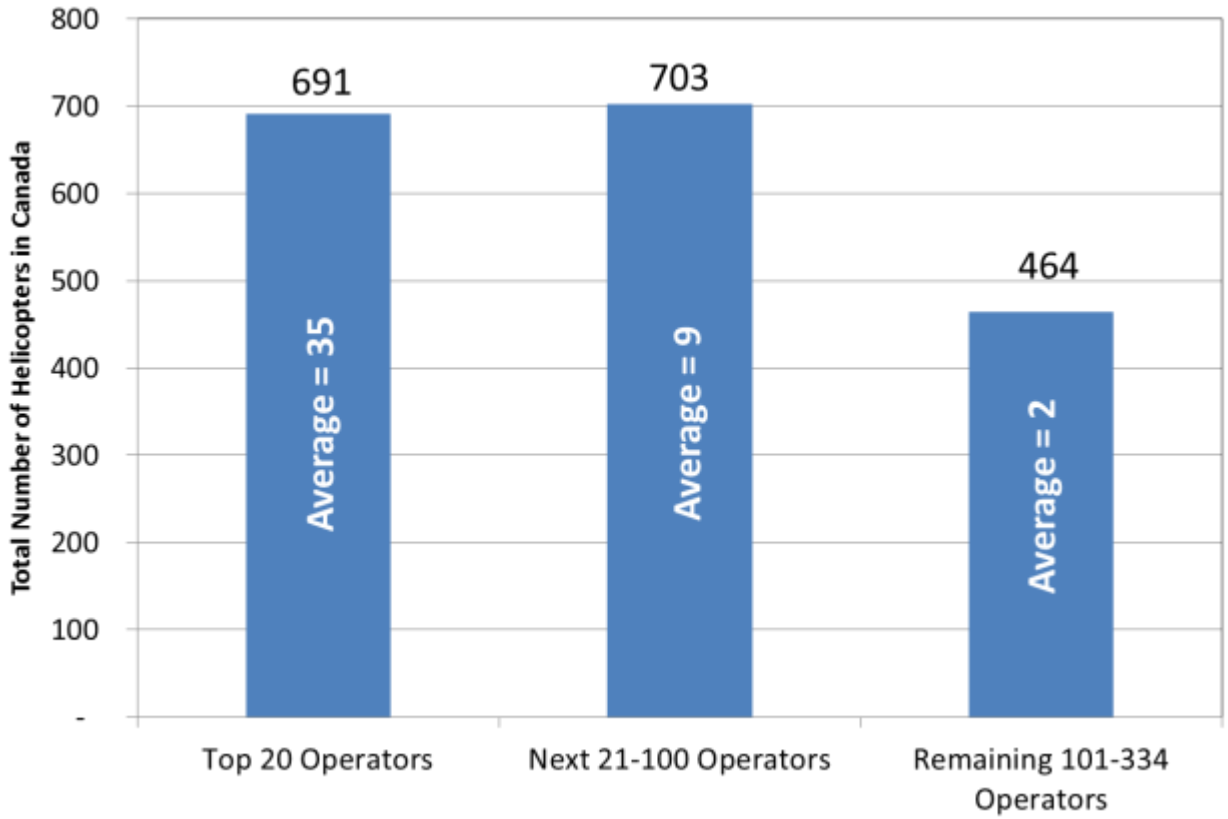
U.S. Military (Afghanistan) -Canadian Helicopters' work with the U.S. Air Force on the North Warning System acted as a springboard for Canadian Helicopters in the International arena. In 2009 Canadian Helicopters commenced its first International assignment; an assignment which proved to be one of its most successful to date. During the peak operating period Canadian Helicopters had 11 contracted aircraft and 110 personnel dedicated to the project for the purpose of transporting passengers and cargo between central hubs and forward operating bases. By the time the project came to an end in the fall of 2014, Canadian Helicopters had flown over 60,000 hours, moved over 804,000 passengers and carried over 10 million lbs of mail.

Whether by enabling projects in remote and otherwise inaccessible regions or by creating employment for Canadians on overseas assignments, the contribution of helicopters to Canada's economy is distinct.

There are 334 unique operators in Canada that own and operate the nation's commercial fleet of 1,858 helicopters. The largest commercial operator in Canada is Canadian Helicopters with a fleet of 126 helicopters. Great Slave Helicopters and Mustang Helicopters are the next two largest operators with a fleet of 75 and 73 helicopters, respectively. The top twenty operators in Canada have a fleet of 691 helicopters flown for commercial purposes or roughly 37% of the total commercial fleet. The next eighty largest helicopter operators comprise 38% of Canada's total commercial fleet. The remaining 234 firms comprise 25% of the total commercial helicopter fleet for Canada. See **Figure 2-3**.

The 20 largest operators own nearly 40% of the nation's total commercial fleet

Figure 2-3: Distribution of Commercial Helicopter Fleet by Operator Size



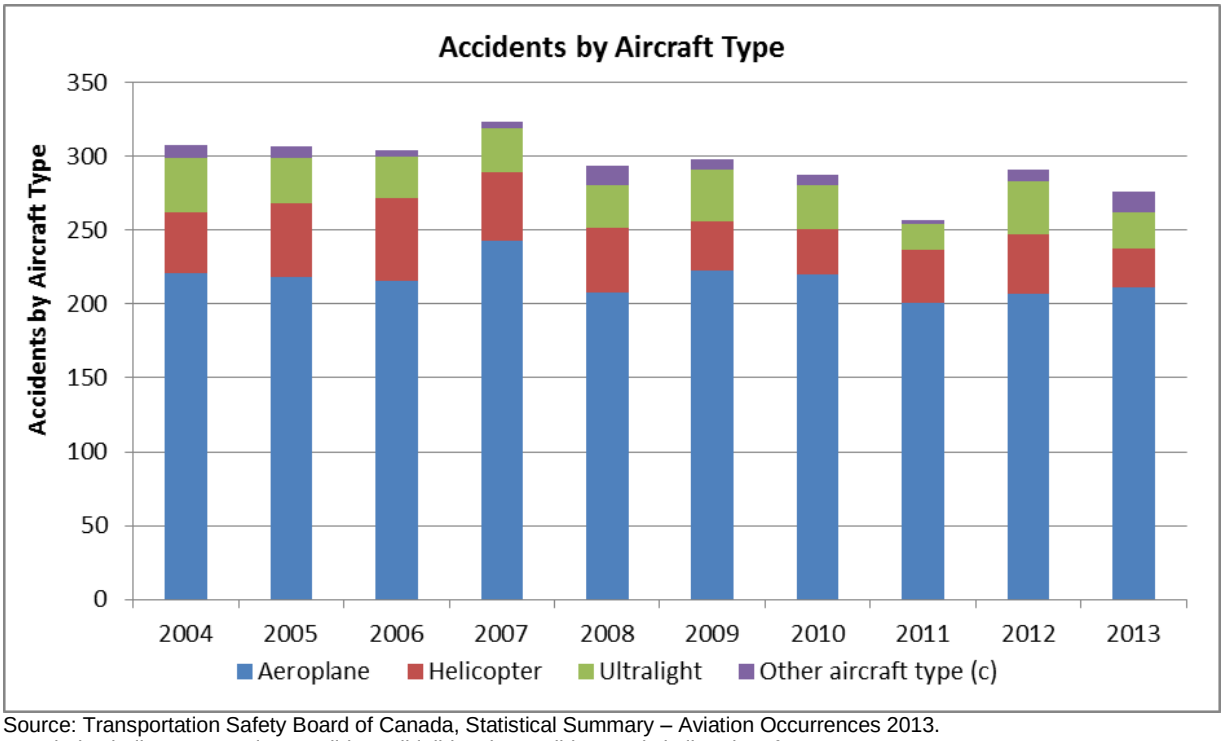
Source: Canadian Civil Aircraft Register: Number of Aircraft by Category of Aircraft, Transport Canada.

2.3 Safety Statistics

2014 was the first fatal accident-free year for the Canadian commercial helicopter industry

An improving safety record trend can be seen during the past ten years, pointing to potentially greater industry-wide safety standards design and implementation. The frequency of accidents has steadily declined to an average of 25-30 by 2013 from a typical range of 40-55 decade ago. This improvement has occurred on the back of an increasing fleet size, with the active Canadian helicopter fleet having grown by roughly 35% since 2006.[5] **Figure 2-4** shows the time series trend in accidents by aircraft type from 2004 to 2013. The volume of accidents involving helicopters has been trending downward. Statistics from the Transportation Safety Board of Canada show that in 2013, there were 275 aircraft accidents in Canada, only 10% of which involved helicopters. Of these total accidents, only 36 were fatal, 6 of which involved helicopters. It is to be noted that 2014 was the Canadian Commercial helicopter community's first fatal accident-free year. The absence of more detailed statistics relating to hours-flown by aircraft-type and operation-type limit a more sensitive analysis of helicopter safety based on utilization.

Figure 2-4: Accidents by Aircraft Type, 2004-2013

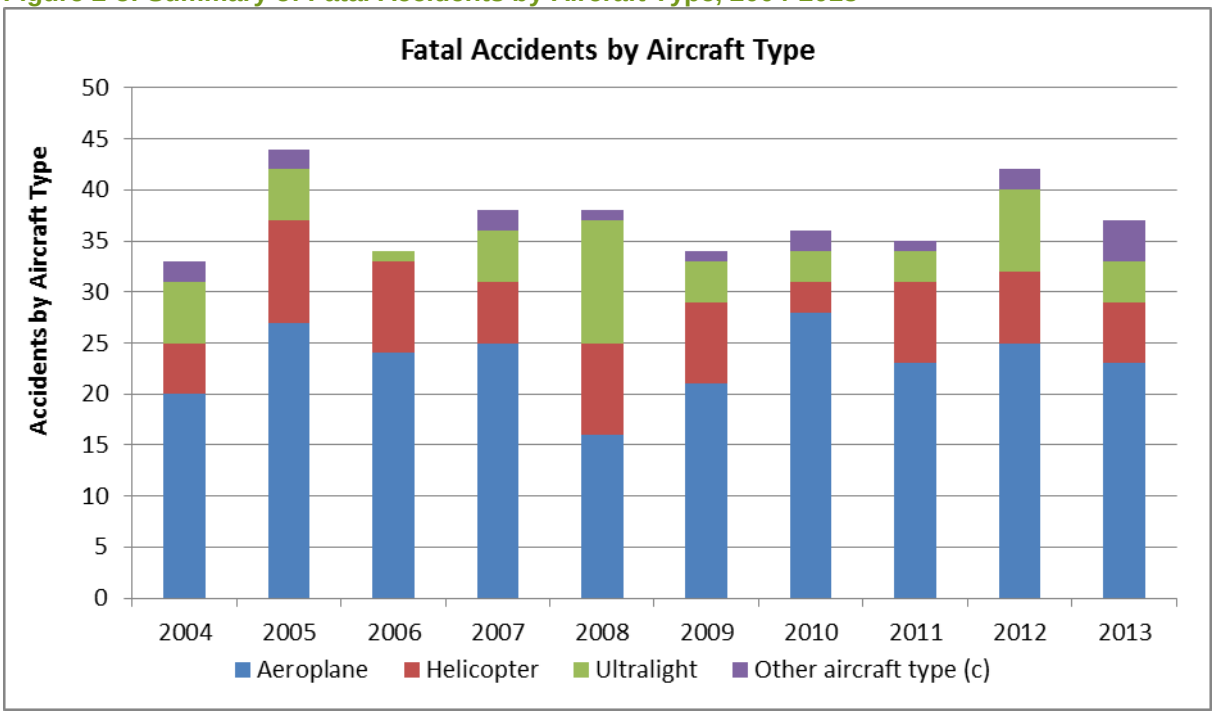


Source: Transportation Safety Board of Canada, Statistical Summary – Aviation Occurrences 2013.
c. Includes balloons, gyroplanes, gliders, dirigibles, hang gliders and similar aircraft types.

[5] Canadian Civil Aviation Register, *Transport Canada,* December 2006.

The trend points to fewer accidents on record in recent years. Since 2010, fatal incidents have dropped to between 11% and 15% of totals, with roughly 4-5 fatal accidents per year. However, as mentioned earlier, 2014 was the first year in where there were no fatal commercial helicopter accidents on record. As the size of the commercial helicopter fleet in Canada has been increasing, it is likely positive reinforcement of safer operating processes and improved training initiatives are creating material impacts. See **Figure 2-5**.

Figure 2-5: Summary of Fatal Accidents by Aircraft Type, 2004-2013



Source: Transportation Safety Board of Canada, Statistical Summary – Aviation Occurrences 2013.
c. Includes balloons, gyroplanes, gliders, dirigibles, hang gliders and similar aircraft types.

CASE STUDY

Phoenix Heli-Flight: Helping Save Lives

When a medical emergency occurs in remote industrial locations or as a result of motor vehicle collisions, emergency response and transportation is critical. Phoenix Heli-Flight has always been committed to providing on-demand medevac services. Since it began operations 20 years ago, the privately-owned company has been providing helicopter medevac services to individuals and private industry firms within a 400km radius of Fort McMurray, Alberta. To ensure on-demand medevac services are always available in Fort McMurray and the surrounding region, Phoenix Heli-Flight has founded a 24-hours, 7-days a week dedicated helicopter emergency response program. In addition to its dedicated medevac helicopter, the company also operates seven stretcher equipped helicopters. Together with paramedics from the Fort McMurray Fire Department, Phoenix Heli-Flight's 24/7 Helicopter Emergency Medical Services (HEMS) program has helped save lives in the region.

Proven Cost-effective Services

Based in Fort McMurray Airport, Phoenix Heli-Flight also offers cost-effective services to a wide range of industries. The company's pilots have worked closely with construction clients to assist with the placement of towers, air conditioning units and drills, saving time and money while ensuring both safety and efficiency. The earth sciences sector has also benefitted from Phoenix Heli-Flight's specialized experience in providing aerial support during surveys and data collection. Similarly, forestry management operations are highly dependent on helicopter transport for services such as cone cropping and reforestation. Phoenix Heli-Flight supports seismic work using helicopters equipped with Airborne Electromagnetic survey technology, a tool that is both efficient and environmentally friendly. Each year, the company also assists with wildfire suppression in remote areas throughout Western Canada.

Phoenix Heli-Flight has extended the advantages of helicopter transport to cargo hauling, moving a variety of items from tree seedlings to ATVs across the region. In addition to freight transportation, the charter helicopter company also helps with corporate transport and general transportation of personnel to remote locations quickly and comfortably. Scenic tours of Fort McMurray and the Oil Sands plants are also offered. Phoenix Heli-Flight provides comprehensive support services, designed and tailored to meet the unique needs of each client's mission – from refuelling at a remote location to floats mounted on skids.

From operating one helicopter when the company was established in 1990, Phoenix Heli-Flight's fleet has grown to 10 Eurocopter manufactured single and twin turbine engine light helicopters. The aircraft are each equipped with modern technology, and maintained at the company's operations hangar at the Fort McMurray Airport.

3 Economic Contribution of the Canadian Helicopter Industry

3.1 Introduction

Economic impact is a measure of the employment, spending and economic activity associated with a sector of the economy, a specific project (such as the construction of new infrastructure), or a change in government policy or regulation. In this case, economic impact refers to the economic contribution associated with the ongoing operations and activities of helicopter operators and helicopter-related businesses in Canada.

Economic impact is most commonly measured in several ways, including employment, wages, Gross Domestic Product (GDP) and economic output, as summarised in **Figure 3-1**. The helicopter industry supports both the local economies where the aircraft are based, and the Canadian economy as a whole. The importance of the industry is highlighted by both the employment/wage impacts and the impacts on the greater economy, through both GDP and economic output.

3.2 Categories of Economic Impact

The three major components of economic impact are *direct, indirect, and induced impacts*, as described in the sections below. These distinctions are used as a base for the estimation of total economic impact of an industry. Each of these three components requires different tools of analysis. Employment impact analysis determines the economic impact in terms of employment created and salaries and wages paid out. In the case of the helicopter industry, the direct, indirect, induced, and total full-time equivalents (FTEs) generated by helicopter-related activity are examined to produce a snapshot of the industry.

3.2.1 Direct Economic Impact

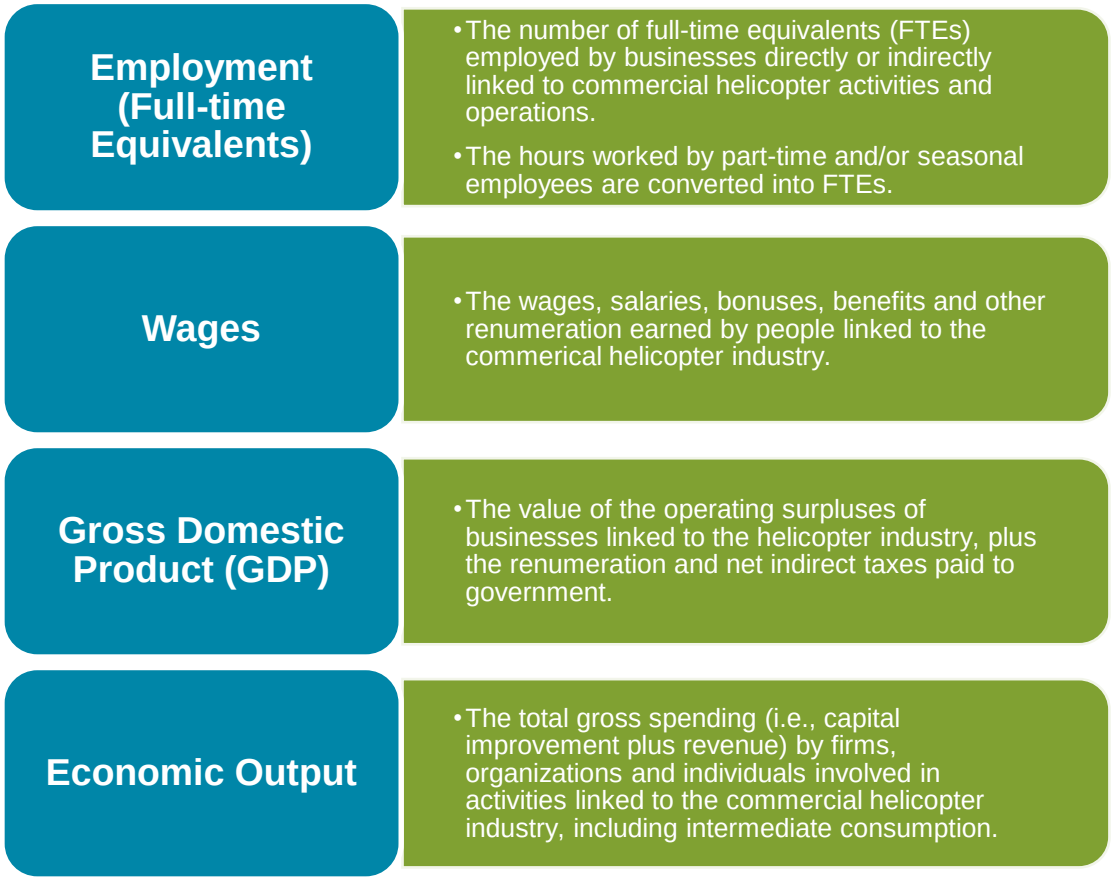
Direct impacts account for the economic activity of the target sector itself. It is the employment, wages, GDP and economic output that can be attributed to the operation and management of commercial helicopter activities, including pilots, engineers and dispatchers among others. This includes activities by helicopter operators and aircraft maintenance firms, among others, directly working with commercially registered helicopters in Canada.

3.2.2 Indirect Economic Impact

Indirect impacts are those that result because of the direct impacts. It is the employment, wages, GDP and economic output generated by down-stream industries that result from the presence of the commercial helicopter industry. For example, these could include oil refining activities for jet fuel,

companies providing accounting and legal services to helicopter operators, etc. Indirect employment is generated in industries that supply or provide services to the helicopter industry.

Figure 3-1: Measures of Economic Impact



3.2.3 Induced Economic Impact

Induced impacts are economic impacts created by the spending of wages, salaries, and profits earned in the course of the direct and indirect economic activities. It captures the economic activity generated by the employees of firms directly or indirectly connected to the commercial helicopter industry spending their wages in the national economy. For example, a helicopter pilot might spend his/her wages on groceries, restaurants, child care, dental services, home renovations and other items which, in turn, generates employment in a wide range of sectors of the general economy.

Total impacts are the sum of direct, indirect, and induced effects. These three categories of impacts are summarised in **Figure 3-2**.

CASE STUDY

Highland Helicopters: Supporting Canada's Resource Sectors

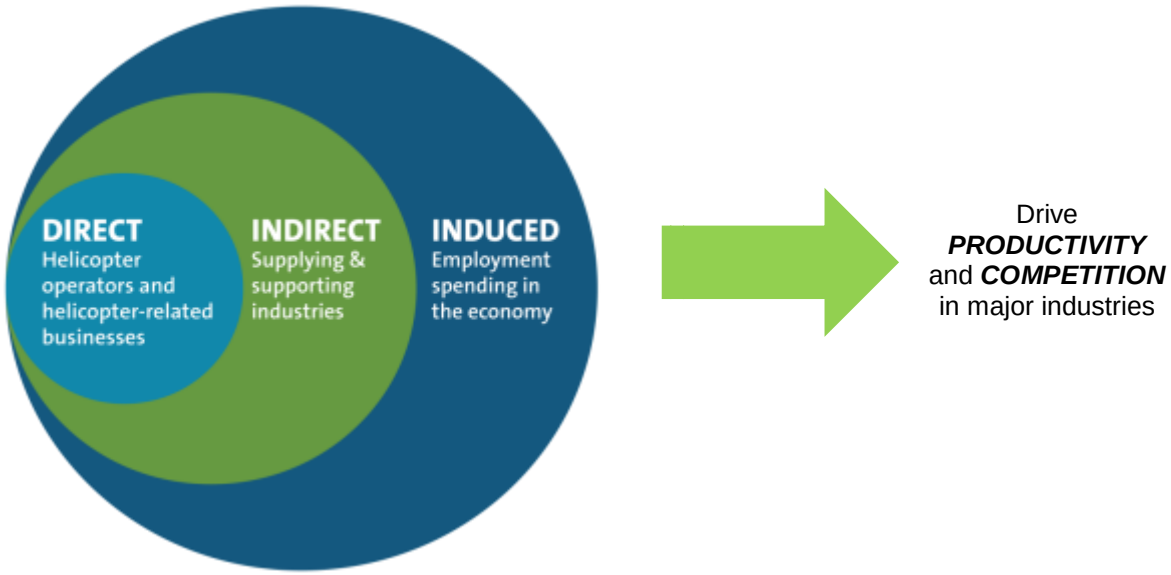
Through its network of bases, Highland Helicopters offers flight services across a variety of industries – in particular, Canada's resource sectors. Resource sector clients depend on Highland Helicopters to deliver safe, cost effective and reliable services. The majority of the firm's operations are in the oil & gas industry. Highland Helicopters supports oil and gas operations in Alberta and Northeastern B.C. by providing all types of services, including environmental surveys, transportation of crew and equipment, pipeline patrol and construction. For nearly 60 years, the company has been called upon by the forestry industry to provide aerial fire suppression services. In addition to delivering services to the forestry sector of B.C. and Alberta, Highland Helicopters has also assisted in forest fire suppression activities in Saskatchewan, Manitoba and Ontario. The helicopter operator can also assist in providing aerial media, aerial surveys and aerial mapping services. Furthermore, Highland Helicopters offers passenger charter transportation around the backcountry of B.C. and Alberta for lodge operators and back-mountain skiers.

Highland Helicopters operates 36 light and intermediate helicopters manufactured by Bell and Airbus, including a Bell 206B, Bell 206 L3, AS 350 B-2 and AS 350 B-A. With a maximum capacity of 6 passengers, these aircraft are used for transporting hydro, forestry and mining personnel, as well as external load operations (such as drills, supplies and equipment). Highland has 16 bases located across BC and Alberta, providing a wide-range of services across Western and Northern Canada for over 55 years. Highland Helicopters delivers helicopter services to both private and government firms. The company operates year-round, with the majority of its missions largely seasonal and occurring between May to October. Pilots receive recurrent pilot training, and require a minimum 1,500 flight hours. Pilots are involved in all of the company's operations.

Comprehensive Maintenance, Repair & Overhaul Facility

Highland Helicopters conducts regular daily maintenance for its fleet in-house at each of the operator's bases, as well as contracts out to third-party firms like Vector. The firm's maintenance facility in Richmond, B.C. offers full component of services including airframe overhauls. As a comprehensive maintenance, repair and overhaul (MRO) facility, Highland Helicopters is a Bell-Approved Independent Customer Service Facility, and provides MRO support for Bell and Eurocopter helicopters. Highland Helicopters has provided services to resource-based industries, government, telecommunication providers and the motion picture industry in some of the most rugged and remote locations with proven reliability and performance.

Figure 3-2: Categories of Economic Impact Generated and Facilitated by the Helicopter Industry



3.3 Direct Economic Impact of the Canadian Commercial Helicopter Industry

SUMMARY

In terms of direct helicopter activity, the Canadian helicopter industry generates almost **6,200 full-time equivalents (FTEs)**, and contributes **$0.8 billion to Gross Domestic Product (GDP)**.

Every commercially registered helicopter in Canada has associated employment to support its operations. The operation of the helicopters will require pilots, dispatchers, engineers, fueling services and maintenance among others to support the operation of the aircraft. The direct employment related to commercial helicopter operations in Canada will also include some support overhead labour (e.g., administrative and clerical staff). The direct impacts of the helicopter industry are largely related to the operations and servicing of the helicopter aircraft.

3.3.1 Direct Economic Impact

The commercial helicopter industry directly accounts for a total of almost 6,200 FTEs,[6] as shown in **Figure 3-3**. This estimate is based on roughly 4,700 FTEs identified from survey responses (76% of the total), plus nearly 1,500 FTEs (24%) estimated using the inference methodology described in **Appendix C**.

Average wage of the commercial helicopter industry is over $80,000 per annum, per FTE

These employees earn approximately $500 million in wages, yielding an average of $81,200 per FTE. This compares to an average annual wage in Canada of $48,600 across all industries.[7] This reflects the large number of high skilled positions that are supported by commercial helicopter activity.

In addition to jobs and wages, helicopter operators and helicopter-related businesses directly contribute a total of $0.8 billion to national GDP. Furthermore, direct employment from the helicopter industry generates $2.1 billion in direct economic output to the national economy. The estimates of GDP and economic output were based on multipliers derived from Statistics Canada's Input-Output tables as described in **Appendix C**.

Figure 3-3: Direct Economic Impact of the Canadian Helicopter Industry, 2015

Impact	Employment (Full-time Equivalents)	Wages ($ Millions)	GDP ($ Billions)	Economic Output ($ Billions)
Direct	6,200	$500	$0.8	$2.1

3.3.2 Direct Economic Impacts by Province

The economic impact of business aviation is also calculated for each of the provinces/territories in Canada. A map of the direct employment across the country is provided in **Figure 3-4**, while a breakdown of direct employment, wages, GDP and economic output impacts by province/territory is summarised in **Figure 3-5**.

Québec and British Columbia had the most direct jobs, accounting for 29% and 26% of direct FTEs, respectively. Alberta comprised of 20%, while the remaining provinces and territories accounted for 25% all together. The top three provinces cover approximately 75% of the direct employment associated with commercial helicopter activity in Canada.

[6] One full time equivalent (FTE) year of employment is equivalent to the number of hours that an individual would work on a full time basis for one year. In this study we have calculated one full time equivalent year to be equivalent to 1,832 hours. Full time equivalent years are useful because part time and seasonal workers do not account for one full time job.
[7] Statistics Canada, CANSIM, Table 281-0027, Earnings, average weekly, by industry (All industries), 2014, calculated for annual earnings.

Figure 3-4: Map of Direct Employment in the Helicopter Industry across Canada, 2015

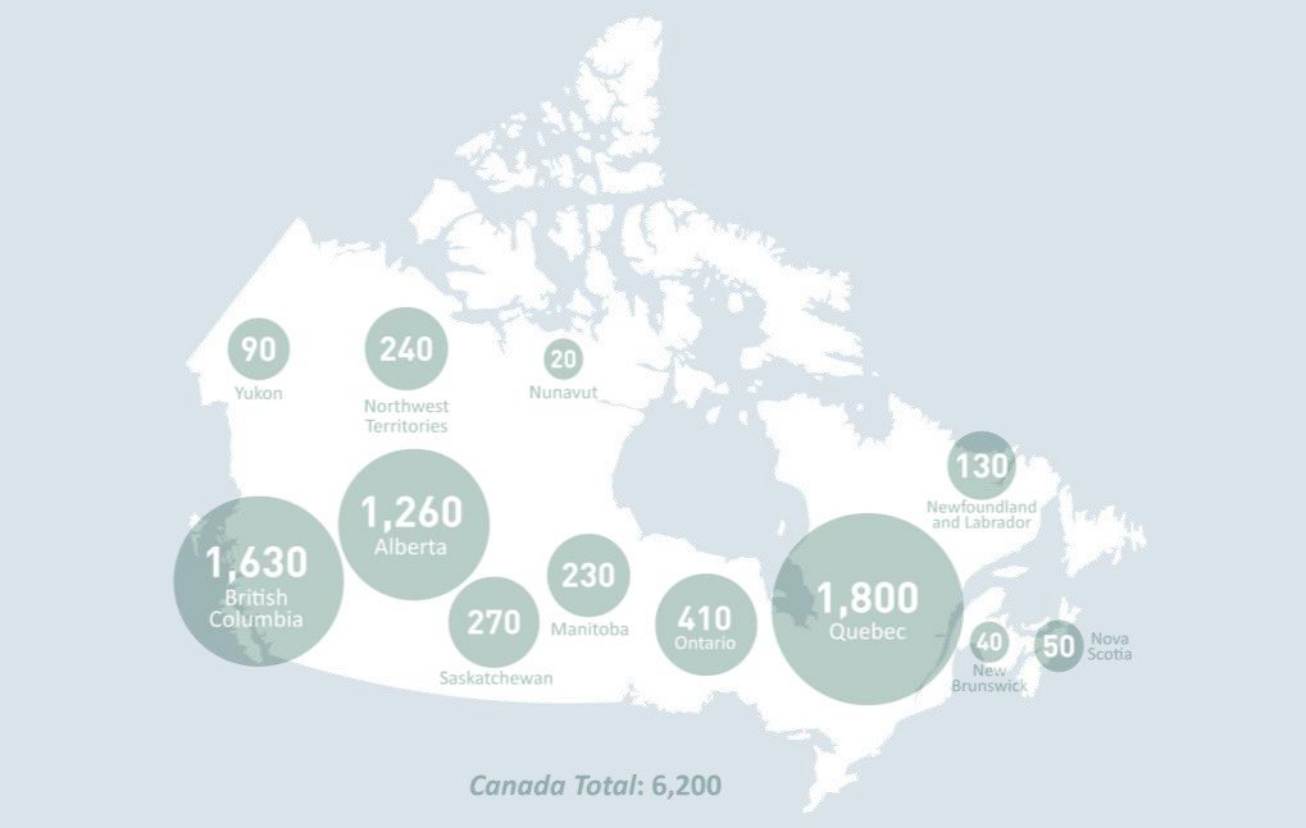


Figure 3-5: Direct Employment, Wages, GDP and Economic Output by Province, 2015

Province/Territory	Number of Based Aircraft	Employment (Full-time Equivalents)	Wages ($ Millions)	GDP ($ Millions)	Economic Output ($ Millions)
Québec	368	1,800	$155	$270	$640
British Columbia	561	1,630	$115	$165	$490
Alberta	380	1,260	$115	$195	$445
Ontario	230	410	$35	$50	$130
Saskatchewan	33	270	$20	$30	$80
Northwest Territories	140	240	$20	$30	$125
Manitoba	42	230	$15	$25	$65
Newfoundland and Labrador	39	130	$10	$15	$35
Yukon	46	90	$6	$8	$25
Nova Scotia	13	50	$3	$4	$15
New Brunswick	5	40	$2	$4	$10
Nunavut	1	20	$3	$4	$10
PEI	-	-	-	-	-
Total Canada	***1,858***	***6,170***	***$500***	***$800***	***$2,070***

Note: Totals may not sum, due to rounding.

3.3.3 Direct Employment by Job Category

The commercial helicopter industry is a source of a wide variety of job categories. A significant proportion of this employment is attributed to firms and employees supporting maintenance and engineering trades. Based on the completed surveys received for this study, a breakdown of direct employment in the commercial helicopter industry, by employment type, is provided in **Figure 3-6**.

Figure 3-6: Direct Employment by Job Category, 2015

Note: Breakdown of jobs by category is based on the 5,210 jobs identified from survey responses (76% of the total).

CASE STUDY

Helicopter Transport Services Canada: From Forestry & Mining to Motion Pictures

Helicopter Transport Services (HTS) began in 1976 when Luc Pilon founded a one heliciopter, one-person company called Nipissing Helicopters in North Bay, ON. Mr. Pilon is both a pilot and an entrepreneur and through the years, the company began to grow and expand. The company has now been in operations for 33 years and is headquartered in Ottawa, ON. The company's fleet currently includes two fixed-wing aircraft, in addition to its 60 helicopters (12 different aircraft types) that operate not only in Canada, but also globally including the U.S. and Australia. HTS has twelve Canadian operations bases including 3 in ON, 1 in QC, 1 in MB, 1 in SK, 1 in BC, 1 in NL, 3 in NU and 1 in NWT.

The firm began its operations working predominantly in the resource industry, with a focus on forestry and mining. Services include mineral exploration, surveying and operations support. They also specialize in heavy exploration drill movement in many isolated mineral exploration environments globally. Related, HTS provides aerial construction and heavy lift operations, utilizing aircraft that can lift up to 25,000 lbs. along with skilled pilots to manoeuvre parts. Aerial services for the petroleum industry are also provided which require the aircraft to operate in demanding environments.

HTS also provides life-saving operations which include fire suppression activities in Canada, the U.S., Australia and elsewhere. Air ambulance services are also conducted using helicopters that are fully equipped aircraft and staffed with certified paramedics.

In addition to the resource industry support and emergency operations, HTS also provides services in executive transport, electronic news gathering (e.g., CTV News in Toronto) and supporting the motion picture industry by providing helicopters that are certified for major camera types and mounts to enable the required filming and photography to be captured.

HTS, with its 33 years of operations represents many of the industries which rely on helicopters to further their growth and development in Canada and abroad.

The various occupations associated with the helicopter industry can be grouped into the following job categories:[8]

- **Maintenance and Engineering Trades** account for 35% of direct surveyed employment.
- **Helicopter Pilots** account for 24% of direct surveyed employment.
- **Helicopter-Related Support Trades** account for 11% of direct surveyed employment. This includes flight planners, refuellers, flight training instructors and dispatchers.
- **Managerial/Supervisory** roles account for 9% of direct surveyed employment.
- **Clerical** positions account for 6% of direct surveyed employment.
- **Other** occupations (such as food and beverage staff, lawyers, insurance brokers and contractors) account for 6% of direct surveyed employment.
- **Emergency Medical Trades** account for 5% of direct surveyed employment.
- **Sales** positions account for 4% of direct surveyed employment.

The top industries in which the commercial fleet works is as follows:

- Oil & gas including pipeline patrol & exploration,
- Medevac,
- Firefighting,
- Mining, including mining exploration, drill moves
- Forestry,
- Hydroelectric,
- Maintenance MRO, and
- Charter passenger.

[8] Breakdown of jobs by full-time, part-time, and seasonal employment is based on the 5,210 jobs identified from survey responses (76% of the total).

3.3.4 Direct Economic Impact Associated with Government Owned Aircraft

According to the Canadian Aircraft Registry, of the 1,858 commercially registered aircraft, there are 92 commercial aircraft that are owned and operated by government entities at either the municipal, provincial or federal levels. **Figure 3-7** shows the list of entities and their respective fleet size.

Figure 3-7: Summary of Government Owned and Operated Helicopters

Name of Entity	Number of Registered Helicopters
Transport Canada, Aircraft Services	29
Ornge	18
Government of Canada, Royal Canadian Mounted Police	9
Hydro One	8
Ontario Ministry of Natural Resources	8
Province of Nova Scotia, Department Of Natural Resources	5
Gouvernement du Québec, Service Aérien Gouvernemental	3
Government of Canada, National Research Council	3
City of Edmonton	2
Province of Ontario, Ministry of Community Safety and Correctional Services	2
City of Calgary, Calgary Police Service	2
Regional Municipality of Durham, Durham Regional Police Service	1
City of Winnipeg	1
York Regional Police	1
Total Aircraft	**92**

Source: Canadian Aircraft Registry.

Based on these 92 aircraft, it is estimated that there are roughly 220 FTEs associated with the operation of these helicopters.[9] See **Figure 3-8**.

To put this into context, the employment associated with the 92 government aircraft comprise roughly 3.6% of the total estimated direct employment base of 6,200 FTEs that is associated with the entire commercial helicopter industry in Canada. The majority of the employment is in Ontario, with 150 FTEs, out of the 400 total direct FTEs in the province, which is roughly 38% of the province's estimated total direct employment involved in commercial helicopter activities.

[9] Note that the multipliers from Statistics Canada cannot split out the revenues generated by government aircraft vs private sector aircraft.

Figure 3-8: Total Economic Impact of Government Owned and Operated Helicopters, 2015

Impact	Employment (Full-time Equivalents)	Wages (Millions)	GDP (Millions)	Economic Output (Millions)
Direct	220	$17.7	$26.5	$70.9
Indirect	90	$7.3	$12.2	$34.9
Induced	80	$4.6	$9.7	$16.2
Total	**400**	**$29.6**	**$48.4**	**$122.1**

3.3.5 Direct Full-time, Part-Time, Seasonal and Contract Employment

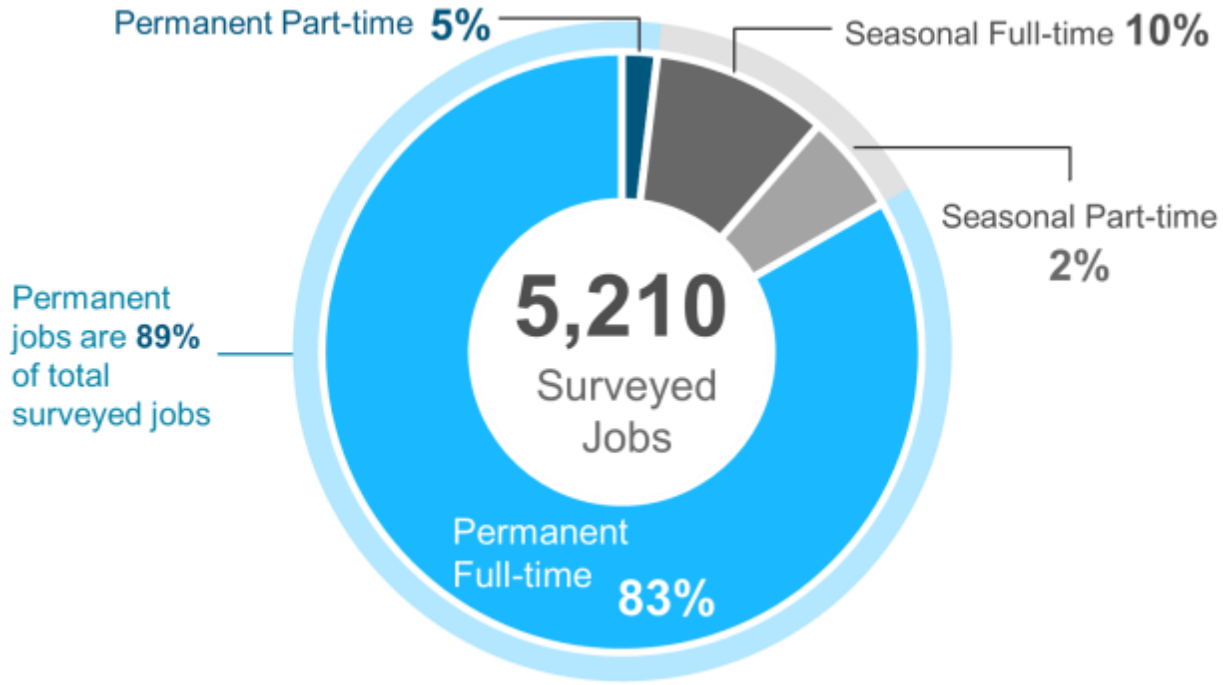
Based on information provided by the operator survey, 89% of the jobs are permanent jobs while seasonal employment represented 11% of jobs. Approximately 83% of these permanent jobs are full-time positions. This demonstrates that the commercial helicopter industry is a source of stable, year-round employment.[10] See **Figure 3-9**.

Contract Employment

Some employers contract out services to individuals and other firms. Based on responses to the survey, it was estimated that contracted individuals and firms account for 286 jobs.[11] Contract employment includes services that commercial operators contract out, for example, janitorial or IT services.

[10] Breakdown of jobs by full-time, part-time, and seasonal employment is based on the 5,210 jobs identified from survey responses (76% of the total).
[11] Breakdown of jobs by contract employment is based on the 5,210 jobs identified from survey responses (76% of the total).

Figure 3-9: Direct Full-Time vs. Part-Time Employment, 2015



Note: Breakdown of jobs by full-time, part-time, seasonal and contract employment is based on the 5,210 jobs identified from survey responses (76% of the total).

3.4 Indirect and Induced Economic Impact of the Canadian Commercial Helicopter Industry

SUMMARY

Including indirect and induced impacts (suppliers and spending in the wider economy), the Canadian helicopter industry generates close to **8,900 full-time equivalents**, and **$1.1 billion in Gross Domestic Product (GDP)**.

As noted previously, the economic impact of the helicopter industry does not end with the direct impacts. Other sectors of the economy benefit from helicopter activities. As described in **Section 3.2**, this includes indirect impacts in businesses that supply the goods and services to the direct activities linked to the commercial helicopter industry, and induced impacts resulting from direct and indirect employees spending their wages in the general economy. Thus, the total impact of commercial helicopters in Canada is the sum of the direct, indirect and induced impacts. The indirect and induced impacts were estimated using economic multipliers derived from Statistics Canada's Input-Output tables as described in **Appendix C**.

3.4.1 Direct, Indirect and Induced Economic Impacts in Total

Figure 3-10 summarizes the direct, indirect and induced employment, wages, GDP and economic output attributable to Canada's ongoing helicopter operations in 2015.

Based on the application of economic multipliers, it was estimated that 1,200 indirect FTEs are related to the helicopter industry of Canada. In other words, 1,200 indirect FTEs are indirectly generated in industries that supply the businesses directly related to helicopter operations. The wages or wages associated with the total indirect employment are estimated at $60 million per annum. Indirect GDP contribution is estimated at $0.1 billion per year, while indirect economic output generated is estimated at $0.3 billion annually.

The induced employment is the result of demand for goods and services generated by wages earnings of those directly or indirectly linked to the Canadian commercial helicopter industry. The induced employment attributable to the industry in 2015 is estimated at 1,500 FTEs, generating $80 million per annum in wages. The industry supports $0.2 billion in induced GDP and $0.3 billion in induced economic output, economy-wide in Canada.

The direct, indirect and induced impacts sum up to 8,900 FTEs, earning $640 million in wages. Furthermore, the helicopter industry in Canada contributes an estimated $1.1 billion and $2.7 billion, in total GDP and total economic output, respectively.

Figure 3-10: Total Economic Impact of the Canadian Helicopter Industry, 2015

Impact	Employment (Full-time Equivalents)	Wages (Millions)	GDP (Billions)	Economic Output (Billions)
Direct	6,200	$500	$0.8	$2.1
Indirect	1,200	$60	$0.1	$0.3
Induced	1,500	$80	$0.2	$0.3
Total	**8,900**	**$640**	**$1.1**	**$2.7**

CASE STUDY

Universal Helicopters Newfoundland and Labrador: Providing Access to Isolated Sites

For over 50 years, Universal Helicopters Newfoundland and Labrador LP (UHNL) has been providing services in austere and remote areas, enabling access to isolated sites that would otherwise be difficult to get to. Artic operations represent 25% of the company's missions, supporting federal government programs through personnel transport, over land or ice operations, cargo loading and logistics. With many of these operations based in remote areas, pilots need to cope with acute conditions where weather is more challenging. The extensive local area knowledge and experience of UHNL's pilots gives them a unique advantage in completing mineral exploration and research projects in the Arctic. Among the various research projects UHNL has supported in the Arctic region are Caribou and Polar Bear surveys, Hydrographic research and filming for international productions.

Approximately 85% of UHNL's missions are for the federal and provincial governments, while the remaining 15% is dedicated to the mining industry and other casual work (such as construction projects). The specialty helicopter services completed for government programs include Environmental Impact Assessments, which involve aerial survey and capture techniques for various species (such as wolf, moose and black bear). As well, UHNL provides search and rescue services and medical evacuation services to support operations of local police forces and health authorities. The company and its crew received the Igor J. Sikorsky Award for Humanitarian Service for providing relief and assistance to areas in New Orleans after Hurricane Katrina. With the Province of Newfoundland and Labrador comprised of expansive forest areas, UHNL also assists government agencies in forest fire suppression.

UHNL operates 19 aircraft, including a Bell 407, Bell 206L4, Bell 206LR, Eurocopter AS350BA, Eurocopter AS350B2 and Eurocopter AS350B3e. These helicopters are used on diverse missions across the province of Newfoundland and Labrador, reaching north into the Ungava Peninsula, further up the High Arctic, and across to other regions of Canada. In addition, the company is certified to operate internationally, and has provided helicopter services in the United States and Greenland. Since 1963, UHNL has been offering a wide range of helicopter specialty services from air taxi, to mountain operations, to wildlife surveys for a wide range of clients in the private and public sector. In late 2013, the company changed ownership and is now an aboriginal company, with majority owned by the Inuit of Labrador.

The 27 pilots of UHNL are all trained in-house, and are trained for all missions. Thus, UHNL staff are very knowledgeable in the helicopter industry and in the firm's diverse client industries. Similarly, maintenance, overhaul and inspection of the organization's aircraft are also done in-house. As a certified Bell Customer Service Facility, UHNL also provides maintenance, overhaul and inspection services for external third party clients.

Innovators in Emerging Technologies

As innovators in emerging technologies, UHNL actively participates in research and testing of industry developments. They are a key player in sharing these developments with other operators and stakeholders in the industry. The firm was among the first across the globe to operate the Bell 407. Furthermore, UHNL is a pioneer in flight tracking systems, and took part in the initial research and design of the Satellite Flight Following System. Today, these aircraft and technologies have matured in the industry, and the innovative firm continues to serve as a test company for new systems.

3.5 Taxation Impact

SUMMARY

Annual tax contributions of the helicopter industry in Canada amount to **$285 million**.

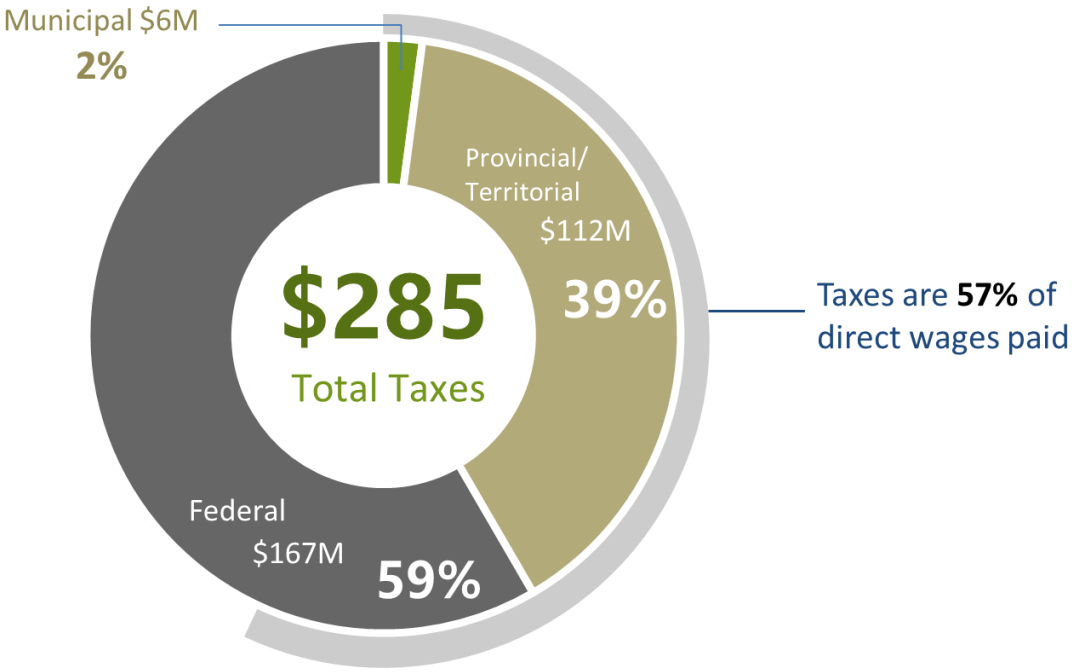
Along with contributing to the greater economy, the helicopter industry also contributes to government revenues via taxes. While the government does collect taxes on fuel and other operational fees, due to data availability the taxation impact calculated here focuses on the taxes paid by direct employees and employers in the industry.

Taxes paid by direct employees and employers include wages and payroll taxes, corporate taxes and social insurance contributions (such as the employment insurance premiums) among others. For the most part, this study **estimates** taxes paid from information on the employers and employees in the industry. In a few situations, such as the corporate wages tax paid by employers, an approximate method was used to estimate taxes paid. In every case conservative methods were used.

On-going economic activity from the helicopter industry in Canada generated tax revenue contributions to various levels of government, estimated to be in the order of approximately $285 million.[12] The federal government is the largest recipient of tax revenue, receiving nearly $167 million, as seen in **Figure 3-9**. The provincial/territorial governments received a tax revenue contribution of nearly $112 million. Municipal taxes are estimated to be $6. A breakdown of tax revenue by province/territory is provided in **Figure 3-11**.

[12] Tax impacts are presented in 2015 dollars, using 2014 tax rates.

Figure 3-11: Breakdown of Tax Revenues by Government Level



Note: Tax impacts are presented in 2015 dollars, using 2014 tax rates.

Figure 3-12: Federal and Provincial/Territorial Tax Impacts by Province/Territory

Province/Territory	Federal Taxes ($ Millions)	Provincial/Territorial Taxes ($ Millions)	Municipal Taxes ($ Millions)	Total Taxes ($ Millions)
Quebec	$46	$42	$1.8	$90
British Columbia	$42	$31	$1.5	$74
Alberta	$37	$14	$1.1	$53
Ontario	$14	$11	$0.5	$26
Saskatchewan	$6	$3	$0.2	$10
Northwest Territories	$8	$3	$0.2	$11
Manitoba	$5	$3	$0.2	$8
Newfoundland and Labrador	$3	$2	$0.1	$6
Yukon	$3	$1	$0.07	$3
Nova Scotia	$1	$1.0	$0.04	$2
New Brunswick	$1	$0.4	$0.02	$1
Nunavut	$1	$0.3	$0.02	$1
Prince Edward Island	-	-	-	-
Canada Total	***$167***	***$112***	***$6***	***$285***

Note: Tax impacts are presented in 2015 dollars, using 2014 tax rates. Totals may not sum, due to rounding.

3.6 Economic Impacts per Commercial Helicopter

Each commercial helicopter operating in Canada contributes significantly to the economy. Every helicopter *directly* generates three FTEs, earning approximately $240,000 in wages per annum. This contributes $430,000 in *direct* GDP and $1.1 million in *direct* economic output to the Canadian economy each year. Annual tax contributions of one helicopter amount to $153,000 to the federal, provincial/territorial and municipal governments.

Including multiplier impacts, annual operations of a single helicopter supports labour hours for a *total* of five FTEs, earning $340,000 in wages. Furthermore, the *total* GDP contribution of one helicopter is estimated at $590,000 in GDP, while the *total economic output* is measured at $1.5 million annually. The direct and total economic impacts per helicopter are provided in **Figure 3-13** and **Figure 3-14**, respectively.

Figure 3-13: Direct Economic Impacts of 1 Helicopter per Annum

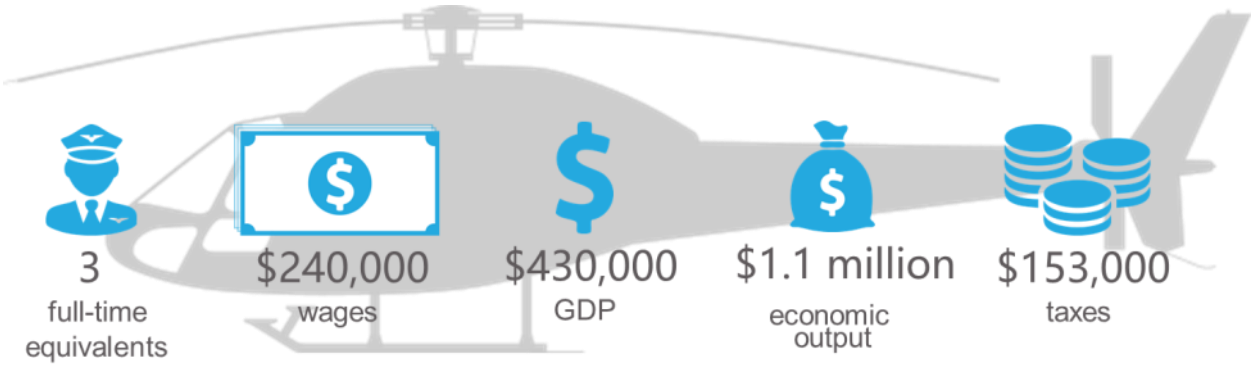
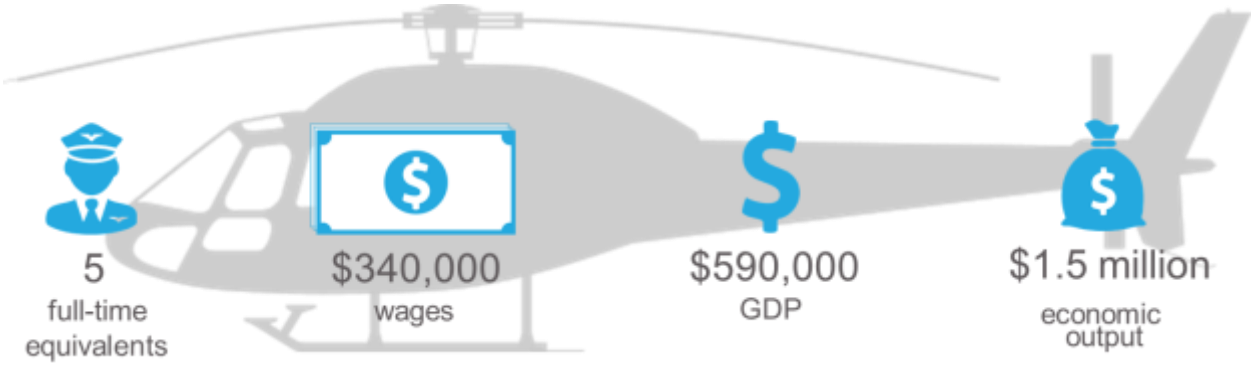


Figure 3-14: Total Economic Impacts of 1 Helicopter per Annum



4 Issues and Challenges Facing Canada's Commercial Helicopter Industry

4.1 Introduction

To better understand the challenges that exist within the helicopter industry in Canada, HAC member operators and associates were asked for their views of the state of the industry, and to identify issues and challenges to their industry.

Through the conduct of this study, all HAC member operators and associates were contacted via a survey and telephone interview. HAC member operators and associate members were asked their views on ongoing issues and challenges persisting in the industry, as well as any issues that are anticipated in the short-term. A sample copy of the survey is provided in **Appendix B.**

The following sections summarize the comments received by operators that participated in the survey process and InterVISTAS has categorized the comments into main themes. HAC also provided direct input to the following sections. The views presented are those of HAC and its operator members.

4.2 Key Issues and Challenges Identified by Canadian Operators and HAC

Airspace and Access

At many hospital helipads and heliports, encroachment by local construction and development in the community has resulted in the movement to H1 Classification. This has limited access by helicopters to all but the most expensive and powerful twin-engine helicopters, that are capable of sustaining flight on one engine during the approach and departure phases of flight. Notwithstanding that an engine failure in a modern turbine-powered helicopter is extremely rare, this new helipad classification criteria has prevented access to these otherwise suitable landing facilities by any single-engine helicopters and by most commonly used multi-engine helicopters. In the context of a hospital helipad or heliport, this means that patients with potentially serious life-threatening injuries must be taken by helicopter to the nearest airport before being transferred by land ambulance to a hospital. The delay could mean the difference between life and death for some patients, who could otherwise obtain the required care more quickly through direct access to the care facility, under extremely low-risk circumstances.

Access to a network of low-level IFR airways and direct routing, has constrained the use of helicopters for IFR and scheduled operations in Canada. Slower moving helicopters with more limited range are more difficult to integrate with the IFR movement of airlines in congested airspace. Furthermore, because helicopters are more vulnerable to aircraft icing in flight, they need to operate in low-level airspace – below the freezing level. Particularly in the absence of de-icing equipment, helicopters are particularly vulnerable at higher altitudes - at or above the freezing level in the spring and the fall seasons.

A focus by Transport Canada and NAV CANADA on the operations of the fixed-wing airline community has also resulted in an underdeveloped network of IFR approaches optimized for helicopters, which would allow access to a broader range of helipads and heliports through the use of precision GPS approaches, synthetic vision, Night Vision technology, and point-in-space approach (PINSA) development, for example.

Broad-stroke regulations are hindering the industry

Regulatory hurdles affecting commercial operators and customers

Canadian helicopter operators are known for their quality standards, but regulation is impacting the industry. Safety regulations designed for commercial air carriers are affecting the efficient operation of the helicopter industry. A large helicopter may have the same level of complexity of a large commercial jet, but operations and safety requirements are vastly different, and the industry cannot operate effectively with broad-stroke aviation regulations. Regulations that are designed to enhance safety and operations of a commercial airline may be out of step with those needed in the helicopter industry.

Helicopter operations are fundamentally different from airplane operations. Most helicopter operations are conducted in remote areas of Canada that are inaccessible by any other means. This means that crew changes and the movement of maintenance personnel and parts can be a challenge. Helicopter operations are largely seasonal operations that reach their peak in the summer months, and decline precipitously in the winter months. Many operators use the winter months to conduct major maintenance on their aircraft. Many helicopter operations are conducted in northern Canada, where there are extended daylight hours during the summer – and extended darkness hours in the winter. In the north particularly, there is intense pressure on helicopter operators to “make hay while the sun shines”.

Moreover, very conservative changes to the current flight and duty time limitations for commercial pilots, recently advanced by Transport Canada could drive commercial helicopter air operators to double the number of helicopter pilots on an operation. According to respondents, the regulations being advanced by Transport Canada, which operators believe are more suited to airline operations than to helicopter operations. will likely result in a shortage of skilled helicopter pilots, without any attendant improvement to flight safety. This serves as a constraint as there already is a shortage of experienced pilots in the industry. To cope with this challenge, helicopter operators will need to reduce services by grounding aircraft or downsizing their fleet – even during peak times of revenue generation. Consequently, this could lead to a financial burden on the end-user or a reduction in the available services.

Canada’s commercial helicopter industry also attracts many foreign students to its flight schools each year, due to its positive global reputation. For some flight schools, more than half of their students come from other countries. With a reputation for quality and student fees that are two to three times lower than those charged by other countries, Canada has a great advantage in attracting international talent – but regulatory hurdles are hindering the industry’s ability to provide the thorough training for which Canada is known. Foreign students are not allowed to stay in Canada beyond six months, which is not enough time for them to be properly trained. In order to get around this time limit, flight schools need to become approved government institutions, a lengthy process similar to a college or university applying for accreditation. Many students will look for work here, but more often, students must return home to seek employment.

Regional Disparity

For many years, the Canadian helicopter industry has been plagued by regional disparities in the interpretation of regulations. A re-organization at Transport Canada dating back some 25 years, removed from Transport Canada's Headquarters office the Line Authority to set and impose a national standard for the interpretation of regulations on the regions. Aviation is a federal area of responsibility, and because many of HACs operator-members operate from coast-to-coast, the application of the regulations can be very different from one province to another. What's more, operators in one province may not be operating according to the same standards as operators in a neighbouring province – in an area of federal regulatory authority. This results in considerable inconvenience and additional cost for operators.

Challenges with the New Generation of Pilots

Changing career expectations of younger pilots

There is currently a talent pool crunch in Canada, with many experienced pilots entering their retirement years. Newer pilots are having difficulty obtaining the needed flight hours, due to demands made by customers requesting a certain threshold of flying hours of experience. This is quite prevalent for clients in the oil and gas industry where minimum experience requirements are often imposed by contract. Those in the flight training industry find that the biggest hurdle is finding enough companies who are willing to hire pilots with only 100 hours of experience, which allow the new pilots to fly and gain experience. As a result, mentoring junior staff via on-the-job training has also become difficult as most clients are very prescriptive regarding pilot experience as opposed to competency. As new pilots are facing challenges to gaining on the job experience, the ability for the industry to continue to provide quality services to its customers has become strained.

Furthermore, there is a challenge facing the commercial helicopter industry, as the way the current generation of pilots approach the job is different compared to previous generations. With most helicopter operations occurring in remote areas, pilots are required to have a certain tolerance for austere conditions, which some helicopter operators believe younger pilots do not have. Younger pilots appear to have very different lifestyle expectations, with increased focus on obtaining a work-life balance and their priorities outside of the job. This has resulted in a need to temper personal aspirations. According to several helicopter operators, this is expected to create further retention issues going forward.

Resource Industry Trends

Low oil and commodity prices impacting operations

Although Canada has an abundance of natural resources, weak resource markets and low commodity prices at present have been adversely impacting clients. As a consequence, the volume of helicopter missions in recent history has been in decline. There is currently a major downturn in the resource industry due to declining base metal prices and low oil and gas prices. As a result, there is decreasing exploration and development activity in the country. With a significant percentage of helicopter services serving the mining industry *(approximately one-third of helicopter operators surveyed indicated having operations in mining)*, the decline in commodity prices has affected helicopter operations. Similarly, the fall in the price of oil has led to cuts in the exploration budgets of companies in the oil and gas industry. As a result, the commercial helicopter industry in Canada has an excess supply of commercial operators competing for a limited amount of work, which has translated into lower hourly rates for services.

Weakened Canadian Dollar

The low Canadian dollar has also been negatively impacting helicopter operators. The low Canadian dollar results in significant increases in the cost of aircraft, parts and services which are purchased in U.S. dollars. Some operators are concerned that there may be a potential prolonged effect on the commercial helicopter industry in Canada. Together with the other challenges faced by helicopter operators in Canada, the economic environment makes it harder to compete in the world market.

Weak Canadian dollar impacting the cost of doing business

Unmanned Aerial Vehicles

In the last two years, the popularity of Unmanned Aerial Vehicles (UAVs) has increased exponentially – for both recreational use and for commercial applications. The regulator has had difficulty educating consumers and controlling the use of recreational UAVs, and they present a significant safety mid-air threat to the operation of conventional manned helicopters – particularly in very low-level airspace where both helicopters and UAVs principally conduct their operations. Commercially operated UAVs present a different kind of threat – they are generally able to operate at a lower cost than conventional manned helicopters, and will present significant new competition for conventional manned operations, particularly as UAV technology and the Canadian regulations evolve to contemplate more liberal rules for beyond-line-of-sight operations. Low-level survey operations, surveillance, and pipeline and powerline patrol operations will be particularly vulnerable to competition from UAV's.

Use of Flight Simulators in Canada

Flight Simulators allow operators to train their crews to respond to realistic emergency situations that cannot be safely carried out in the aircraft. Furthermore, their use allows operators to train their Flight Crews using Scenario-Based training techniques, which allow them to recognize and respond to problems as they would unfold in real-life. Application of a document nearly 20 years since its last revision (TP9685) to certify Flight Simulators has resulted in operators of multi engine, IFR helicopters having to train exclusively in the United States, at considerably higher costs.

Declining Levels of Service from Transport Canada

In the last few years there has been a precipitous decline in the levels of service from Transport Canada. The combined effect of budget cuts to Transport Canada and the transition to Safety Management Systems (SMS) – which the helicopter industry supports – have resulted in less involvement by Transport Canada in the day-to-day of helicopter operations. There has been a movement away from the use of industry-trained Inspectors with flight operations or maintenance-related experience, to individuals who have been trained to analyse company systems. Canadian helicopter operators are receiving less contact from industry trained inspectorate staff with operational experience, except in the context of their Program Validation Inspections (PVIs), and the expertise that was once available to the helicopter community through these experienced individuals has been lost in favour of other administrative duties assigned to these individuals. Inspectorate staff shortages have also resulted in lengthy delays for important safety-related initiatives and manual amendments advanced by the operational community.

Unfair Competition from Government Air Operators

Some private sector air operators commented that some government AOC holders were offering their air services to other provincial departments (both within their home province, and in other provinces) and to federal government departments, and to private sector customers. They claimed that they were "competing with their own tax dollars", and cited that that government AOC holders are self-insured, and that their aircraft, facilities and staffing costs are paid for using tax revenue.

Main Competitor Has Fewer Regulatory Hurdles to Jump

Canada's main competitor is the United States. Survey respondents indicated that the U.S. helicopter industry faces fewer regulatory hurdles than its Canadian counterpart. For example, flight schools are not as regulated as those in Canada, and better overall weather means that training can occur throughout the year and hence, can be completed more quickly. In addition, U.S. operators have a lot of influence with their local aviation regulators - the Federal Aviation Administration. There is a lot more oversight of Canadian operators doing work in the U.S. compared to the reverse. For example, Canadian operators are allowed to do specialty air work in the U.S. under the terms of the North American Free Trade Agreement (NAFTA), but are not allowed to transport passengers. Thus, overall it is the impression of Canadian operators that it is easier from a regulatory perspective, for U.S.-based companies to work in Canada than for Canadian companies to operate in the U.S.

The U.S. helicopter industry faces fewer regulatory hurdles than Canadian Operators

CTA Regulations

A number of operators believe the process used by the CTA to determine whether a change in ownership circumstances satisfies the Canadian ownership requirements lacks clarity. They felt decisions that are issued by the CTA do not provide enough detail on the specific ownership circumstances to allow them to understand the reasoning that was applied by the Agency when the application is approved. Greater transparency would provide more substantive guidance to other operators preparing to restructure their own companies. There is also a perception among operators that by simply transferring the assets of the AOC holder to a company that is not subject to any ownership requirements and leasing those assets back to a Canadian shell company holding the AOC, the Canadian ownership requirements can be satisfied.

There was broad agreement with Recommendation four of the CTA Review Report, that suggested that the Government of Canada amend the Canada Transportation Act and Canadian Aviation Regulations to "review the approach used by the Canadian Transportation Agency to determine domestic control of an airline to ensure that it remains relevant and effective (i.e. focused on testing matters related to the strategic decision making of the airline, and taking into consideration the practices of comparable international jurisdictions for benchmarking)".

Canadian Ownership Limits

Many members of the Association commented negatively on a recommendation contained in the CTA Review Report released on February 25 2016, at pages 196-197 of Volume 1 that would allow 100% foreign ownership for all Specialty Air Service operations. Much of the work that is carried out by Canadian helicopter operators is classified as Specialty Air Service operations including, firefighting, aerial application, Utility (Hydro and Power Line) operations, aerial construction, pine cone harvesting, wind turbine de-icing, aerial tree planting, aerial photography and filming, Infra Red scanning, wildlife surveys, fish re-stocking, seismic work and drill-moves, aerial geophysical surveys, flight training operations - to name only a few.

HAC noted that the opportunity to "own" a Canadian operation is much more powerful than the very limited rights that NAFTA conveys for American operators to "operate" in Canada. Furthermore, the recommendation's reference to "Specialty Air Services" would capture all CAR 702 operations, and not just the 14 specific types of Specialty Air Services (SAS) identified in NAFTA. Considered together with the effect of our weak Canadian dollar; the state of the Canadian economy; and the overcapacity that exists in the Canadian helicopter market today, HAC believes that a number of Canadian operators would become vulnerable to a foreign takeover.

On a separate but related subject, HAC members commented on the importance of reciprocity with other foreign jurisdictions. They indicated that their experience with NAFTA has certainly been that a reluctance on the part of the Americans to extend truly reciprocal access to Canadian Specialty Service operators has largely negated the opportunities that NAFTA originally presented for Canadian Specialty Air Service operators. It is unlikely that the USA would ever be prepared to extend 100% foreign ownership rights to foreign interests. In the face of a “Buy American” policy and pressure applied by local American politicians, many Canadian operators have ceased work being conducted in the USA under NAFTA. Furthermore, if the ownership limit were to be increased to 100%, the pressure would intensify on Transport Canada to allow Restricted Category and ex-military aircraft to operate in Canada – a step that HAC members believe would be a retrograde step for safety.

A number of HAC members were also concerned by a recommendation in the CTA Review report that would allow an increase in foreign ownership limits to at least 49 percent for air carriers operating commercial passenger services that would include helicopter operators. HAC members are opposed to any increase in the current foreign ownership limits as they apply to helicopter operators, as they feel that there is currently sufficient access to capital in the Canadian market, and the effect of the recommendation would be to dilute Canadian ownership interests.

Competition from Private Air Operators

A number of helicopter operators commented on the growing competition from Private Air Operators. Some customers that have purchased aircraft of their own to carry out Aerial Work operations, also appear to be carrying contractors, joint venture partners, and many other people who are unrelated to the aerial work that is being carried out. There was concern expressed that in recent years, the scope of these private operations has expanded well beyond the carriage of corporate executives and the conduct of their own company Aerial Work operations to include operations that are caught by CAR 702 and 703. HAC believes that the absence of a strong regulatory surveillance presence and the isolated location of these operations may contribute to the fact that these apparent activities outside the scope of Private operations go undetected.

CASE STUDY

West Coast Helicopters: Providing Flexibility and Creativity

Founded in 1993 with two helicopters and a single base in Port McNeill on the northern coast of Vancouver Island, West Coast Helicopters' primary source of business in its early years was in the forestry sector. One of its earliest clients was Timber West, which needed personnel in Port McNeill flown in and out of its logging camp at Hankin Cove on the northwestern coast of Vancouver Island. The logging company had hoped that ferrying workers by air to the logging site would be more cost effective than establishing a base camp there. Although West Coast Helicopters' quote was slightly above the cost of building a camp, Timber West accepted the quote as the proposed helicopter service would increase their productivity, allowing the company to gain an extra two to three hours of work each day from their personnel.

This kind of flexibility and creativity is common in the helicopter industry. Rotary-wing aircraft often operate in niche markets where fixed-wing aircraft and other modes of transport cannot reach. The unique ability for helicopters to be at once nimble, operationally flexible and heavy lifters are perfectly suited to operate in Canada's unique landscape in a variety of industries.

Services in the Forestry Sector & Beyond

Initially, the forestry sector provided West Coast Helicopters with over 90% of its work, the remaining amount allocated to miscellaneous operations. West Coast Helicopters recognized the cyclical nature of the forest industry, and has since branched into several other sectors. While forestry still provides the company with 35% of its business, 20% now comes from tourism activity such as heli-skiing, heli-fishing and heli-hiking, 7% from contract work and 38% from miscellaneous operations which include aerial photography, medevac and search & rescue, aerial delivery, firefighting, and avalanche bombing, to name a few. Helicopter maintenance is also part of West Coast Helicopters' services. The company can service several helicopter types and is capable of building rotary aircraft from scratch if needed, and even provides industrial paint application. The company serves both commercial and private customers alike.

Expanding Fleet and Bases

West Coast Helicopters has also expanded its fleet and bases. The original fleet comprised of one AStar and one JetRanger but today includes 16 rotary aircraft of five types (the MD500, Robinson R44 Clipper and Bell LongRanger were added). With Port McNeill as their primary base, WCH has added bases at Campbell River, Nanaimo and Bella Coola. While the company is headquartered in British Columbia, they conduct operations all over Canada.

Appendix A: Glossary of Terms

Contract Work: Any work which is done for a company by an individual who is not on the payroll or work done for a company by another company. Generally speaking, firms will contract out work in areas in which they do not have expertise or when there are cost advantages to doing so.

***Direct Employment*:** Direct employment is employment that can be directly attributable to the operations in an industry, firm, etc. It is literally a head count of those people who work in a sector of the economy. In the case of the airport, all of those people who work in an aviation related capacity would be considered direct employment.

***Economic Activity*:** (also Output, Production) The end product of transforming inputs into goods. The end product does not necessarily have to be a tangible good (for example, knowledge), nor does it have to create utility (for example, pollution). Or, more generally, the process of transforming the factors of production into goods and services desired for consumption.

Economic Output: (also Economic Activity, Production) The end product of transforming inputs into goods. The end product does not necessarily have to be a tangible good (for example, knowledge), nor does it have to create utility (for example, pollution). Or, more generally, it is defined as the process of transforming the factors of production into goods and services desired for consumption.

Employment Impact: Employment impact analysis determines the economic impact of employment in terms of jobs created and salaries and wages paid out. In the case of FBO's, the direct, indirect, induced and total number of jobs or person years created at the FBO is examined to produce a snapshot of its operations.

Full Time Equivalent (FTE): (also Person Year) One full time equivalent (FTE) year of employment is equivalent to the number of hours that an individual would work on a full time basis for one year. In this study, we have calculated one full time equivalent year to be equivalent to 1,832 hours. Full time equivalent years are useful because part time and seasonal workers do not account for one full time job.[13]

Gross Domestic Product: (GDP, also value-added) A measure of the money value of final goods and services produced as a result of economic activity in the nation. This measure is net of the value of intermediate goods and services used up to produce the final goods and services.

Indirect Employment: Indirect employment is employment which results because of direct employment. For the FBO, it would include that portion of employment in supplier industries which are dependent on sales to the air transport sector. In some cases, contract work would be considered indirect employment.

Induced Employment: Induced employment is employment created because of expenditures by direct and indirect employees.

Multiplier Analysis: Analysis using economic multipliers in which indirect and induced economic impacts is quantified. Essentially, a multiplier number is applied to the "directly traceable economic impact" to produce indirect, induced and total effects (see Multiplier.)

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[13] *The Dictionary of Modern Economics*, David W. Pearce, General Editor, The MIT Press, Cambridge Mass.,1984

Multiplier: Economic multipliers are used to infer indirect and induced effects from a particular sector of the economy. They come in a variety of forms and differ in definition and application. A multiplier is a number which would be multiplied by direct effects in order to calculate indirect or induced effects. In the case of the airport, as in many other cases, multipliers can lead to illusory results, and thus must be used with great care.

Value-Added: (also GDP) A measure of the money value of final goods and services produced as a result of economic activity in the nation. This measure is net of the value of intermediate goods and services used up to produce the final goods and service.

Appendix B: Survey Examples

Helicopter Operators Survey

HAC

November 2014

To all Members of the Canadian Helicopter Industry:

Re: Helicopter Association of Canada Economic Footprint Project

A critical factor in winning community and government support for initiatives that benefit all helicopter industry-related businesses (and opposing initiatives that would hurt us) is our ability to demonstrate the significant contribution of the industry locally, provincially and nation-wide. The best way to show this is with an economic impact study. We often receive requests for economic information and it is important that the communities we are a part of, and the provincial and federal governments, continue to recognize the contribution of the helicopter business to the general economy. Furthermore, information relating to the importance of our industry is useful in HAC's advocacy efforts – when, for example the association wants to emphasis the impact of a regulatory initiative on the commercial helicopter industry and our customers – our current advocacy efforts with respect to the proposed new Flight & Duty Time regulations is the most recent example of this.

The Helicopter Association of Canada has commissioned Inter*VISTAS* Consulting Inc. to undertake an economic impact study of the Canadian helicopter industry. Inter*VISTAS* Consulting has produced many such studies for transportation sectors in aviation (e.g., airports) and marine (e.g., ports). The results of the study will be used to raise public and federal awareness of the helicopter industry's contribution to Canadian employment and economic activity.

We are seeking your cooperation to undertake this important study. I would ask that you participate in the attached employment survey. In order to keep this initiative on time and on budget, we request that you complete this survey as soon as possible.

The completed survey can be submitted directly to Inter*VISTAS* via **one** of the following methods:

- Electronically by email to geneva.tretheway@intervistas.com; or
- Fax to 604-717-1818 to the attention of Geneva Tretheway.

We appreciate that some of the information requested in the survey may be of a sensitive nature to your firm. Please be assured that Inter*VISTAS* will maintain the confidentiality of your survey response, and that the completed surveys will not be viewed by any party other than the researchers at Inter*VISTAS*. Inter*VISTAS* will maintain the confidentiality of your survey response and will not provide individual firm results to the Helicopter Association of Canada. Only aggregate survey totals will be provided in the final report. The published document will not reveal employment figures or other data for any individual firm.

The economic impact survey is under the supervision of Doris Mak, Director, Special Projects at Inter*VISTAS* Consulting. Should you have any questions regarding the study, please contact her at 1-877-717-6246 (ext. 1838). If you have a question about the survey, please contact Geneva Tretheway, Senior Consultant at Inter*VISTAS* Consulting, at 1-877-717-6246 (ext. 1856). Should you have any questions or concerns about the study or if you would like more information on the purpose and scope of the project, please contact me directly, at 1-613-884-1422.

Thank you for your co-operation in this important study. We look forward to the results.

Sincerely,

Fred Jones
President and CEO
Helicopter Association of Canada

HAC **Helicopter Association of Canada**
Industry Operators Employment Survey November 2014

The figures you provide in the following sections are strictly confidential and will be viewed only by Inter*VISTAS* Consulting and reported only in an aggregate form. For the purposes of this study, it is important that the figures you provide are as accurate and current as possible.

Name of Firm: _____

Address of Firm: _____

City, Province: _____ Postal Code: _____

Contact Person: _____ Phone Number: _____

Email: _____

When answering the questions below regarding your business, please include all related subsidiary businesses.

Q1a. Business Related to Helicopter Operations in Canada

We would like to identify the amount of employment associated with the helicopter industry in Canada. Please estimate the amount of your business (based on revenue) that is related to helicopter operations.

Helicopter Related Business in Canada: (as of October 2014)	%

Q1b. Number of Helicopters

Please indicate the number of helicopters that your firm currently operates.

Number of Helicopters	

Q1c. Domestic vs. International Business

For the percentage of your business related to helicopter operations, please provide a breakdown of revenues related to domestic market versus international market.

Proportion (%) Of Revenues Related to **Domestic Market**:	%
Proportion (%) Of Revenues Related to **International Market**:	%
TOTAL	%

**** Total should sum up to 100%. ****

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Industry Operators Employment Survey November 2014

Q2a. Type of Business

If you are involved in more than one of the business types below, please indicate what percentage of your revenue pertains to each category, by sector.

Business Type	% Domestic	% Inter-national
Oil & gas, including pipeline patrol and exploration		
Hydroelectric		
Telecommunications		
Forestry		
Mining, including mining exploration, drill moves		
Firefighting		
Construction		
Mapping & surveying		
Medevac		
Search & rescue		
Military, including contract work		
Film & photography		
Charter (passenger)		
Charter (freight/cargo)		
Scheduled (passenger)		
Scheduled(freight/cargo)		
Maintenance & MRO		

Business Type	% Domestic	% Inter-national
Sightseeing & tours, including heli-skiing, heli-hiking, ecotourism		
Parts supplier		
Flight training		
Utility flight operations		
Seismic operations of any type		
Wind farm operations		
Commercial transportation		
Aerial advertising		
Agricultural operations, including aerial application, frost flying, pine cone harvesting, and tree planting		
Other, please specify:		
Other, please specify:		
Other, please specify:		

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Industry Operators Employment Survey November 2014

Q2b. Life-saving Services

If you conduct life-saving, or EMS or Search Flights (i.e., lost hikers or climbers), of any description, please indicated the number of times that you have been called upon to provide service.

_____ life-saving or EMS or Search Flights in 2013

_____ life-saving or EMS or Search Flights in 2014

Q3. Total Employment in Canada

Please state the total number of employees you have at present. **This figure should include all full time, part time and seasonal work but should not include employment for work done on contract.**

Total Number of Employees in Canada only: (as of October 2014)	
Total Annual Payroll: (Excluding employee benefits, 2013 figures)	

Q4. Part-Time and Full-Time Employees

The sum of the permanent and seasonal employees listed in Q4A and Q4B should equal the number of total employees in Q3.

A. **Permanent Employees**: A permanent employee is one that works year-round. In reference to the number of total employees in Q3, how many are full-time and how many are part-time?

Number of Full-Time Permanent Employees:	
Number of Part-Time Permanent Employees:	
Total Permanent Employees:	

For part-time employees, on average, how many hours per week will they work this year?

# of Weekly Hours:	

If it is difficult to obtain this information or if there is great variation, you may provide a range of weekly hours (i.e., less than 10 hours, 10-15 hours, etc.).

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Industry Operators Employment Survey November 2014

B. **Seasonal Employees**: A seasonal employee is one that is hired for work during peak or specific time periods only. In reference to the number of total employees in Q3, please indicate how many are seasonal full-time and part-time employees (2014)?

Number of Full-Time Seasonal Employees:	
Number of Part-Time Seasonal Employees:	
Total Seasonal Employees:	

For seasonal workers, on average, how many **weeks** will they work this year (2014)?

Number of Weeks Per Year:	

For seasonal workers, on average, how many **hours per week** will they work this year (2014)?

Number of Weekly Hours:	

If it is difficult to obtain this information or if there is great variation, you may provide a range of weekly hours (i.e., less than 10 hours, 10-15 hours, etc).

Q5. Specialized Skills and Industry

The helicopter industry in Canada is far reaching and requires specialized skills. To get a better understanding of the profile of workers in the industry, in your operation, what percentage of your flight crews are foreign workers?

_____% of our flight crews are foreign workers

Q6a. Location of Employment in Canada

Please indicate the number or % of employees by province or territory.

Province/Territory	Number or % of Employees	Province/Territory	Number or % of Employees
British Columbia		New Brunswick	
Alberta		PEI	
Saskatchewan		Nova Scotia	
Manitoba		Yukon	
Ontario		Northwest Territories	
Quebec		Nunavut	
Newfoundland & Labrador			

HAC **Helicopter Association of Canada**
Industry Operators Employment Survey November 2014

Q6b. Employment by Trade

In order to reflect the diversity of employment at helicopter related businesses, please provide us with a breakdown of your total payroll employees, by position.

Employment by Trade		Number or % of Employees in Canada
General Ma	nagerial / Supervisory	
	Clerical	
	Sales / Customer Service	
Helicopter and Related Support Trades	Pilots	
	Flight Planners	
	Maintenance / Engineering Trades, including Apprentices	
	Emergency / Medical Trades	
	Refuelers and Ramp Workers	
	Security Agents	
	Dispatchers	
	Call Centre / Reservations	
	Warehouse / Hangar Labour	
	Drivers / Delivery	
	Cleaning	
	Food & Beverage Staff	
Other (Please specify)		

HAC **Helicopter Association of Canada**
Industry Operators Employment Survey November 2014

Q7. Outsourcing and Contracting Out

Since we do not want to exclude any employment, we would like you to briefly comment on whether your firm contracts out any important services.

A. **Individuals on Contract.** If you pay some individuals through a contract, as opposed through payroll, please indicate the number of such employees.

Number of Contract Employees:	

Of these employees on contract, how many **weeks,** on average, will they work this year? And, on average, how many **hours per week** do they work?

Number of Weeks Per Year:	
Number of Weekly Hours:	

B. **Firms on Contract.** Do you contract any work out to other firms? For example, janitorial services, ground handling, etc.

☐ **No.** (continue to next question)

☐ **Yes. If yes**, please complete the following table indicating the functions you contract out to other firms and an estimate of the annual hours on contract. Also include the names of the firms you use so we can ensure that we do not double count any work performed by other firms that we are surveying as a part of this study.

Function	Name of Firm	Estimated Number of Hours Performed by Firm in 2013
Example: Janitorial	*Spic and Span Cleaners*	*100 a year (2 hours per week)*

HAC **Helicopter Association of Canada**
Industry Operators Employment Survey November 2014

Q8a. Current Industry Issues

We invite you to identify or discuss key issues in the helicopter industry that are ***currently*** affecting your firm. Please use the space provided below, or attach an extra page (please include your firm's name on this page) when you return the survey.

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Industry Operators Employment Survey November 2014

Q8b. Looming Industry Issues over the coming 5 Year Time Frame

We invite you to identify or discuss looming industry issues in the helicopter industry over the next ***5 year time frame*** that may affect your firm. Please use the space provided below, or attach an extra page (please include your firm's name on this page) when you return the survey.

Thank you for your assistance in completing this survey.
Please click the submit button located at the top right hand corner when complete, or return this survey by email or by fax to:

Attention: Geneva Tretheway
geneva.tretheway@intervistas.com
Fax: (604) 717-1818

If you have any questions, please call Geneva at 1-877-717-6246 (ext. 1856)

Helicopter Associates Survey

HAC

November 2014

To all Members of the Canadian Helicopter Industry:

Re: Helicopter Association of Canada Economic Footprint Project

A critical factor in winning community and government support for initiatives that benefit all helicopter industry-related businesses (and opposing initiatives that would hurt us) is our ability to demonstrate the significant contribution of the industry locally, provincially and nation-wide. The best way to show this is with an economic impact study. We often receive requests for economic information and it is important that the communities we are a part of, and the provincial and federal governments, continue to recognize the contribution of the helicopter business to the general economy. Furthermore, information relating to the importance of our industry is useful in HAC's advocacy efforts – when, for example the association wants to emphasis the impact of a regulatory initiative on the commercial helicopter industry and our customers – our current advocacy efforts with respect to the proposed new Flight & Duty Time regulations is the most recent example of this.

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We are seeking your cooperation to undertake this important study. I would ask that you participate in the attached employment survey. In order to keep this initiative on time and on budget, we request that you complete this survey as soon as possible.

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We appreciate that some of the information requested in the survey may be of a sensitive nature to your firm. Please be assured that Inter*VISTAS* will maintain the confidentiality of your survey response, and that the completed surveys will not be viewed by any party other than the researchers at Inter*VISTAS*. Inter*VISTAS* will maintain the confidentiality of your survey response and will not provide individual firm results to the Helicopter Association of Canada. Only aggregate survey totals will be provided in the final report. The published document will not reveal employment figures or other data for any individual firm.

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Thank you for your co-operation in this important study. We look forward to the results.

Sincerely,

Fred Jones
President and CEO
Helicopter Association of Canada

HAC

Helicopter Association of Canada

Supplier Industry Employment Survey — November 2014

We believe that your firm may have involvement in supplying support good and services to the helicopter industry in Canada. Thus, we are interested to include your firm in the assessment of the economic footprint of Canada's helicopter industry. The figures you provide in the following sections are strictly confidential and will be viewed only by Inter*VISTAS* Consulting and reported only in an aggregate form. For the purposes of this study, it is important that the figures you provide are as accurate and current as possible.

Name of Firm: _____

Address of Firm: _____

City, Province: _____ Postal Code: _____

Contact Person: _____ Phone Number: _____

Email: _____

When answering the questions below regarding your business, please include all related subsidiary businesses.

Q1a. Business Related to Supporting Helicopter Operations in Canada

We would like to identify the amount of employment associated with the helicopter industry in Canada. Please estimate the amount of your business (based on revenue) that is related to helicopter operations in Canada.

Helicopter Related Business in Canada: (as of October 2014)	%

Q1b. Principal Business Activity

Please indicate your principal business activity. If you are involved in more than one of the businesses below, please choose the one that best describes your business (i.e., contributes the largest proportion of revenues).

- ☐ 1. Aircraft Maintenance, Repair and Overhaul
- ☐ 2. Fuel Storage, Supply or Logistics Services
- ☐ 3. Fixed Base Operator
- ☐ 4. Aircraft Leasing and Financing
- ☐ 5. Aircraft Parts Supplier
- ☐ 6. Aircraft Manufacturer
- ☐ 7. Aviation Related Manufacturing
- ☐ 8. Consulting or Professional Services
- ☐ 9. Ancillary or Support Services
- ☐ 10. Aviation Related Training (i.e., education)
- ☐ 11. Security Services
- ☐ 12. Government Agency/Department
- ☐ 13. Other: _____

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Q2. Total Employment in Canada

Please state the total number of employees you have at present. **This figure should include all full time, part time and seasonal work but should not include employment for work done on contract.**

Total Number of Employees in Canada: (as of October 2014)	
Total Annual Payroll: (Excluding employee benefits, 2013 figures)	

Q3. Part-Time and Full-Time Employees

The sum of the permanent and seasonal employees listed in Q3A and Q3B should equal the number of total employees in Q2.

A. **Permanent Employees**: A permanent employee is one that works year-round. In reference to the number of total employees in Q2, how many are full-time and how many are part-time?

Number of Full-Time Permanent Employees:	
Number of Part-Time Permanent Employees:	
Total Permanent Employees:	

For part-time employees, on average, how many hours per week will they work this year?

Number of Weekly Hours:	

If it is difficult to obtain this information or if there is great variation, you may provide a range of weekly hours (i.e., less than 10 hours, 10-15 hours, etc.).

B. **Seasonal Employees**: A seasonal employee is one that is hired for work during peak or specific time periods only. In reference to the number of total employees in Q2, please indicate how many are seasonal full-time and part-time employees (2014)?

Number of Full-Time Seasonal Employees:	
Number of Part-Time Seasonal Employees:	
Total Seasonal Employees:	

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For seasonal workers, on average, how many **weeks** will they work this year (2014)?

Number of Weeks Per Year:	

For seasonal workers, on average, how many **hours per week** will they work this year (2014)?

Number of Weekly Hours:	

If it is difficult to obtain this information or if there is great variation, you may provide a range of weekly hours (i.e., less than 10 hours, 10-15 hours, etc).

Q4a. Location of Employment in Canada

Please indicate the number or % of employees by province or territory.

Province/Territory	Number or % of Employees	Province/Territory	Number or % of Employees
British Columbia		New Brunswick	
Alberta		PEI	
Saskatchewan		Nova Scotia	
Manitoba		Yukon	
Ontario		Northwest Territories	
Quebec		Nunavut	
Newfoundland & Labrador			

Q4b. Employment by Trade in Canada

In order to reflect the diversity of employment at helicopter related businesses, please provide us with a breakdown of your total payroll employees, by position.

Employment by Trade		Number or % of Employees in Canada
General	Managerial / Supervisory	
	Clerical / Administrative	
	Sales / Marketing	
Related Support Trades	Maintenance / Engineering Trades, including Apprentices	
	Paint Services	
	Warehouse / Hangar Labour/Stores	
	Cleaning	

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Employment by Trade		Number or % of Employees in Canada
Other Skilled Trades	Sheet Metal	
	Composites	
	NDT (non-destructive testing)	
	Machinists	
Flight Crews	Flight Testing	
	Aircraft Deliveries	
Other (Please specify)		

Q6. Outsourcing and Contracting Out

Since we do not want to exclude any employment, we would like you to briefly comment on whether your firm contracts out any important services.

A. **Individuals on Contract.** If you pay some individuals through a contract, as opposed through payroll, please indicate the number of such employees.

Number of Contract Employees:	

Of these employees on contract, how many **weeks,** on average, will they work this year? And, on average, how many **hours per week** do they work?

Number of Weeks Per Year:	
Number of Weekly Hours:	

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B. Firms on Contract. Do you contract any work out to other firms? For example, janitorial services, ground handling, etc.

☐ **No.** (continue to next question)

☐ **Yes. If yes**, please complete the following table indicating the functions you contract out to other firms and an estimate of the annual hours on contract. Also include the names of the firms you use so we can ensure that we do not double count any work performed by other firms that we are surveying as a part of this study.

Function	Name of Firm	Estimated Number of Hours Performed by Firm in 2013
Example: Janitorial	*Spic and Span Cleaners*	*100 a year (2 hours per week)*

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Q7a. Current Industry Issues

We invite you to identify or discuss key issues in the helicopter industry that are ***currently*** affecting your firm. Please use the space provided below, or attach an extra page (please include your firm's name on this page) when you return the survey.

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Q7b. Looming Industry Issues over the coming 5 Year Time Frame

We invite you to identify or discuss looming industry issues in the helicopter industry over the next ***5 year time frame*** that may affect your firm. Please use the space provided below, or attach an extra page (please include your firm's name on this page) when you return the survey.

Thank you for your assistance in completing this survey.
Please click the submit button located at the top right hand corner when complete, or return this survey by email or by fax to:

Attention: Geneva Tretheway
geneva.tretheway@intervistas.com
Fax: (604) 717-1818

If you have any questions, please call Geneva at 1-877-717-6246 (ext. 1856)

Appendix C: Methodology

Estimating Current Economic Impacts

The direct employment base related to ongoing commercial helicopter operations in Canada is measured first. Employment figures are generally more understandable by the public than more abstract measures, such as economic output or GDP. Employment figures also have the advantage of being a more accurate measure, both because the firms are more likely to provide data on employment, as opposed to information on revenues, wages and other monetary amounts, and because there is less chance of double counting economic activity.

The economic impact study then assesses the indirect and induced (or "multiplier") employment supported by Canadian helicopter operations, as well as economic activity in terms of economic output and GDP using Statistics Canada multipliers. The tax revenue generated annually by commercially registered helicopter operations in Canada is also estimated.

Surveyed Direct Employment

Employment attributable to ongoing commercially registered helicopter activity in Canada was measured by surveying current members of the Helicopter Association of Canada (HAC). E-mail and telephone follow-ups were conducted to ensure a strong response rate. In total, 46% of the HAC operator members contacted responded to the survey and telephone interviews, representing 76% of total FTEs covered by the survey.

Inferred Direct Employment

For firms that did not respond to the survey or telephone calls, employment and other metrics were conservatively estimated using publically available data and responses from the survey. This includes referencing the survey results for firms of similar-sized operations and the Canadian Civil Aircraft Register.

Full-time Equivalents (FTEs)

Traditionally, one measures employment by the number of jobs. However, when part-time and/or seasonal workers are used, this can be a misleading measure resulting in an overstatement of economic impact. In our model, hours worked by part-time and/or seasonal employees are converted into full-time equivalents (FTEs). Whenever possible, employment impacts are measured both in terms of the number of jobs and the number of FTEs.[14]

[14] One full-time equivalent (FTE) is equal to 1,832 hours of work.

Indirect and Induced Impacts

Measurement of indirect and induced economic activity is difficult. While it might be possible to conduct a survey of such employers, the survey would need to cover thousands of firms for indirect employment. For induced employment, the entire economy would need to be scrutinised. In addition to the time and financial resources needed to conduct such surveys, the quality of responses would be suspect.

As an alternative to costly and inaccurate surveys, indirect and induced effects are typically measured by the use of economic multipliers.[15] Multipliers are derived from economic, statistical, and/or accounting models of the general economy. They come in a variety of forms and differ greatly in definition and application. Thus, great care must be exercised in choosing the appropriate set of multipliers to use. In addition, the use of multiplier analysis is limited by a number of factors, these being:

- the accuracy of the structure and parameters of the underlying model;
- the level of unemployment in the economy;
- the assumption of constant returns to scale in production;
- the assumption that the economy's structure is static over time; and
- the assumption that there are no displacement effects.

Multiplier impacts must be interpreted with caution since they may be illusory when the economy experiences high employment and output near industry capacity. When they are reported, it is recommended that the reader should be aware of the limitations on the use of multipliers. Mindful of these limitations, this study has undertaken multiplier analysis to estimate indirect and induced employment.

Tax Revenue Impacts

The tax revenue contributions to the federal, provincial/territorial and municipal levels of government that are associated with helicopter operations in Canada are also estimated. This includes taxes paid by employers and employees (such as payroll taxes). Estimated tax revenues are presented in 2015 dollars using 2014 tax rates.

Study Time Frame

The employment survey was conducted between November 2014 and September 2015. The results reflect employment and operations as a current snapshot of 2015.

[15] The multipliers used for the analysis are based on Statistics Canada economic multipliers from the 2010 Interprovincial Input-Output model, the most recent data available. These multipliers were updated with Consumer Price Indices to account for inflation.

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