Conversations for Responsible Economic Development

WHAT'S FUELLING OUR ECONOMY:
Is Kinder Morgan's Proposed Pipeline Inconsistent with New Economic Trends and Realities?

Conversations for Responsible Economic Development

Building informed discussion about long-term prosperity on Canada's West Coast

November 2016

About CRED

Conversations for Responsible Economic Development (CRED) is a not-for-profit business research and advocacy organization based in Vancouver, B.C. We are an association of academics, professionals and BC business leaders interested in a fact-based conversation around energy development and opportunities for long-term prosperity on BC's West Coast.

CRED is fiercely pro-business and pro-economic development. Our focus is on sharing facts and original research – backed up by reliable data – on BC economic issues, speaking to the need to protect our regional economy from threats, and promoting and advocating for economic sectors that leverage BC's creativity, innovation and natural beauty.

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WHAT'S FUELLING OUR ECONOMY?

New Economic Trends and Realities

Executive Summary

British Columbia is leading economic growth in Canada, largely due to a diverse and thriving economy. Extractive industries, including oil and gas, play a surprisingly small role. The biggest sectors are real estate, construction and wholesale and retail trade.

Despite regional variation, Canada's economy has some clear parallels to BC. Wholesale and retail trade and construction are thriving nationally, and the majority of the country's jobs are found in wholesale and retail trade and the health sector, like in BC. Even before the price of oil began its steep decline in 2014, this sector was responsible for just 1% of employment across Canada, and provided very low tax contributions. It is the finance and insurance industries, as well as the manufacturing sector, that contribute the largest tax revenues toward social services.

The federal government has been faced with a difficult decision on whether or not to invest in the Kinder Morgan pipeline. Our analysis shows that the pipeline would create few jobs, minimal tax revenues and would not impact energy security or guarantee a long-term solution to Alberta's ailing economy. The pipeline also comes with the additional concerns (and costs) of an oil spill. Beyond the direct clean-up costs, the indirect economic impacts would be long lasting, impacting sectors from tourism to agriculture.

It's crucial that the federal government reject the KM pipeline and instead support sectors in BC that create family-sustaining jobs, make significant tax contributions, insulate the regional economy from boom-and-bust cycles, and promote economic growth compatible with Canada's national climate commitments.

Our key findings:

- **BC Jobs**: Technology, tourism, construction, film and television each create more jobs than oil, gas, and mining combined.
- **National trends** are similar to BC: Oil and gas have a bigger role in Canada as a whole than in BC, but real estate, finance and manufacturing contribute more in federal corporate tax.
- **More people across Canada work in the beer economy than in the oil sands.**
- **The proposed Kinder Morgan pipeline** would only create 50 permanent jobs and generate an insignificant amount of taxes federally and provincially in BC.
- **A large oil spill** could have a $1.2 billion impact on BC's economy.
- **Canada's emissions growth** between 1990 and 2014 was driven primarily by increased emissions from mining and upstream oil and gas production and transport. Now that Canada has committed to a national climate plan, emissions from extractive sectors must be taken into consideration when considering project approvals.
- **Labour market outlook**: Neither activity nor employment in Canada's oil and gas industry will recover to levels prior to 2014's steep decline in the industry.

WHAT'S FUELLING OUR ECONOMY?

New Economic Trends and Realities

Introduction

British Columbia boasts a diverse economy driven by industries like technology, tourism, real estate and construction. While extractive industries still play a role in our economic vitality, they have been dwarfed by the growth of these sectors.

In the midst of this transforming economy, the federal government has been faced with a difficult decision on whether or not to invest in the Kinder Morgan pipeline. This huge infrastructure proposal would significantly influence the direction British Columbia takes. It's important to ask: will this project help our economic progress or hinder it? What kind of jobs will the project create, and how many? And, importantly, will the pipeline improve our citizens' lives?

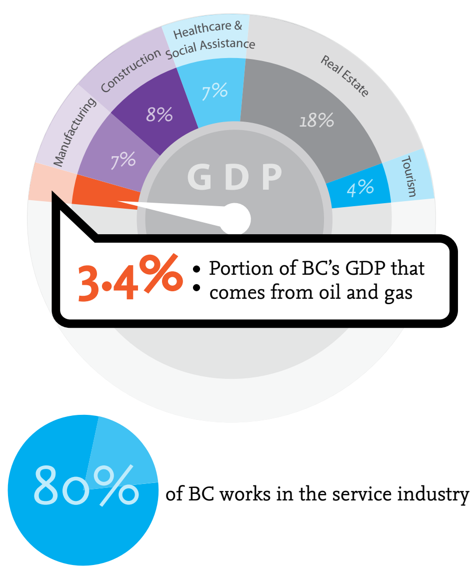
This report looks at the foundation of BC's economy, and the diverse industries that drive it. We look at Canada's economy as a whole, and find that opportunities in the service sector are nationwide. In light of recent national climate targets, such as the Paris Agreement and national climate plan, we also consider the best way to build on our economic strengths while succeeding in a low-carbon economy.

What's Fuelling BC's Economy?

It's often said that British Columbia is a resource-based province. In actual fact, the reality is a lot more complex.

While it's true that much of BC was built on natural resources, and that even today sectors like technology and construction have a certain amount of linkages and inter-relationships with primary resource sectors, the basis of our economy has overwhelmingly shifted to service-based industries. Over the past few decades, a monumental shift has been taking place – more than 4 out of 5 British Columbians now work in services, and the majority of our GDP comes from these sectors. Only a small percentage comes from oil, gas, and supporting services.

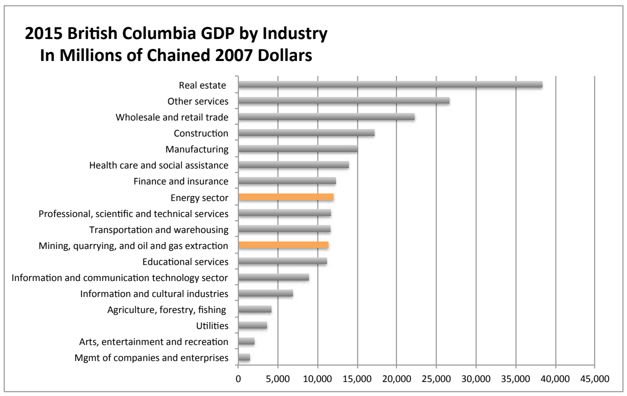
BC is also in the middle of an economic boom. It led the country in GDP growth in 2015 and forecasts predict that the province will continue to outpace other provinces over the next two years.[1] Where does this growth and wealth come from? A few highly visible sectors are credited with the most recent economic growth and job creation – notably construction and real estate. However, it's our remarkably diverse economy that anchors our prosperity. British Columbia's economy is largely made up of non-resource based industries and thousands of small businesses in sectors from tourism to tech.



WHAT'S FUELLING BC'S ECONOMY?
New Economic Trends and Realities

Where Does Our Wealth Come From?

When GDP figures for British Columbia are broken down, service industries make the largest contribution to provincial wealth – approximately 75%.



Real estate makes up the largest share of that, accounting for more than 18% of GDP. Construction, wholesale and retail trade, and health care also make up significant portions. By contrast, oil, gas, and support services make up just 3.4% of BC's GDP. As a whole, the energy sector's total contribution to provincial GDP is 5.7%.[2]

Where are the Jobs?

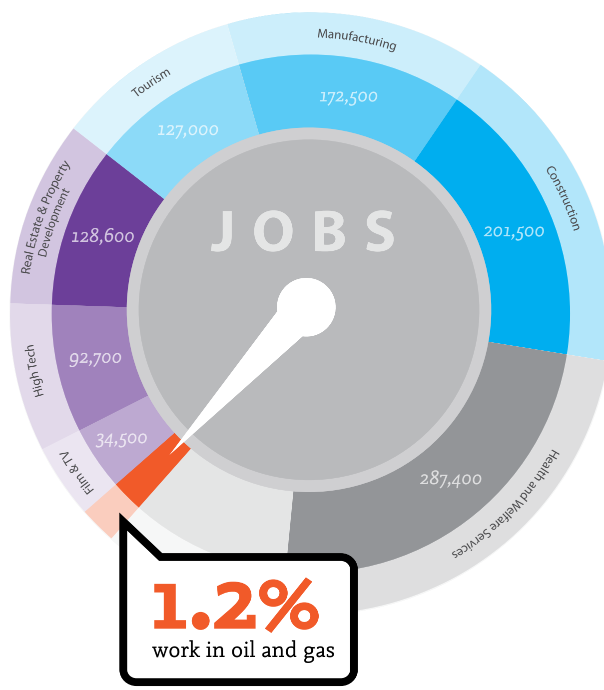
While we may think of BC as a resource-based province, things have changed over the years. The mining, oil and gas sector employs just 1.2% of the workforce, or approximately 27,000 people.[3] By comparison, technology, tourism, construction, and even film and television employ significantly more people.

Small businesses make up 98% of all BC businesses.

According to the BC Ministry of Finance, BC's biggest employers are:

- Wholesale and retail trade - 353,000 jobs
- Health and welfare services - 287,000 jobs
- Construction - 202,000 jobs
- Professional, scientific, technical - 188,000 jobs
- Accommodation and food services - 178,000 jobs

BC's workforce is growing, and, fortunately, jobs are increasing to keep pace. In 2015, BC saw its labour force increase 1.3%, the fastest annual rate of growth since 2008. At the same time employment activity increased, primarily from full-time jobs in service industries.[4]



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WHAT'S FUELLING BC'S ECONOMY?

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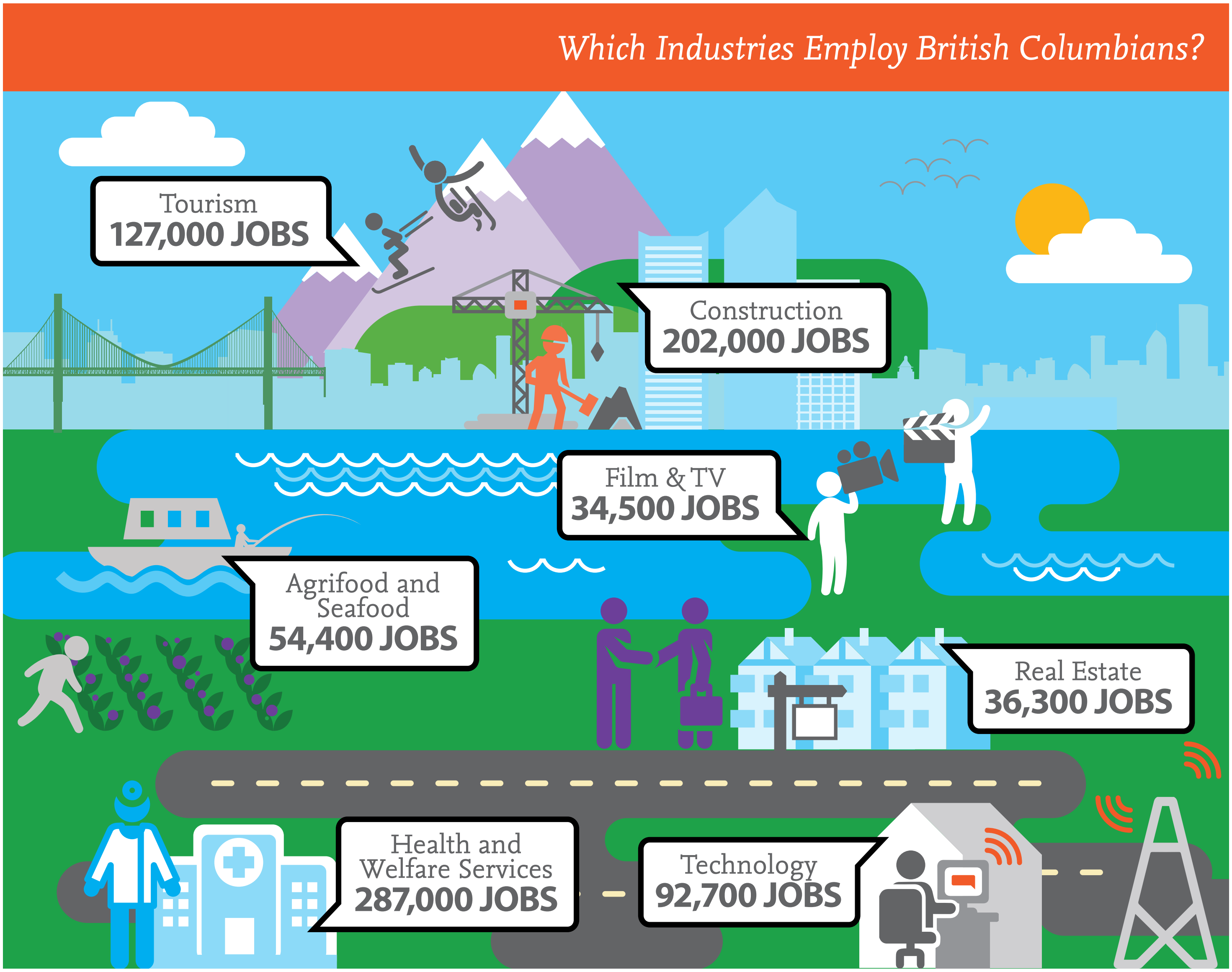


WHAT'S FUELLING BC'S ECONOMY?

New Economic Trends and Realities

Which Sectors are Fuelling Future Growth?

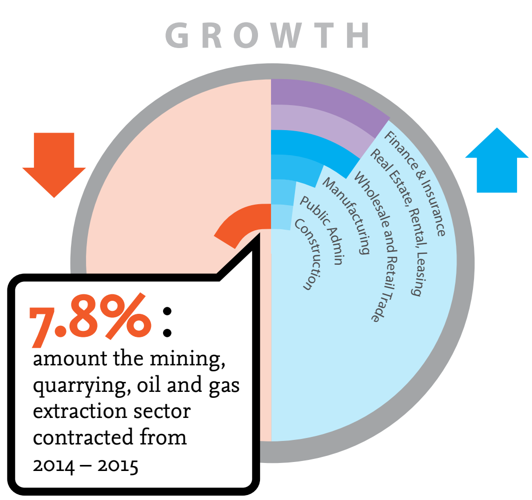
A recent survey of the high tech sector by consulting firm KPMG gave an overview of which industries are growing and which are shrinking in BC. According to their research, the three fastest growing sectors between 1999 - 2014 were:

- Construction
- Technology
- Professional, scientific & technical services

The sectors that shrunk in size during this time were forestry and utilities. The BC government's 2015 Small Business Profile echoed these findings. These trends indicate that there's a lot of future potential in service-based and other value-added sectors.

Looking at a more recent and shorter time span, BC Stats[5] shows that between 2014-2015 finance and insurance, real estate, and wholesale and retail trade sectors grew the most. Growth was broad across industries during this time, except for oil and gas, mining and quarrying, which diminished by a combined -7.8%.

Moving forward there are many things that could impact the oil and gas extraction sector, including international oil prices and new LNG projects. The federal government recently green-lit a proposed LNG development in northeastern BC, and if development goes ahead, it might slow the rate at which the oil and gas sector contracts.



Trends Across Northern BC

Where are the Jobs?

Around one in ten employed people in BC works in manufacturing, and about the same proportion holds true across most northern regions of the province. The majority of these manufacturing jobs are value-added services including wood products, paper and metal.

As it turns out, primary resource jobs play a fairly small role in northern employment. Within this category, the extractive industries (oil, mining and gas) play an even more marginal role.[6] For example, in Prince George and the surrounding Cariboo region, only 5.2% of the population works in primary resources: fishing, forestry, mining and oil and gas combined. Until the widespread pine beetle infestation and recent softwood lumber disputes, those were mostly forestry jobs.

Boom and Bust

An important dimension of the job markets in the Northeast, North Coast & Nechako and Cariboo regions is their cyclical nature of growth and retreat. Across northern BC, labour market shortages (not enough workers to meet demand) were expected between 2010 and 2020, along with other periods of excess labour market supply (more workers than jobs) as large infrastructure projects wrap up. In the Cariboo region, for example, the demand for workers is expected to exceed supply from 2011-2020. In order for the region to provide stable jobs for residents, there needs to be more diversity in the jobs available.

WHAT'S FUELLING BC'S ECONOMY?

Key Industries in BC

Established Industries

Here's a closer look at a few sectors that are expected to play a key role in BC's future economic well-being. Some sectors, like tourism and high tech, are already well established, while others, like clean tech, are still emerging and demonstrate significant potential.

Technology

Technology is a big employer in BC that clearly shows a tremendous opportunity for growth. In 2015, the sector sustained 92,700 jobs, more than forestry, mining, oil and gas and utilities combined. In fact, tech GDP has grown at double the pace of the provincial economy since the 2008 recession. The tech sector is proving to be a powerhouse in BC's economy: it offers consistent employment and high paying wages, and the number of high tech businesses continues to grow.[7]

- Wages: $1,580 per week (2014), compared to $900 for the average BC worker.
- Contributes 7% of BC's GDP, $13.5 billion (chained 2007).
- Value of BC's high technology product exports jumped 10.3% in 2014, to over $1.1 billion.

Tech GDP has grown at double the pace of the provincial economy since the 2008 recession.

The BC government's creation of a provincial tech strategy signals the increasing importance of this sector to the province's well-being. Local companies are also working to address some of today's most pressing social challenges, from fusion energy to health breakthroughs.

At the moment, the tech sector in BC is underperforming both globally and within Canada, mostly due to a lack of investment. Compared to high tech firms south of the border, BC faces the challenge of a smaller domestic marketplace and a lean labour market. KPMG's 2016 report on BC technology recommends that BC face these challenges by developing solutions to retain and educate sufficient numbers of qualified personnel, grow capital for research and development, and grow the means to export products and services.

Film & TV

Film and TV is a strong pillar of BC's economy, made up of many BC-owned companies that offer full service production. In 2015, the industry supported 34,500 jobs and generated $648 million in GDP.[8] It's an industry that stimulates the province both economically and culturally.

This sector is also growing at a robust rate – production in Vancouver surged 67% in 2015, making the city the third largest producer of pilots in North America, behind California and New York.[9] Vancouver also attracted several big visual effects companies to set up shop in the city. In 2015, Sony Pictures Imageworks chose to relocate its global headquarters from California to Vancouver, crediting Vancouver's attractive lifestyle and healthy business climate.[10] The area is now home to the largest cluster of visual effects and animation studios in the world.[11]

- The film & TV industry supported 34,500 jobs in 2015.
- Direct spending on film & TV production in BC totalled more than $2 billion in 2014.
- Vancouver is the 3rd largest film & TV production centre in North America.[12]

WHAT'S FUELLING BC'S ECONOMY?

Key Industries in BC

Tourism

The tourism sector is one of the biggest employers in British Columbia, with over 127,000 jobs - five times more than the oil and gas sector. In 2014, tourism was responsible for $7.7 billion of BC's GDP.[13] It is arguably the sector that has the most to lose from extractive industry growth: areas with high mining and oil and gas development tend to experience a trade-off of lower tourism revenues.

Vancouver's beaches attract over three million tourists per year, and its waterfront parks attract an additional five million tourists per year. The Vancouver seawall attracts over 2.7 million tourists per year. These oceanfront visitors are responsible for approximately 5,000-9,000 person years of employment, and inject up to $620 million in output as they eat, stay, and play in the area.[14]

Whale watching, sea kayaking and Aboriginal cultural tourism are all growing tourism sectors in BC.

Nature tourism is gaining in popularity in BC, as sectors like whale watching and sea kayaking continue to expand. Between 1998 and 2008, the whale watching industry grew more than 4% annually from 285,000 to 430,600 participants, and direct expenditures increased from approximately $9 million to more than $27 million. Sea kayaking in the Salish Sea area has also expanded rapidly in the last two decades, and provides 375 year round jobs and 630 jobs in the peak summer season.[15]

Aboriginal cultural tourism is another small but growing sector in the tourism industry. Full time employment more than doubled in 4 years, from 962 jobs in 2006 to 1,981 jobs in 2010. Destination BC has recognized that effective marketing and an increase of authentic, market-ready products will help to bring awareness of aboriginal tourism and provide authentic rather than staged experiences.[16]

The tourism industry doesn't show signs of slowing – in 2015, the number of international travellers to BC increased 8.3% compared to the previous year, following 4.3% growth in 2014.[17]

- Tourism has 127,000 jobs – five times more than the oil and gas sector.
- More than 100,000 new workers will be required in tourism by 2020.
- 43% of tourism businesses are based outside of the Vancouver, Coast and Mountains region.[18]

Green Jobs

The BC government defines this industry as an amalgam of clean energy supply & storage, clean transportation, green building and energy efficiency. In 2011, the industry was responsible for 123,000 jobs and $15 billion in GDP. Although more recent statistics aren't yet available, the size of this sector has undoubtedly increased over the past five years, buoyed by targeted public policies and programs. That said, the sector is still new and vulnerable to risk. Barriers include trouble finding skilled workers and lack of financial investment. The emerging clean tech sector, in particular, is limited by a lack of capital.

WHAT'S FUELLING BC'S ECONOMY?

Key Industries in BC

While many green jobs are still found in environmental industries, the labour market is transitioning. Demand for these jobs is increasing in all sorts of sectors, and skills are becoming more transferable.

Some of the skillsets that will be most valuable throughout the emerging green economy are:

- Environmental Business, Technology and Product Development
- Environmental Training & Education
- Natural Resources Planning & Management
- Environmental Safety
- Environmental Communications and Public Awareness[19]

Farming and Agriculture

The Fraser Valley contains some of the most fertile farmland in the world, supplying a significant percentage of BC's food consumption.[20] Similar to the tourism industry, this sector is also vulnerable to the impacts of oil and gas development. Studies in other locations have found that crude oil spills impacted food production by increasing soil acidity and toxicity.[21]

In 2014, BC ranked number one in Canada in farm sales of blueberries, cranberries, sweet cherries, raspberries and apricots.[22] The province also topped the nation in various seafood sales including wild salmon, halibut, rockfish and oysters.[23] The agrifood and seafood sector is also a huge job creator; altogether it employs 54,400 people.

The province's diversity of landscapes and climates provide regions ideal for the wine and grape industry. The industry has been steadily growing: licenced grape wineries expanded from just 17 in 1990, to 257 in early 2016.[24] BC is now the second largest grape-producing region in Canada, behind Ontario.

Wine isn't purely about production in BC – wine tourism gives a big boost to the economy as well. Over 800,000 visitors a year are welcomed through the wine economy; that's more visitors than the 2010 Olympics in Vancouver attracted. Wine tourism makes a $476 million annual impact on the economy.[25]

- The agrifood and seafood sector employs 54,400 people.
- The wine industry directly employs over 6,000 people.
- BC wine contributes $222 million a year in provincial and federal taxes.

For every bottle of wine produced in BC, $42 of economic impact is generated.

$29.92 of business revenue
$4.65 of tax revenue and
$7.50 of wages

WHAT'S FUELLING CANADA'S ECONOMY?

Canada's Economy

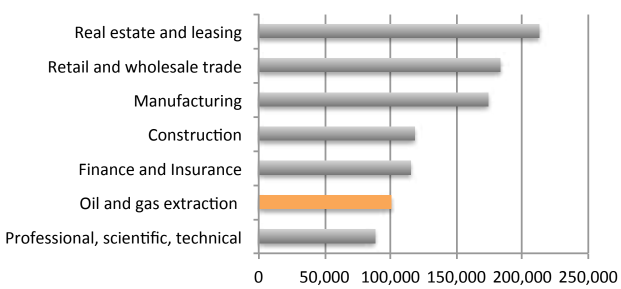
British Columbia's economy is very deeply linked with Canada's economy as a whole. A diverse mosaic of industries forms our national economy, from winter sports to microbreweries. Although key industries vary significantly across regions, some clear national trends are also evident.

Where Does Canada's Wealth Come From?

Real estate is by far Canada's largest sector overall, contributing a full 13% of national GDP. Manufacturing and retail and wholesale trade are also significant, each bringing in 11% of GDP. Construction and finance generate about 7% of GDP.[26]

In 2015, the oil and gas sector was responsible for 6% of national GDP.[27] Although still significant, this economic contribution is less than most Canadians realize.[28] Of this, the Alberta oil sands contributed just 2% of GDP – a number that has likely fallen since the price of oil began its steady decline in 2014.

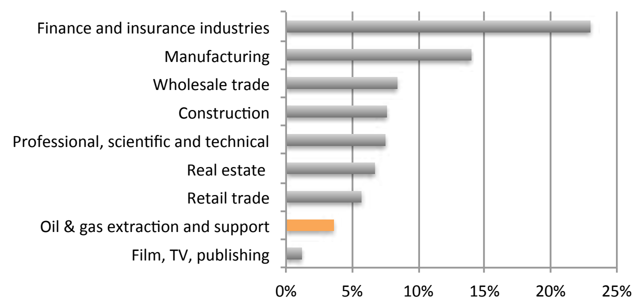
2015 Canada GDP by Industry
In Millions of Chained 2007 Dollars



Who Contributes the Most to Social Spending?

In total, the oil and gas sector—oil and gas extraction and support activities—contributed 3.6% of all federal corporate tax revenue in 2014. This number is relatively low compared to financial and insurance services, which together contributed 23% of all federal corporate taxes, and construction, which contributed 7.6%. It is also notably lower than the manufacturing sector, which covered 14% of federal tax revenues in 2014.

Federal Corporate Tax Revenues, 2014



WHAT'S FUELLING CANADA'S ECONOMY?

Jobs

Across Canada, the numbers are relatively similar to BC. According to Statistics Canada, the industrial sectors that employed the most people in 2015 were wholesale and retail trade, health and social assistance and manufacturing, with 15% of Canadians working in wholesale and retail trade.[29]

In the same time period, the oil and gas extraction sector employed only 61,900 people, or less than 1% of all national employment. Across all natural resource sectors, including forestry, fishing, mining, quarrying, and oil and gas, employment was fewer than 355,000 people in 2015, which is equal to about 2% of all jobs in Canada. And there don't seem to be any big changes on the horizon: PetroLMI, an oil and gas industry association, predicts that the oil and gas industry will regain some jobs between 2016 and 2020, but neither industry activity nor employment is expected to recover to levels prior to the steep decline by the end of this decade.[30]

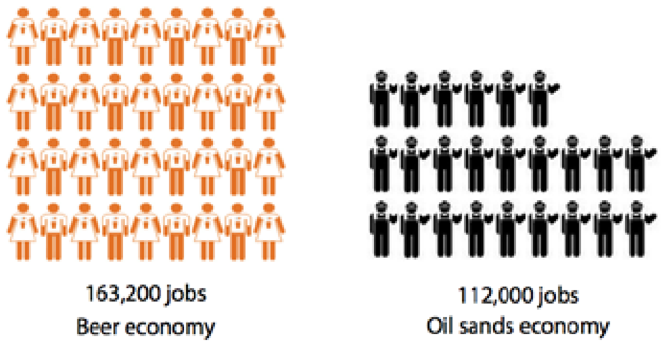
Even in Alberta, where oil and gas employs more people than anywhere else in Canada, the sector, combined with mining and quarrying is only responsible for 155,000 jobs, or 7% of the province's employment. Despite the recent economic downturn, this province still has one of the lowest unemployment rates in the country – in 2015, only 5% of Albertans were unemployed.[31] With low demand for labour in a slow oil and gas sector, this is an opportune time to commit to training and development in sectors with opportunities for the future, such as clean tech and health and welfare.

The Beer Sector

In 2013, the Conference Board of Canada released a report showing that the 'beer economy' represents more than 1% of all jobs in Canada, supporting 163,200 people at the time. The sector includes brewers, distributors, retail sales, transportation and wholesale distribution and agricultural products.

When direct and indirect employment effects are taken into consideration for both sectors, more people are employed by the beer sector than in the oil sands. Although oil and gas jobs may be more highly paid on average, beer industry jobs are likely to be more geographically distributed and more accessible to new workers, students and people needing part-time work.

Beer vs. Oil Sands Employment (2013)



WHAT'S FUELLING OUR ECONOMY?

Economic Impact of Kinder Morgan's Proposed Pipeline

Kinder Morgan's Proposed Oil Pipeline

How does a new oil sands pipeline fit into BC'S economy - what would it add and what would it risk?

Kinder Morgan's proposal to build a new Trans Mountain pipeline would significantly influence the direction of British Columbia's economy for the next 40 years or more. All British Columbians who live, work and own businesses on the west coast will be directly impacted by the outcome of this decision.

What would it mean for people and businesses on Canada's west coast if Vancouver became a major oil exporting port? What risks are we willing to assume? What risks are unacceptable? Are there investments in less risky sectors that would bring the same or greater benefits?

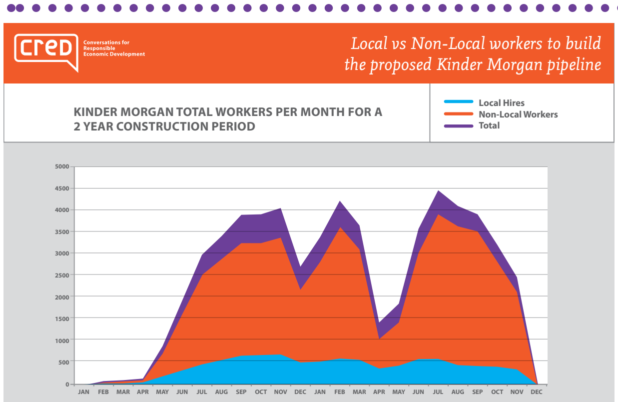
The proposal: Kinder Morgan Canada is proposing a $6.8 billion project to build a new pipeline alongside its existing 1,150-kilometre Trans Mountain pipeline system between Edmonton and Burnaby. Its goal is to increase pipeline capacity to at least 890,000 barrels per day, up from the current output of 300,000 barrels per day.

Job Creation

According to Kinder Morgan, building the pipeline would create 50 permanent jobs in BC and 40 permanent jobs in Alberta.[32] There would also be an unknown number of short-term jobs created during the project's two-year construction phase.

Estimates of the exact number of jobs likely to be created during pipeline construction vary dramatically amongst different sources. According to Kinder Morgan's website, 3,870 direct jobs would be required along the pipeline and at pump stations,[33] whereas Kinder Morgan's application to the NEB estimates a wider range of jobs and states that the peak of the project would include 4,475 workers.[34]

A report authored by the Goodman Group and Simon Fraser University, in 2014, concluded that Kinder Morgan overestimated its job count threefold in its application. By the report's calculations, the project would generate (at most) 4,000 short-term jobs a year – less than 0.2% of total provincial employment.[35] Regardless of the final number of construction jobs created, it is uncertain how many of these short-term positions will benefit otherwise unemployed workers, since Kinder Morgan has the ability to pull resources from already existing projects.



Kinder Morgan estimates that the majority of short-term jobs will be filled by non-local workers,[36] further impacting where the fiscal impacts of these jobs flow.

This is unsurprising, given that BC is currently experiencing high employment rates, which means that the labour market for large infrastructure projects is likely to be tight. The province's employment activity increased in 2015 by 1.2% [37] – that's the fastest annual rate of growth in three years. Given this context, there is little need to approve the Kinder Morgan pipeline purely for job creation in BC.

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WHAT'S FUELLING OUR ECONOMY?

Economic Impact of Kinder Morgan's Proposed Pipeline

Tax Revenues

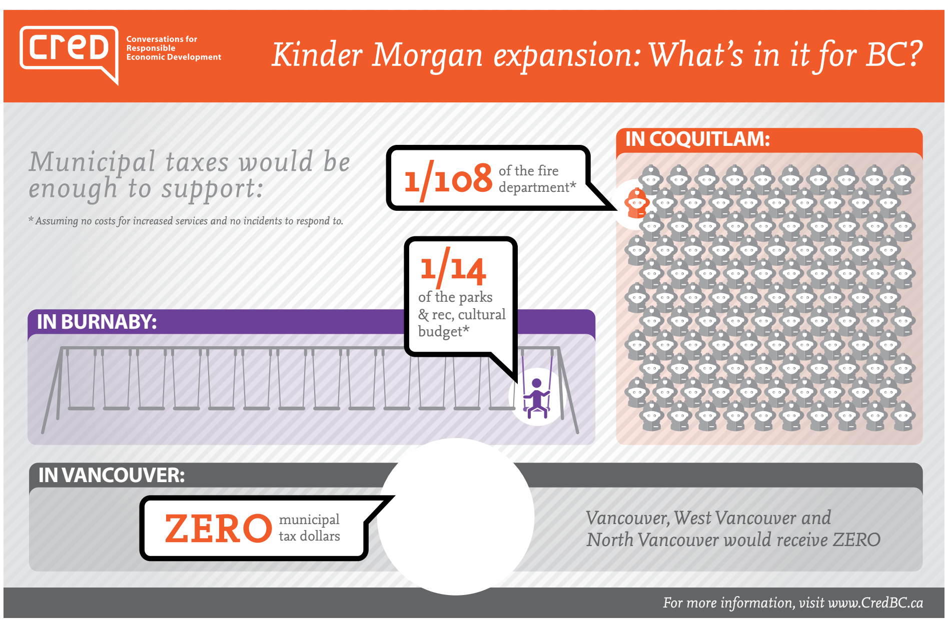
Kinder Morgan estimates that the project would create $1 billion in increased BC provincial tax revenues, and $446 million in Alberta provincial tax over 20 years. They estimate that $23 million in BC municipal tax revenues would be created after project completion, per year.[38]

Only municipalities along the pipeline route would collect municipal taxes from Kinder Morgan. Burnaby would stand to gain the largest share of this revenue, with a modest $6.2 million increase[39] for an approximate city budget of $459 million.[40] Although this tax increase may sound impressive, at most it is enough to fund approximately 1/14 of Burnaby's parks and recreation budget.[41] Coquitlam's additional tax benefits would be enough to fund 1/108 of its fire department,[42] and these would be possible only without any increase in services or pipeline incidents to respond to. Communities downstream of the pipeline, including Vancouver, Richmond and the North Shore, would receive no municipal tax revenues.

Kinder Morgan received a cash tax refund for two of the last five years it paid corporate taxes on its existing Trans Mountain pipeline.

Total municipal revenues in BC totalled $2.4 billion in 2013, which means that Trans Mountain's annual contribution of $23.2 million would add just 1% to municipal coffers.[43] This is a strikingly small share of municipalities' overall tax revenues, and even these contributions come with the caveat of increased service spending. A new pipeline could require increased costs to policing, emergency services and maintenance to access roads.

At the time of filing, Kinder Morgan Partners (KMP) was a Canadian company. After filing in 2014, however, KMP was consolidated by its parent company, Kinder Morgan Inc. (KMI), into a single US-based company. Kinder Morgan claims that this move will garner $20 billion dollars in cash tax savings over the next 14 years.[44]



This development raises concerns about just how accurate the proposed tax revenue projections really are. Compounding this is the fact that Kinder Morgan received a cash tax refund for two of the last five years it paid corporate taxes on its existing Trans Mountain pipeline.[45]

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WHAT'S FUELLING BC'S ECONOMY?

Economic Impact of Kinder Morgan's Proposed Pipeline

Economic Impacts of Pipeline or Tanker spills

Even though a catastrophic spill along the pipeline route or off the coast of Vancouver is unlikely, it's another consideration essential for comprehensive economic planning. It is impossible to know the direct costs of an oil spill, but it is possible to estimate the financial risks associated with a project like this based on major spill scenarios from the past four decades.

Direct costs of historical oil spills
Adjusted for inflation

Enbridge Kalamazoo River[13] (2010)	$725m*
BP Deepwater Horizon[14] (2010)	$41.6b*
Exxon Valdez[16] (1989)	$6.3b
Amoco[16] (1978)	$3b

** Clean-up is still ongoing and total cost may remain unknown for several years*

A UBC study (for Enbridge) found that a medium sized spill on BC's north coast could have an estimated direct clean-up cost of $2.4 billion, and a large-scale spill could have an estimated direct clean-up cost of $9.4 billion.[46]

In Washington State, the Department of Ecology conducted a 2004 study on the potential impacts of an oil spill. The study concluded that a major spill could cost up to $10.8 million USD and adversely affect 165,000 jobs within the state, in addition to direct clean-up costs.[47]

In Canada, an average of 40 leaks per year are reported to the National Energy Board from pipeline systems at pumps, valves and other fixtures, and two ruptures per year are reported along pipelines. Each year, on average, there is one leak per 10,000 kilometres of pipeline.[48] Industry figures show that more than 3.4 million litres of fossil fuels have been accidentally released from pipelines every year in Alberta since 2006.[49] The Trans Mountain pipeline specifically has been responsible for 82 spills at pump stations, terminals and along the pipeline route.[50]

Who Would Pay For an Oil Spill?

There is a maximum of $1 billion in absolute liability costs applicable to land spills, meaning the pipeline company would need to cover costs up to the maximum regardless of fault. If the pipeline company is at fault or negligent, their liability would be unlimited.[51]

A study by the University of Victoria's Environmental Law Centre found that Canadian law would be highly inadequate in the event of a large oil spill at sea.[52] Once the bitumen or other product has been loaded onto a tanker, Kinder Morgan is no longer liable for any leaks or spills that may occur. At this stage in the operation, spill liability is transferred over to ship owners, where there are significant risks. Although there are several funds available to cover the cost of marine spills, the maximum total funds available through all the compensation schemes combined would be capped at approximately $1.36 billion.[53]

Indirect Economic Impacts of a Spill

Whether it's attracting visitors to experience the outdoors and nature, marketing BC seafood, or simply attracting much-needed highly skilled labour to some of BC's biggest companies, quality of life and a healthy environment are what make BC so desirable and sustainable economically.

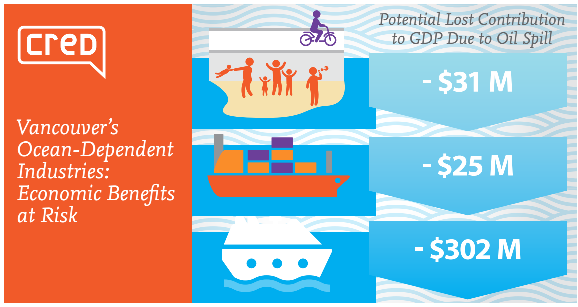
The City of Vancouver submitted a study to the National Energy Board in 2014 that analyzed the value of Vancouver's brand. It demonstrated that the city's image is markedly associated with the environment, 'green' living and environmental leadership. The study calculated that the City of Vancouver's brand is worth $31 billion, representing 24% of the value of the GDP of the Greater Vancouver area. It concluded that a significant tanker spill could damage Vancouver's brand to the tune of up to $3 billion, and even a relatively small spill could result in a $1.3 billion reduction in brand value.[54]

WHAT'S FUELLING BC'S ECONOMY?

Economic Impact of Kinder Morgan's Proposed Pipeline

Risks to BC's Coastal Industries

Coastal industries make up a significant part of the west coast economy. Commercial fishing, prawning, ocean-dependent tourism, inner harbour transportation and port activities all rely on a healthy marine environment. Taken together, these coastal industries directly employ 4% of Vancouver's population. Vancouverites' use of the beaches and seawall alone produces $145-170 million of value per year to the local economy.[55]



A study by UBC researchers prepared for the City of Vancouver investigated the impact that an oil spill would have on Vancouver's marine-dependent economy. Their report found that a large oil spill could negatively impact this segment of the economy by $1.2 billion in output value. The damages could also cost 3,238-12,881 person years of employment and up to $687 million in provincial GDP. This estimate doesn't include costs of clean up, response or recovery, and the losses would increase even more if coastal areas outside of Vancouver were incorporated. All of this points to just how staggering the economic impact of a major oil spill could be.

One large spill scenario in May, for instance, would cost more than the total proposed economic benefits that Trans Mountain has forecasted.

In 2015, Burrard Inlet experienced a relatively minor oil spill when the grain carrier Marathassa leaked 2,700 litres of oil into the harbour. This was a modest spill, but it still impacted local businesses. The spot prawn and crab fishing season was delayed by the Department of Fisheries and Oceans and the Musqueam Band, and beaches and recreational fishing areas were closed due to the incident.[56] In addition, one year later there have been no emergency response funds collected against the Marathassa's parent company.[57]

The repercussions of a marine spill would vary depending on the weather and the time of year, but even if a significant tanker spill occurred in October—arguably the best-case scenario, as tourist season is ending—coastal industries could still suffer losses of $380 million. The financial compromise is thin: one large spill scenario in May, for instance, would cost more than the total proposed economic benefits that Trans Mountain has forecasted.[58]

WHAT'S FUELLING OUR ECONOMY?

Economic Impact of Kinder Morgan's Proposed Pipeline

The Bigger Picture

Kinder Morgan's pipeline will impact BC, and it will also impact Alberta and the rest of Canada. Given that oil and gas have varied roles in each part of Canada, a big question revolves around the greater good. Even if the Kinder Morgan pipeline is not in the best interest of British Columbia, what about national interests? And what about its relationship to Canada's international climate commitments?

Would The Pipeline Meet Local Energy Needs?

Kinder Morgan executives have confirmed that the Trans Mountain Expansion Project is an export strategy and is not focused on local energy security.[59]

Crude oil and diluted bitumen travelling from the oil sands cannot contribute towards BC's electricity or heating needs (with the exception of remote rural or northern communities that may use diesel for heating). Although some oil products transported through the existing Trans Mountain pipeline arrive as refined products or are refined locally into gasoline and other fuels, the majority of crude oil from the existing pipeline is exported for profit. If the new Kinder Morgan pipeline is approved, Kinder Morgan intends to ship at least 78% of the total pipeline capacity on more than 444 marine tankers per year.[60]

The Trans Mountain Expansion Project is part of a larger oil sands expansion strategy. The proposed Energy East pipeline is the other main proposal on the table in Canada. Both pipelines would allow oil sands products to reach the coast for export to foreign markets.

Would It Catalyze An Economic Recovery In Alberta?

A recent analysis by economist Robyn Allan[61] found that constrained oil production in the oil sands is exclusively the result of low oil prices, not restricted pipeline capacity.

Constrained oil production in the oil sands is exclusively the result of low oil prices, not restricted pipeline capacity.

Approximately 3,800 jobs[62] in Alberta were lost in 2015-2016 from the plunge in world oil prices. This has highlighted the need for real diversification. Luckily, Alberta has already begun the work of diversifying its economy.

In 1985, oil and gas and mining made up 36.1% of GDP. In 2015, this number had dropped by almost half, to 18.3% of GDP.[63] Over that same period, construction, real estate, finance, business and commercial services have grown to account for a greater percentage of the provincial economy. The Alberta government is betting that further investment in these sectors will be more effective at catalyzing an economic recovery than doubling down on the volatile oil and gas sector, with the added benefit of insulating the province from future boom-and-bust cycles.

WHAT'S FUELLING OUR ECONOMY?

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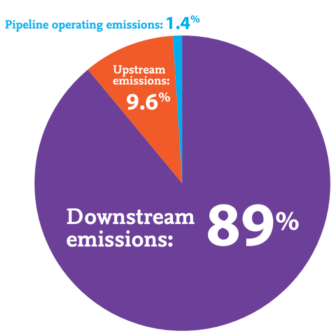
How Would The Pipeline Impact National Climate Commitments?

In late 2015, Canada's new Liberal government committed to international climate targets at the Paris climate talks. In 2016, the government ratified the Paris Agreement and announced a national climate plan. Any economic development strategy or major infrastructure project must also consider how it will fit with these commitments, as well as remain competitive in a carbon-constrained global economy.

Canada's emissions growth between 1990 and 2014 were driven primarily by increased emissions from mining and upstream oil and gas production and transport.[64] This is understandable considering that refining oil from the oil sands releases 17% more greenhouse gas emissions than other types of oil.

A recent analysis by Simon Fraser University economist Mark Jaccard found the downstream emissions would represent up to 89% of greenhouse gases from the Kinder Morgan pipeline expansion. The same analysis[65] points out that pipeline operation accounts for less than 2% of associated greenhouse gas emissions. Downstream emissions haven't yet been taken into consideration by the National Energy Board or any federal government decision-making body.

Greenhouse Gas Emissions from the Proposed Kinder Morgan Pipeline



The danger of building a large infrastructure pipeline with such ambitious environmental goals is that once the infrastructure is built, it will be used – likely for at least 75 years. Once the pipelines are built, there's a huge incentive to continue filling them and to allow fossil fuel expansion.

A 2012 National Round Table on the Economy and Environment (NRTEE) report[66] warns that by failing to develop a low-carbon economy, Canada might be risking its competitiveness and international reputation, and could lose out on a first-mover advantage in the rapidly growing international market for low-carbon goods and services. The report concludes that Canada is well placed to build upon existing strengths and innovate in other areas, but that we need to act fast in order to build these industries.

Past NRTEE reports – in addition to the 2006 Stern Review – make a strong business case for addressing climate change on the basis of cost-benefit analysis. Simply put, it will cost far more to deal with the impacts of climate change than it will cost to build a low-carbon economy. Clean renewable energy and energy conservation are cheaper than new, unconventional fossil fuels. Dollar for dollar, they produce far more jobs, including jobs for the very workers who might find employment on the Trans Mountain pipeline.

Conclusion

Canada's western coastline and waterways are not only a core part of the lifestyle for residents of the Lower Mainland – in many ways, the landscape plays a significant role in the regional and national economy.

Whether it's real estate development, tourism, hospitality, coastal industries or the burgeoning high tech and film sectors, many BC residents rely upon the natural environment to support their careers, families and lifestyles. Businesses benefit greatly from Vancouver's 'greenest city' brand, and, in return, the city has garnered an international reputation as a safe and prosperous place to live.

After fair investigation, it's evident that the Trans Mountain pipeline expansion poses more economic risks than benefits, and that investment is better suited to industries that employ more people and inject more money into the economy. An oil spill would threaten not only the health of the natural environment but also some of the west coast's most iconic industries, and the promise of jobs and taxes are actually quite minimal.

Instead of approving a risky and potentially very costly oil export pipeline, the federal government should support sectors in BC that create family-sustaining jobs, make significant tax contributions, insulate the regional economy from boom-and-bust cycles and promote economic growth that's compatible with Canada's national climate commitments.

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