

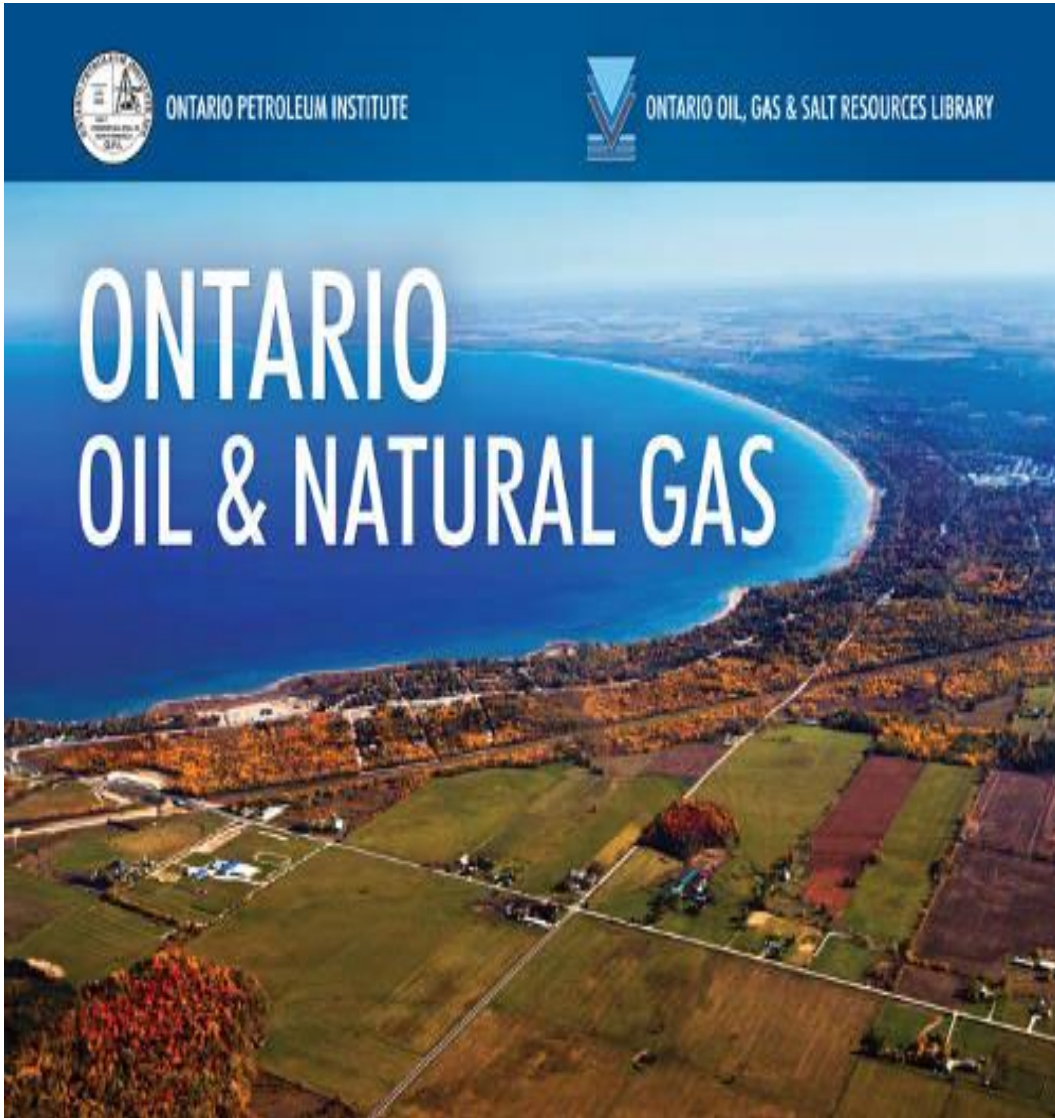


ONTARIO PETROLEUM INSTITUTE



ONTARIO OIL, GAS & SALT RESOURCES LIBRARY

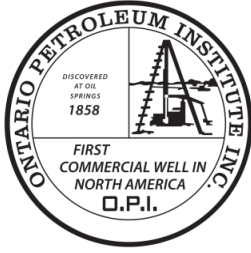
ONTARIO OIL & NATURAL GAS



OPI SUBMISSION

2017 ONTARIO LONG-TERM ENERGY PLAN

Prepared by:
The Ontario Petroleum Institute
Revised - March, 2017



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MISSION

Founded in 1963, the Ontario Petroleum Institute Inc. is a non-profit industry association which represents explorationists, producers, contractors, geologists, petroleum engineers and other professionals, individuals or companies directly related to the oil and gas, hydrocarbon storage and solution-mining industries of Ontario.

Fundamental objectives of the Institute are:

To encourage responsible exploration of the oil, gas, hydrocarbon storage and solution-mining industries of Ontario

To maintain close liaison with government agencies which regulate the industry

To disseminate information relevant to member needs

To promote the legislative goals of the membership

To inform and educate the general public on the significance of the industry to the province of Ontario

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1.0 EXECUTIVE SUMMARY

The Ontario Petroleum Institute (OPI) welcomes the opportunity to participate in the review and consultation of the 2017 Ontario Long-Term Energy Plan (LTEP). Thank you for providing the industry with the opportunity to consult with the Government of Ontario on the continuing contribution of the province's oil and natural gas industry to the energy needs and economy of Ontario.

The OPI is pleased to provide the “**OPI Submission**” as its formal response to the Ontario Minister of Energy's Proposal Notice: EBR Registry Number 012-8840.

The OPI is a non-profit industry association that represents the oil and natural gas exploration and production, hydrocarbon storage and salt solution-mining industries of Ontario. The membership represents a diverse set of constituents which include developers, producers, service companies, financial, legal and geology professionals, utilities, educational institutions, government agencies, and consultants.

The oil and natural gas sector in Ontario undertakes exploration, development, production operations, storage of hydrocarbons, environmental protection response, closure of abandoned wells, and the provision of specialized services to support these undertakings. Presently, 80 companies of differing size produce oil and natural gas throughout Southwestern Ontario supplying local residents, farms and businesses. The industry is supported by the Ontario Oil, Gas and Salt Resources Library, a resources centre managed by the OPI.

The exploration and production of oil and natural gas has made a valuable contribution to the province supplying energy, jobs and supporting the economic prosperity of communities throughout Ontario. For decades, this value-added industry has safely and sustainably produced millions of barrels of oil and billions of cubic feet of natural gas for Ontarians.

Ontario's oil and natural gas industry provides \$77 million in direct oil and natural gas product revenues, annual investments of \$25 - 30 million in capital expenditures, 700 full time jobs, \$20 million in salary and wages and 1500 additional indirect jobs as well as generating \$7 million in annual royalties, and significant yearly corporate taxes that play a vital role in the prosperity and well-being of Ontario's economy.

The OPI Submission provides a review of our industry history, its present state and its future potential to contribute to Ontario's long-term energy needs and the Climate Change Action Plan. It will build on the sector's involvement in “Achieving Balance, the 2013 Ontario Long-Term Energy Plan”. The OPI recognizes the need to balance society's social, environmental and economic values using responsible extraction techniques for the exploration, production and storage of Ontario's oil and natural gas resources.

The OPI has held extensive and ongoing discussions with political and public service representatives of various ministries of the Government of Ontario in preparation for the review of the long-term energy plan.

From these discussions it is the OPI's understanding that the Government of Ontario has a desire to develop its oil and natural gas resources for the benefit of the citizens of Ontario and as an important contributor to economic prosperity.

The benefits include expanding the exploration, production and distribution of the province's oil and natural gas resources. Increasing the provincial supply of these resources is of value to all Ontarians and it has the potential to be most beneficial as a source of energy to rural communities and the agricultural economy. And increasing local production supports a less carbon intensive future that results from significantly less emissions from imported energy sources.

Ontario Provincial Production Program

The OPI is proposing that the Government of Ontario establish an Ontario **Provincial Production Program (PPP)** to develop Ontario's oil and natural gas resources to meet a target of 5% of province's annual supply.

To meet the goal of expanding Ontario oil and natural gas production it will require a collaborative partnership between the Government of Ontario and the industry to develop initiatives to stimulate exploration. Ontario producers have the experience and expertise to meet that goal to integrate local production by managing supply, storing reserves and distributing oil and natural gas.

The PPP will enable the industry to increase its share of the province's energy supply, displace imports from jurisdictions with higher associated greenhouse gas emissions, and continue its contribution as value-added stakeholder in the Ontario economy.

The OPI recommends that the PPP be based on the Ontario government's commitment of increasing and maintaining the production of Ontario's oil and natural gas to at least 5% of the province's annual consumption.

Achieving the 5% target will require Ontario oil production increasing from its current 400,000 barrels per year to 8.1 million barrels per year by 2035, and natural gas an increasing from the current 6 billion cubic feet (BCF) per year to 33 BCF per year by 2035. A commitment to this PPP target would result in many significant benefits to the province.

The purpose of the PPP would be to increase Ontario exploration and production of oil and natural gas as an integral part of the 2017 LTEP will place an emphasis on natural gas production to supply underserved communities will result in broader benefits to the province.

The OPI estimates that for natural gas PPP would involve:

- a \$700 million capital investment program over six years based on 2017 projections;
- a phased in “feed-in-tariff” for natural gas; and
- the creation 500 new jobs bringing the total in the sector to 1200.

A PPP would be expected to provide the following benefits:

- a forecasted contribution of \$10.5 million per year in royalties and \$1 million per year in municipal taxes from natural gas production in the seventh year of the program;
- the removal of CO₂ greenhouse gas emissions per year by reducing natural gas imports; and
- a reduction on the transportation cost of natural gas by reducing imports.

The OPI is committed to fostering a sustainable oil and natural gas industry. It regards its participation in the development of the next Ontario Long-Term Energy Plan as an opportunity for oil and natural gas producers to collaborate with the Ontario Ministry of Energy on how provincially produced natural resources fit into Ontario’s current and future energy supply.

2.0 AN INDUSTRY HISTORY

The Ontario Petroleum Institute (OPI), an industry association founded in 1963, represents companies and individuals involved in oil and natural gas production, natural gas and hydrocarbon storage, and salt/solution mining. The OPI's primary objective is to encourage the responsible exploration and development of oil and natural gas.

2.1 Oil 1858-2016

Ontario producers have been safely harvesting energy for 150 years. The first heartbeat of oil production in North America started in Ontario with oil in 1858. Oil continues to flow from wells discovered some 150 years later. In fact more than 50,000 oil and natural gas wells have been drilled in this time span on land as well as offshore. Exploration has resulted in the discovery of many producing oil and natural gas fields and storage pools that have contributed to the energy needs of a significant number of Ontario consumers.

Birthplace of the Oil & Gas Industry



Oil Springs Ontario, 1858

2.1.1 Commercial Development

Ontario's commercial oil production was launched with the first commercial oil well in North America being drilled 155 years ago. It was from this early discovery that drilling and refining techniques were developed.

Oil from the first commercial fields in the communities of Oil Springs and Petrolia in Southwestern Ontario still flow today from those historical wells that spawned oil production in North America. In 2015 there were 18 companies operating 717 wells from “historical oil fields” in Ontario.



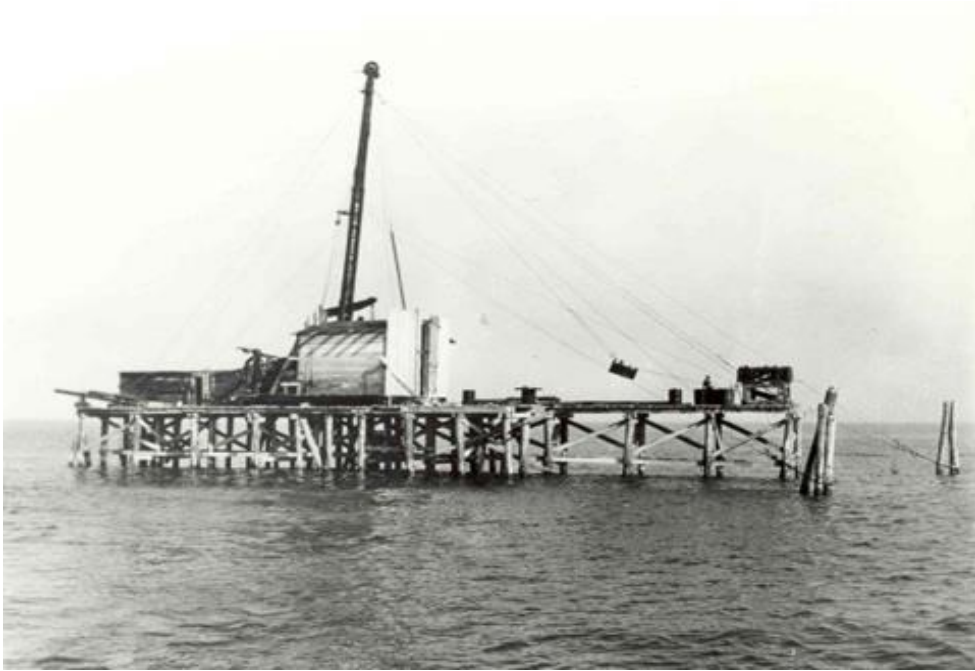
2.2 Natural Gas – 1880’S - 2016

Natural gas has been around as long as crude oil in Canada. Originally a by-product of oil production the first natural gas plant was established in Central Canada. By the early 1880’s it became widely used as a source of energy for power generation and heating.

2.2.1 Commercial Development

Natural gas production has evolved with Southwestern Ontario being the centre of natural gas distribution with one of North America’s largest underground natural gas storage hub that is located in Dawn Township to supply consumer needs for Central Canada and the Northeastern United States.

Offshore Well- Lake Erie 1913



2.3 Hydrocarbon Storage

The storage of hydrocarbons is a very important component of the Ontario Oil and natural gas industry. Most gas storage comes in the form of depleted natural gas or oil fields that have been repurposed.

Salt caverns are man-made cavities constructed within thick beds of salt in the subsurface of Ontario. They are formed by drilling through the overlying strata down into the salt formation, and washing the cavern to the appropriate size. Salt caverns are formed with a leaching process by injecting a water stream down a well bore in order to "wash" a cavern into the salt. The wall of the completed cavern is insoluble in hydrocarbons and therefore prevents leakages.

2.4 Expanding the Globe

Ontario's importance in launching the petroleum industry and commercial oil production cannot be understated. The list of firsts includes first commercial oil well in North America, first petroleum company, first oil exchange. It was from this early discovery that drilling and refining techniques were developed.

Innovations in refining laid the foundation for the distribution and marketing of oil that became North America's largest industry in the 20th century with the advent of the automobile and its requirements for gasoline.

The experience and expertise obtained from these early beginnings in southwestern Ontario would provide the foundation for exploration and production activity worldwide.

3.0 ONTARIO OIL AND NATURAL GAS PRODUCTION

Ontario production of oil and natural gas has gone on uninterrupted since oil began flowing in 1858 and natural gas in the early 1900's. This production has led to the development of a storage industry for hydrocarbons and other liquids that is valued in the billions.

The graph below illustrates the volume of production extracted from the sedimentary basins throughout Southwestern Ontario – just under 90 million barrels of oil and 1.2 trillion cubic feet of natural gas.

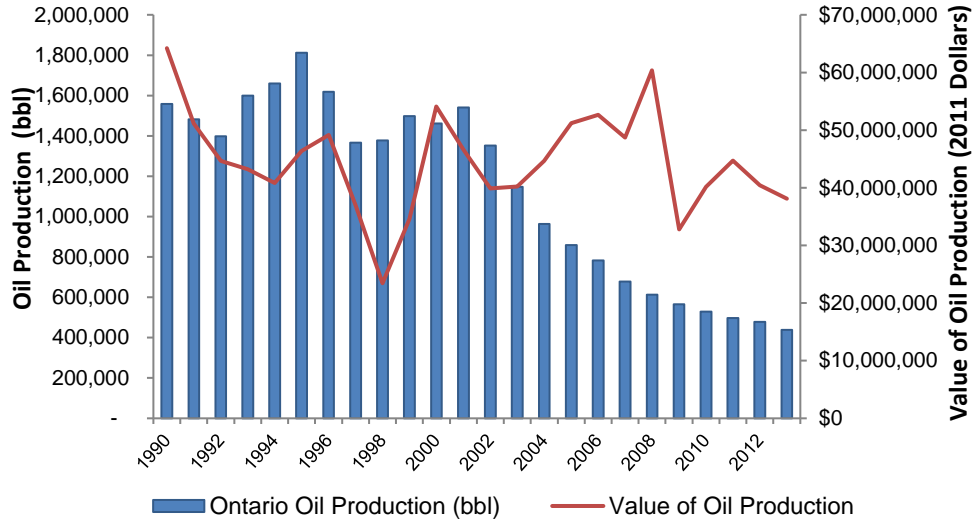
Cumulative Production in Ontario through 2010

Period	Oil (m ³)	Oil (bbls)	Gas (1000 m ³)	Gas (bcf)
Devonian	7,130,148	44,848,203	15,041	0.5
Salina	2,350,282	14,783,138	18,576,632	656.0
Clinton	13,775	86,643	14,237,978	502.8
Ordovician	3,787,718	23,824,525	1,165,304	41.1
Cambrian	863,019	5,428,343	879,270	31.0
Total	14,144,942	88,970,852	34,874,225	1,231.4

3.1 Oil

Ontario oil production went from a high point in 1995 of 1.8 million barrels to 385,000 barrels in 2015.

Oil Production in Ontario

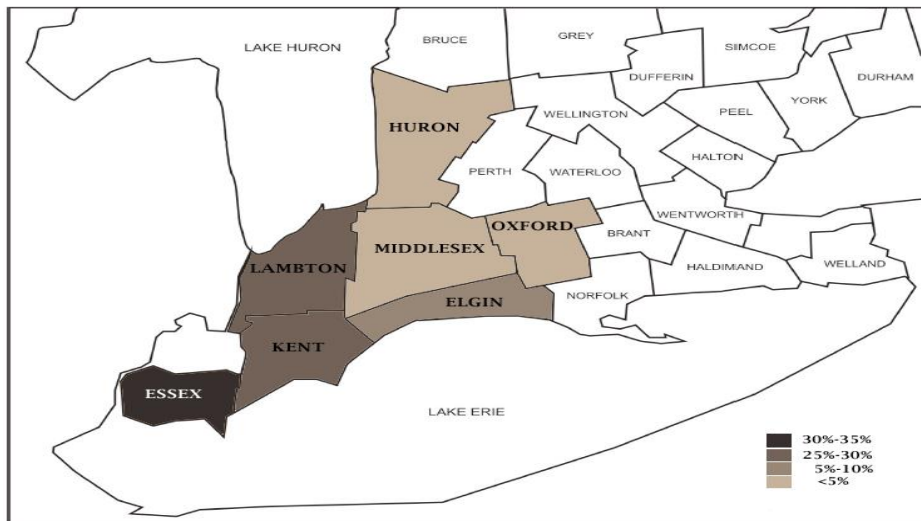


Source: Ontario Oil, Gas and Salt Resources Library

3.1.1 Wells

In 2015 there were 717 historical and 466 producing commercial oil wells in located predominately in Southwestern Ontario.

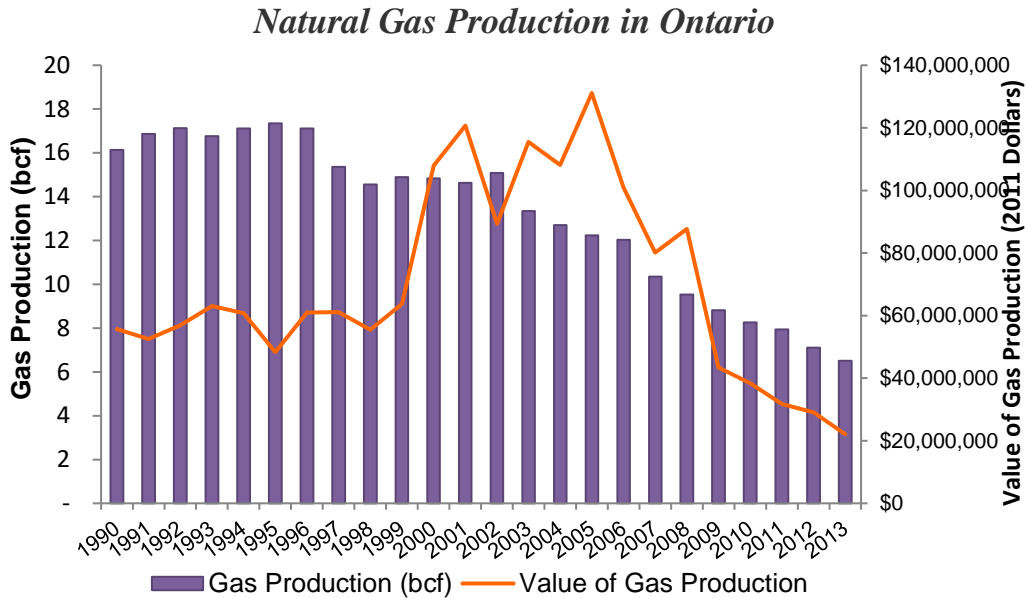
Oil Production by County



Source: Ontario Oil, Gas and Salt Resources Library

3.2 Natural Gas

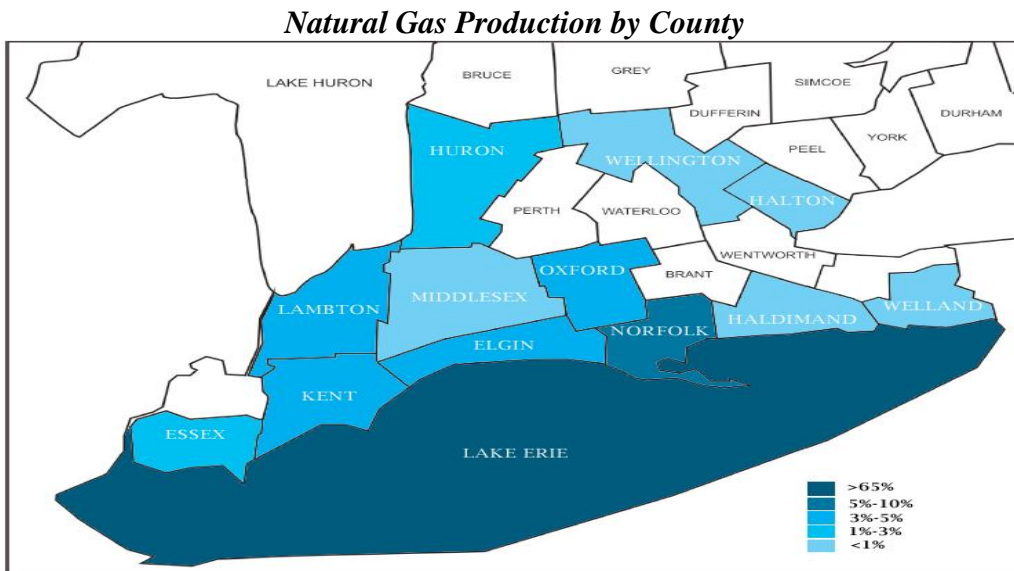
Ontario natural gas production went from a high point in 1995 of 16 billion cubic feet to 5.5 billion cubic feet in 2015.



Source: Ontario Oil, Gas, & Salt Resources Library; Prices from National Energy Board

3.2.1 Wells

In 2015 there 1,221 wells producing natural gas in Southwestern Ontario a significant portion extracted from Lake Erie.



Source: Ontario Oil, Gas and Salt Resources Library

3.3 Storage

Ontario has over 400 wells used to store natural gas and hydrocarbons. It is a significant and valuable asset of the energy industry for Ontario.

3.3.1 Natural Gas

Southwestern Ontario has one of the largest natural gas storage hubs in North America with 285 wells storing natural gas for distribution to Central and Eastern Canada and the Northeastern United States.

Ontario provides substantial storage capacity for energy products. These include storage pools for (i) natural gas and (ii) liquefied petroleum gas. These facilities are essential to the economic success of the oil and gas sector in the province and help distinguish it from other jurisdictions.

Natural Gas Storage Pools in Ontario

Operator	County	Wells	Working Capacity at Delta Pressure (Bcf)
Union Gas	Lambton	151	149.7
Enbridge Energy Distribution	Lambton/Well and/Kent	119	100.3
Sarnia Airport Storage Pool	Lambton	5	5.3
Huron Tipperary Limited Partners	Huron	9	2.9
Market Hub Partners	Lambton	2	1.1

Source: Ontario Oil, Gas and Salt Resources Library

4.0 CONTRIBUTING TO ONTARIO'S CLIMATE ACTION PLAN

The Ontario oil and natural gas production industry can be an important contributor to the success of Ontario's Climate Action Plan. The industry has the expertise and experience to develop programs to assist the Government of Ontario reduce its greenhouse gas footprint.

4.1 Supporting the Climate Action Plan

It is recognized that the use of natural gas to generate electrical power provides primary support to ensure the success of renewable energy programs (the Intergovernmental Panel on Climate Change has stated that the use natural gas will be a significant contributor to meeting the world's targets for green-house-gas emissions reductions).

It is environmentally beneficial to develop Ontario's oil and natural gas resources as a measure to offset higher green-house-gas emissions resulting from the importing of crude oil and natural gas.

In the next decade in other parts of Canada it's expected that there will be a 45% reduction in methane emission. An incentive based program in Ontario can achieve that target voluntarily through offset credits in the Ontario Cap and Trade Program. The protocols for offset credits can be adapted by Ontario from protocols developed in other jurisdictions such as Alberta.

The sector's capability to develop offset credits will benefit the Ontario Cap and Trade program. As well, it provides the industry with the opportunity to generate revenue through the sale of the offset credits.

It would be useful to have programs like the Climate and Clean Air Coalition supported by the Government of Canada available to Ontario's oil and gas sector.

4.2 Collaborating with Wind, Solar and Bio-fuel Producers

The Ontario oil and natural gas industry would welcome the opportunity to work with companies producing renewable energy: wind, solar and bio-fuels. To meet the energy needs of the future requires the cooperation and coordination of all energy producers. Collaborative cooperation can result in a balanced approach to providing energy.

Ontario's Long-Term Energy Plan includes the use of natural gas – a clean burning fossil fuel – to support the production of energy from renewables to reduce harmful emissions, which contribute to smog, pollution and climate change.

The oil and natural gas industry looks forward to collaborating with renewable energy producers as Ontario continues to develop its renewable energy potential over the next decade.

4.3 The Fourth Leg

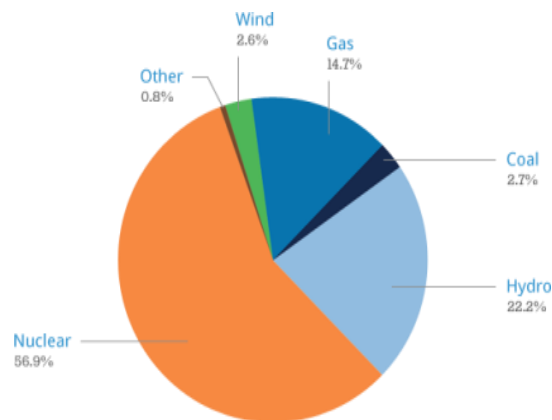
Ontario's electrical power is produced from nuclear generation, hydro power, renewables – wind, solar and bio-fuels – and from the Fourth Leg - natural gas.

Natural gas accounts for approximately one-third of Ontario's primary energy use and is a widely used fuel in the residential, commercial, industrial, and electricity generation sectors and will continue to play a strategic role in Ontario's supply mix as it helps to:

- Support the intermittent supply from renewables like wind and solar
- Meet local and system reliability requirements
- Ensure adequate capacity is available as nuclear plants are being modernized

Natural gas is ideal for these purposes because it can be easily “dispatched,” which means plants can be fired up quickly to produce electricity and meet demand. Since 2003, Ontario has brought more than 5,000 MW of natural gas generation online in Ontario.

In 2013 natural gas provides close to 15% of the province power source.



In 2015 natural gas as a power source is at 10% and coal has been eliminated and in the coming years, natural gas is likely to continue to have role in the production of Ontario's power supply mix. The current natural gas power plant fleet has the capability to generate more electricity when other sources are in short supply. Over the next decade or so, natural gas could be used for additional base-load generation.

4.4 Environmental Responsibility

Sustainable exploration and production of oil and natural gas involves a commitment to the environment. There is an inherent responsibility to ensure the protection of the environment and water resources. Safely harvesting energy for 150 years, the Ontario industry is committed to sustainable oil and natural gas development. Exploring and producing these natural resources in Ontario is a process regulated by the Government of Ontario's Ministry of Natural Resources and Forestry through the Ontario Oil, Gas and Salt Resources Act

4.4.1 Protecting Groundwater

Exploration and production of oil and natural gas involves a commitment to clean water quality through the design and operation of facilities that meet or exceed federal or provincial water quality objectives.

The Ontario oil and natural gas industry is equally committed to safeguarding the quality of regional surface and ground water resources, to reducing the amount of fresh water required per barrel equivalent of production by improving water recycle rates, using low quality (e.g. saline) water sources where feasible, and by developing new technologies.

Using non-potable water sources, where feasible, developing and implementing new technologies, such as treating water from underground saline aquifers, are other ways industry is working to manage water. Industry is also working with provincial and federal government agencies to monitor the quality of regional surface and groundwater resources, striving to ensure that any water re-entering waterways meets all applicable standards.

4.4.2 Land Use Footprint

Sustainable exploration and production of oil and natural gas involves a commitment to preserving fertile land, maintaining regional ecosystems and biodiversity, and reclaiming all lands affected by our operations, returning them to self-sustaining landscapes.

The oil and natural gas industry recognizes that lands with rich biodiversity are critical resources to Ontarians and it is important to assess the impact of industry activities on the land, as well as the effectiveness of mitigation activities.

The industry strives to keep land in its original state, a self-sustaining landscape with biodiversity ensuring that each phase of development, from preparing the site for work, through the exploration and production stages and the reclamation phase is designed to reduce the impacts of operations.

5.0 FIRST NATIONS COMMUNITY

Ontario First Nations, Inuit and Metis people have a historical place in the province as a result of a unique relationship that involves an affiliation with the Crown as embodied in the reigning sovereign, Queen Elizabeth, and the Government of Canada. Treaties negotiated by Indigenous peoples are an important voice in the development of the Ontario's natural resources.

5.1 Building a Relationship

The OPI has recognized the inherent value of establishing relationships with the province's First Nations and Metis communities understanding that the relationship must reflect First Nations' participation in the energy sector as key partners.

5.2 Mutual Stakeholders

First Nations are members of the OPI providing the industry with an opportunity to work together with the First Nations as stakeholders with a focus on exploration, production, and training.

6.0 CONTRIBUTING TO ONTARIO'S ECONOMY

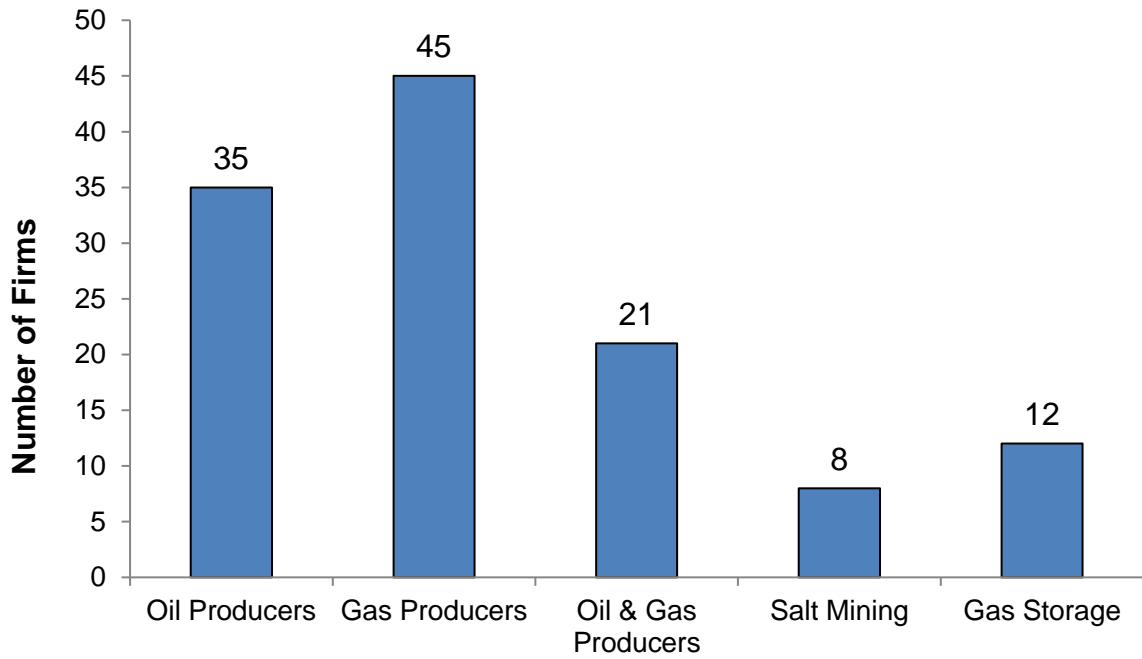
6.1 Industry Overview

Upstream crude oil and natural gas exploration and production has been an important contributor to Ontario's economy. For 150 years this value-added industry has safely and sustainably produced millions of barrels of oil and billions of cubic feet of natural gas for Ontarians.

The sector's major activities include exploration and development of new fields and storage activities that are an important part of the Ontario economy. The industry represents a diverse set of constituents that include producers, service companies, financial and legal professionals, utilities, educational institutions, government agencies, and consultants.

At the core of the sector's activities is the production and storage of energy. The OPI represents the majority of those firms actively engaged in these activities in the province.

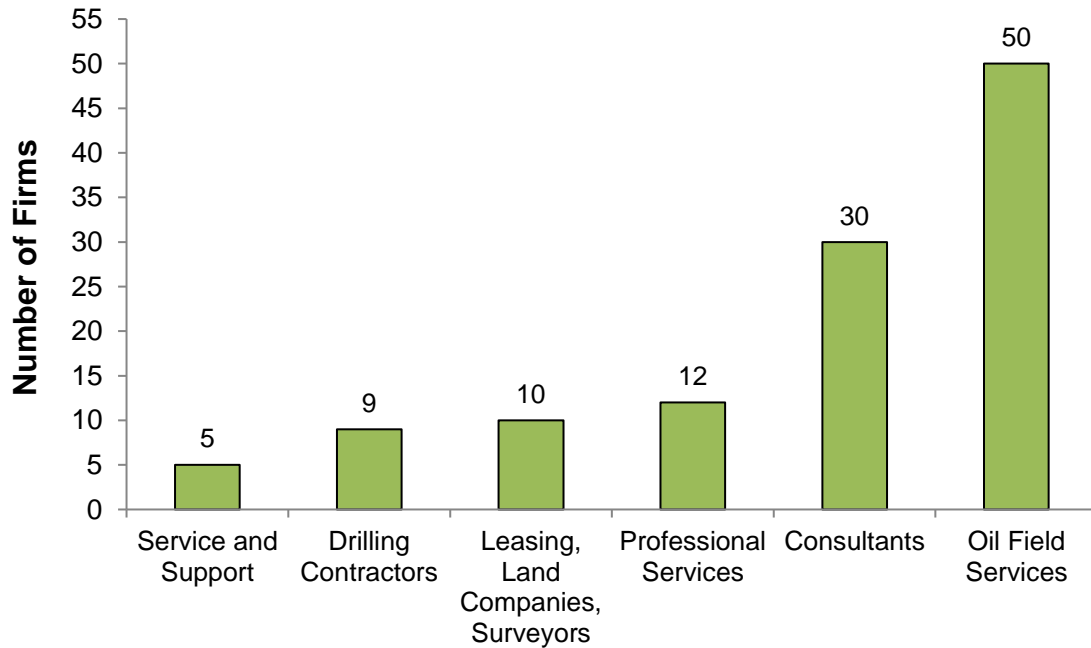
Number of Active Firms



Source: Ontario Oil, Gas and Salt Resources Library

The sector also includes firms that provide the support activities necessary for a productive sector that include drilling and operations as well as high value added support of finance, accounting and legal services.

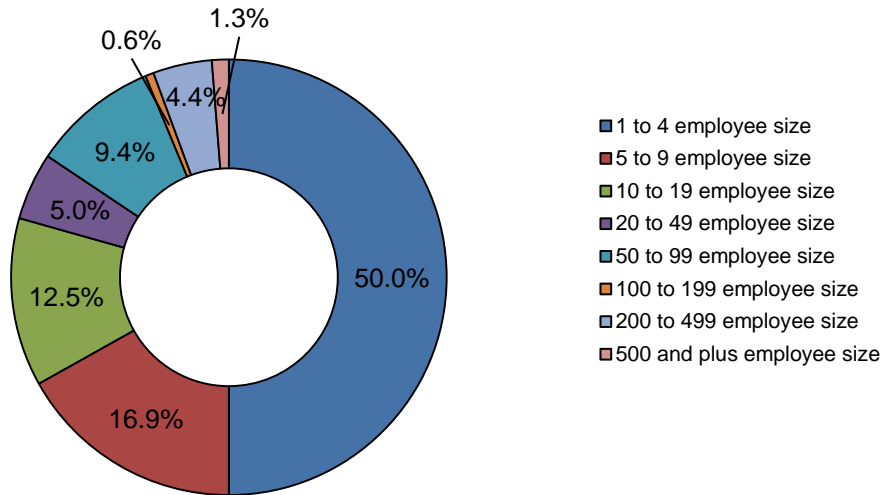
Number of Support Firms



Source: Ontario Petroleum Institute

The composition of the firms that are active in the sector vary considerably in the size of the operations with the majority considered as small business.

Composition of Firms in the Ontario Oil and Natural Gas Industry



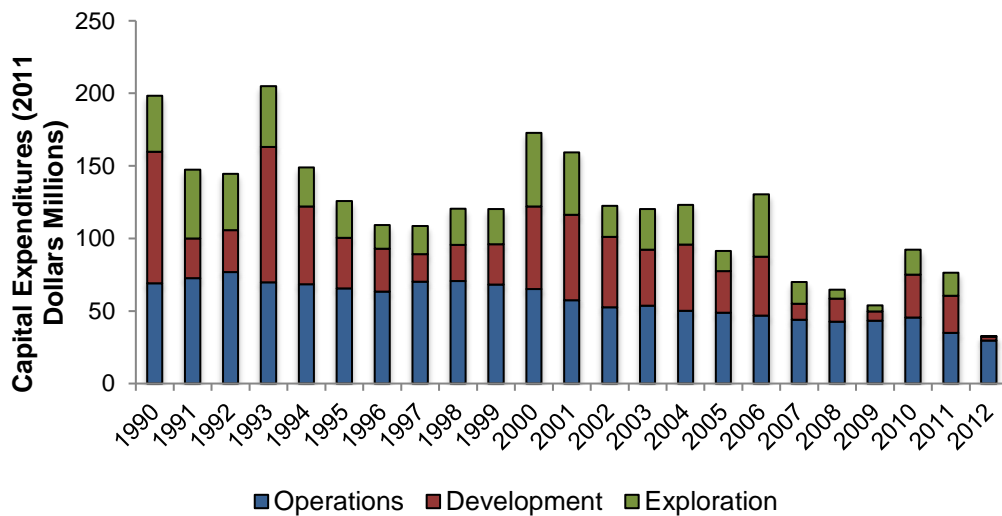
Source: Statistics Canada

All economic activity of these firms occurs in Southwestern Ontario.

Capital Expenditures

The sector has consistently developed natural resources through sustained capital expenditures.

Capital Expenditure in the Ontario Oil and Natural Gas Sector

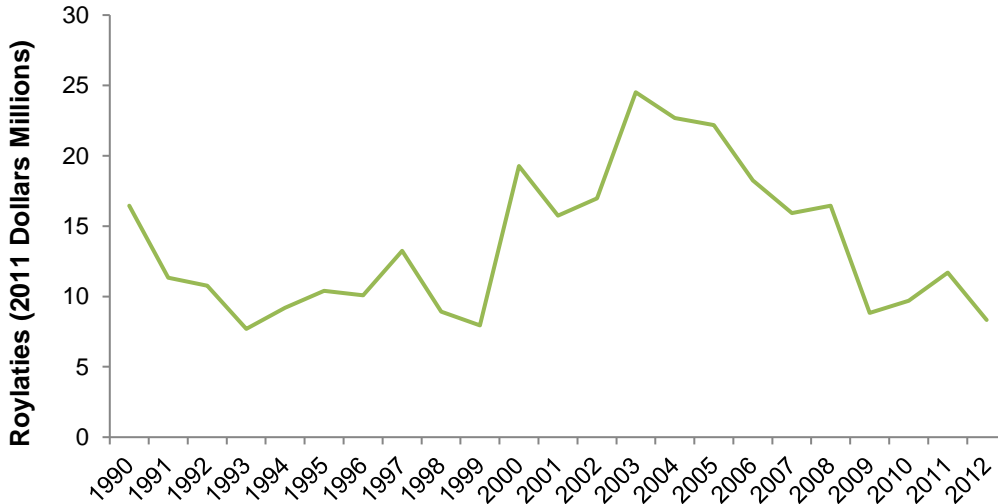


Source: Canadian Association of Petroleum Producers

Royalty Benefits

Beyond the direct benefits from economic activity, the oil and natural gas sector provides significant payments to the province and landowners in the form of royalties.

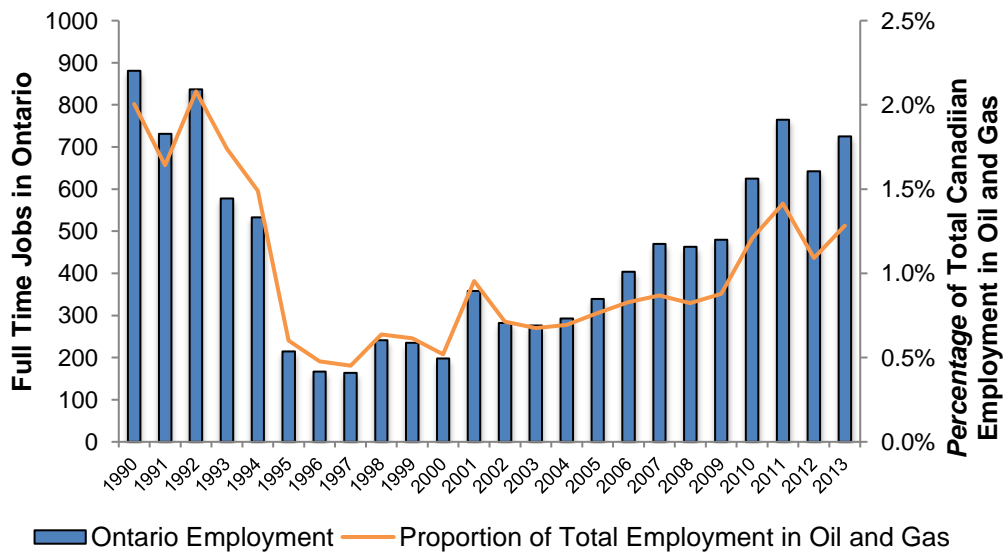
Royalty Payments by the Ontario Oil and Natural Gas Sector



6.2 Employment and Productivity

The Ontario oil and natural gas exploration and development sector directly supports about 700 full-time jobs. For each full-time position in the sector there is an additional position offering support activities that brings the number of jobs to approximately 1,500.

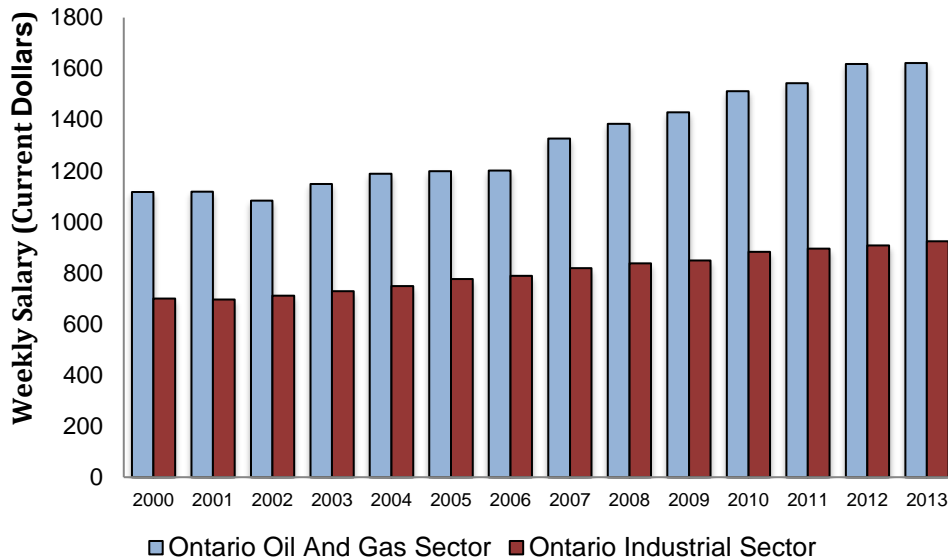
Employment in the Ontario Oil and Natural Gas Production Sector



Source: Statistics Canada (Survey of Employment, Payrolls, and Hours)

The full time positions in the Ontario industry tend to be well-paying jobs that exceed the average industrial position in the province.

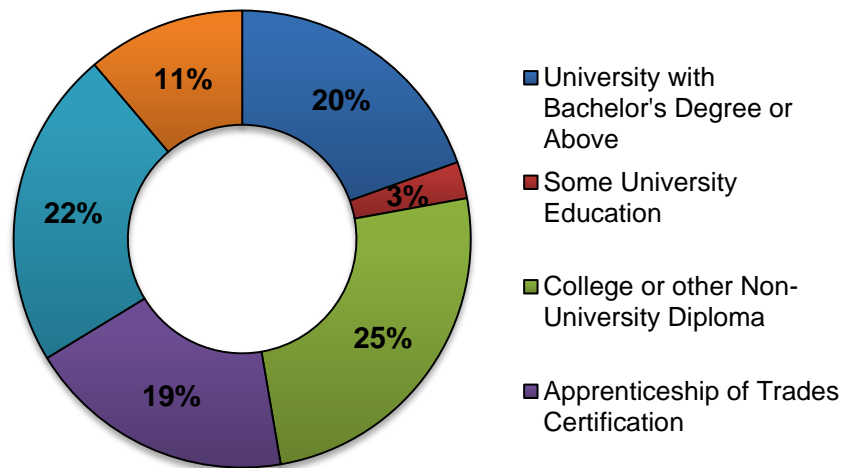
Comparison of Weekly Salary - Ontario Oil and Natural Gas/Industrial Sectors



Source: Statistics Canada

The vast majority of the labour force in the Ontario oil and natural gas industry have received higher education and/or specialized training which is reflected in the higher levels of productivity and compensation in the sector.

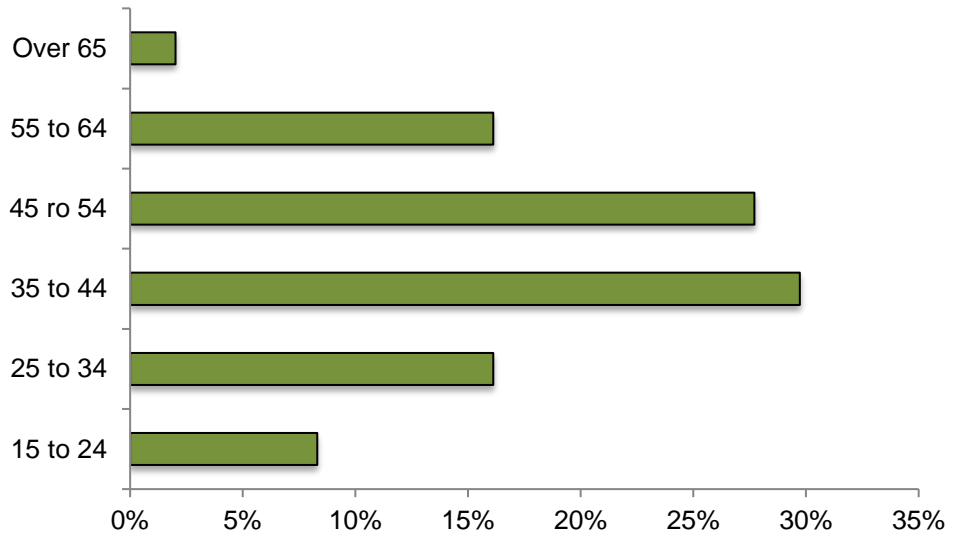
Levels of Educational Attainment in the Ontario Oil and Gas Sector - 2011



Source: Statistics Canada (2011 National Household Survey)

The demographic profile of the industry is well balanced where the middle 35 to 44 and 45 to 54 years old categories is the largest component.

Demographic Profile of the Ontario Oil and Gas Sector -2011



Source: Statistics Canada

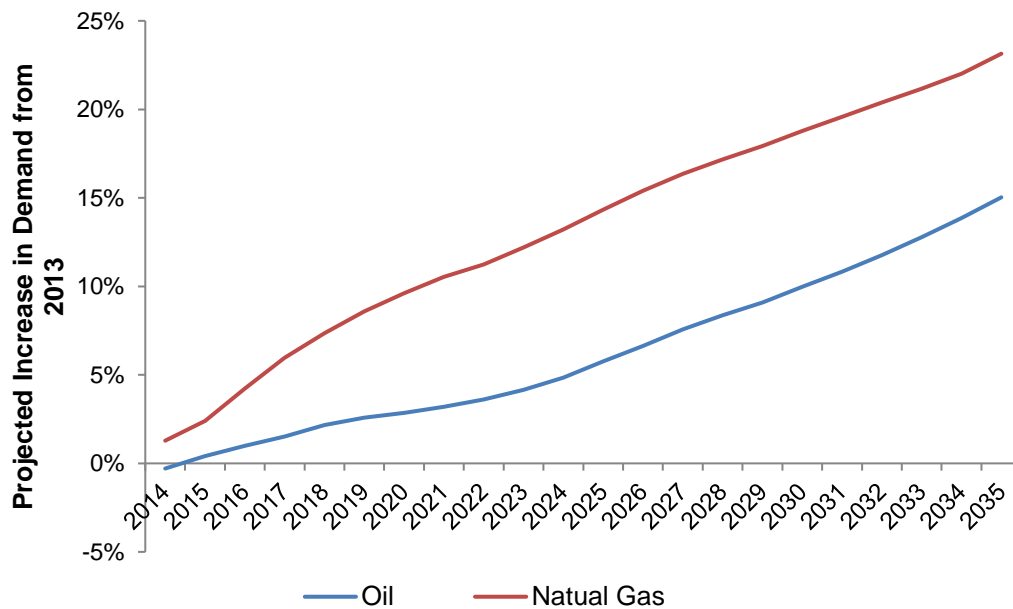
7.0 CONTRIBUTING TO ONTARIO’S ENERGY SUPPLY

The Ontario Advantage

Ontario oil and natural gas production has been sustained by the advantages of long life reserves, low operating costs, drilling capacity and infrastructure – roads, rail, pipelines, storage and refineries.

The Ontario oil and natural gas industry has the potential to supply energy for the foreseeable future. Ontario producers can produce energy from the province’s natural resources to enhance the security of that supply, contribute to the province’s economic well-being and supports the Climate Action Plan.

Projected Growth in Ontario Demand for Oil and Natural Gas



Source: National Energy Board (Canada’s Energy Future, 2013)

7.1 Exploration and Production

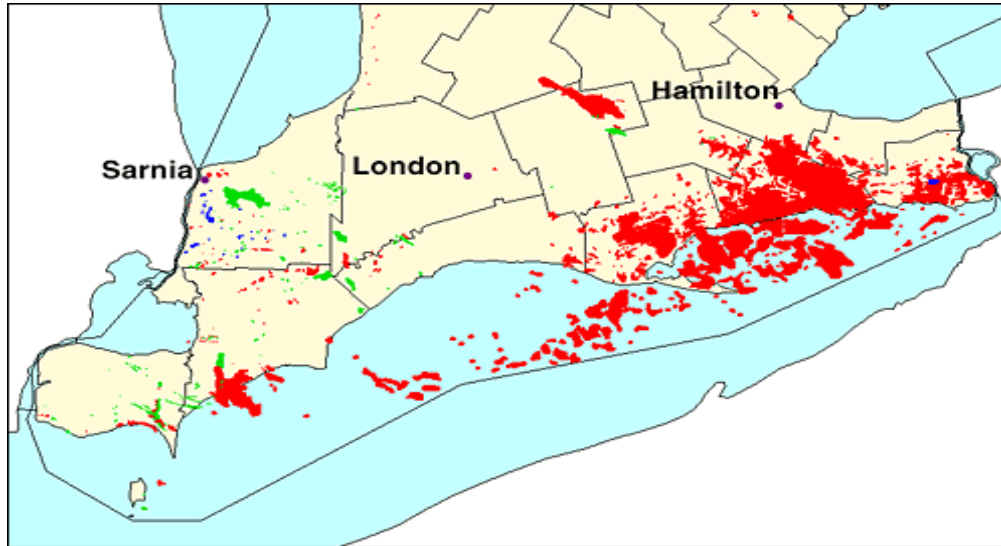
Ontario companies have been exploring and producing oil and natural gas for 150 years. The industry has made a significant contribution to Ontario’s economy with an estimated 50,000 oil and natural gas wells that have been safely drilled on land as well as offshore.

Whether it’s oil from new “plays” or natural gas from “shale” formations, the technologies that are commonly practiced around the world have come from Canadian innovators. These technologies are widely used in most of North American oil and natural gas basins with a few exceptions.

7.1.1 Resource Potential

In Ontario, 50% of the potentially recoverable conventional oil and natural gas remains to be developed. There are 2500 active oil and natural gas wells in Ontario at the end of 2014. It is estimated that cumulative production to the end of 2014 amounted to 1.33 trillion cubic feet of natural gas and 90.4 million barrels of oil. The quantitative assessments of the potential in Ontario indicate that there is 190 million barrels of oil remaining to be produced or still undiscovered, and 1.45 trillion cubic feet of natural gas. No quantitative resource estimate has been completed for unconventional resources in the organic-rich shales of Ontario.

Oil and Natural Gas Pools in Southwestern Ontario



7.1.2 Conventional Reserves

Exploration for conventional oil and natural gas has been the sole focus of the industry since it began nearly 150 years ago. Conventional oil and natural gas is typically “free oil and gas” trapped in multiple, relatively small, porous zones in various naturally occurring rock formations such as carbonates, sandstones, and siltstones.

In Ontario conventional reserves are found in the following Southwestern Ontario reservoirs: (i) Cambrian sandstones and dolomites; (ii) Middle Ordovician hydrothermal dolomites; (iii) Lower Silurian sandstones; (iv) Silurian reefs and carbonates; and (v) Middle Devonian carbonates.

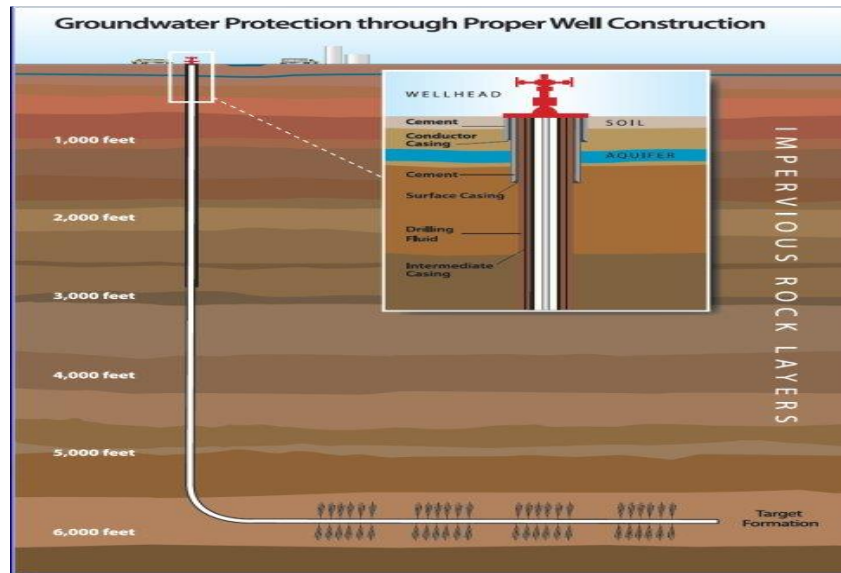
7.1.3 Shale Oil and Natural Gas

Shale rock formations hold unconventional energy resource potential for natural gas and light oil. Development of unconventional resources has revolutionized production of oil and natural gas. Unconventional production has accelerated with much of this development primarily as a result of innovative drilling and well stimulation technologies – notably horizontal drilling and hydraulic fracturing.

Southwestern Ontario has organic-rich shale formations that have potential for unconventional sources of oil and natural gas. The resource potential of the oil shale could be 100 million barrels of oil based upon a physical estimation of the resource.

Recent innovations in the use of hydraulic fracturing in horizontal wells has resulted in increases in oil and natural gas production.

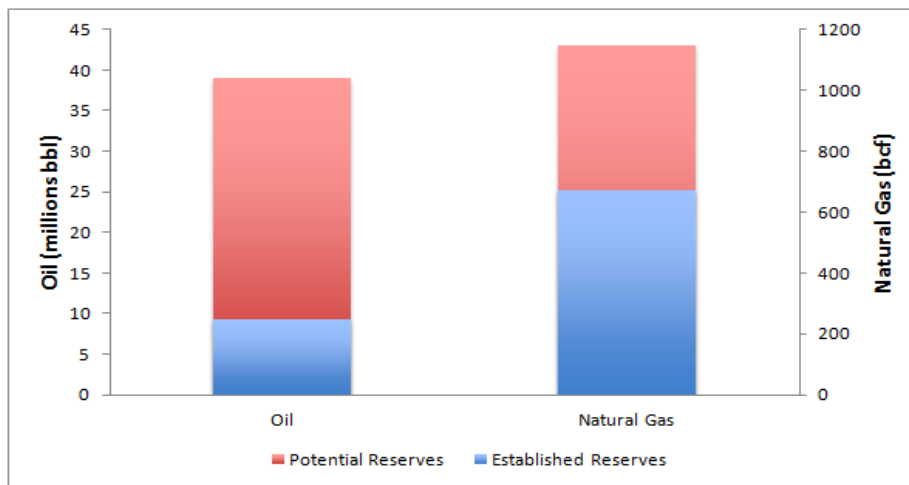
Horizontal Well



7.2 Reservoir Life

Ontario has long-life reserves with wells estimated to produce, on average, for 30 years. Independent studies indicate that 50% of the potentially recoverable conventional oil and natural gas remains to be developed in Southwestern Ontario.

Established and Potential Reserves of Oil and Natural Gas

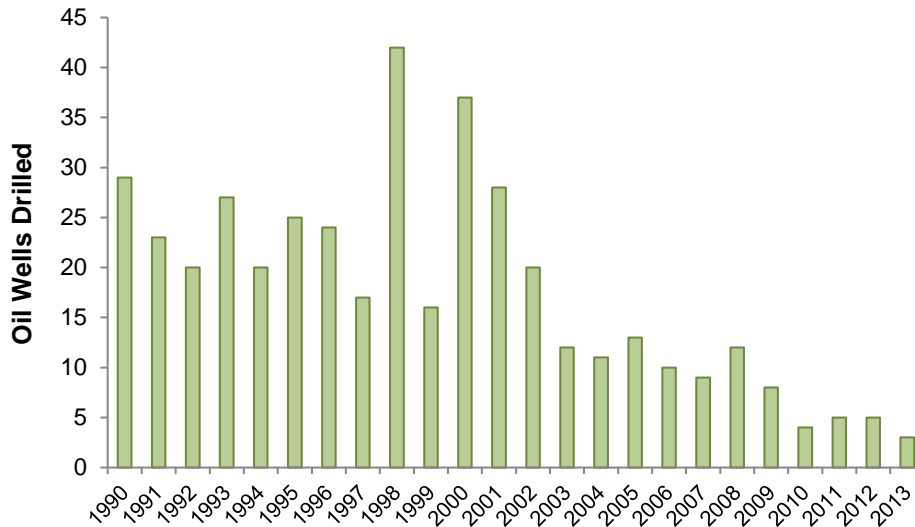


Source: Ontario Oil, Gas and Salt Resources Library

7.3 Drilling Capacity

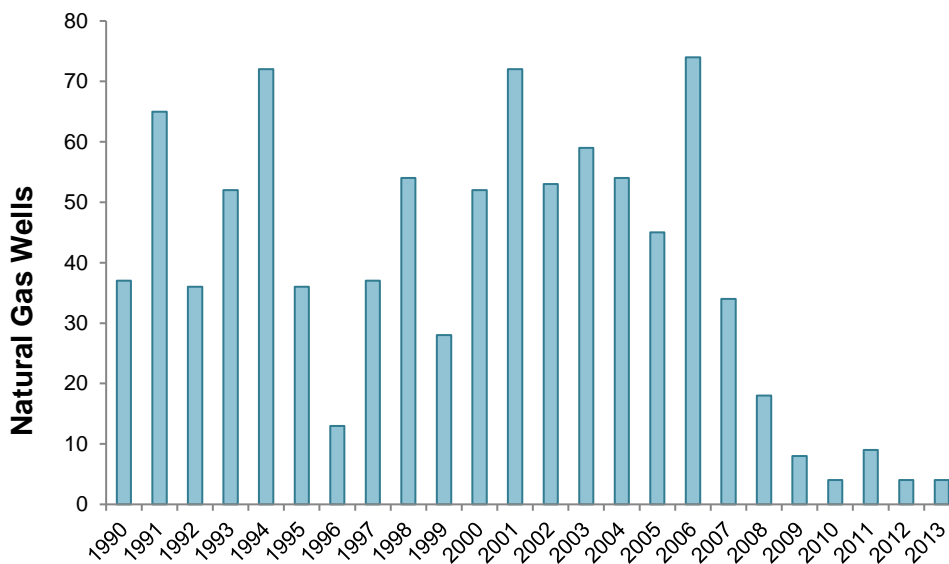
The Ontario oil and natural gas industry has considerable experience in drilling for energy. This drilling capability and innovations have contributed to the industry's record of safely developing oil and natural gas.

Oil Wells Drilled in Ontario Since 1990



Source: OPI Well Data

Natural Gas Wells Drilled in Ontario Since 1990



Source: OPI Well Data

The downward decline in drilling continued in 2014 and in 2015 with only one exploration or developed well drilled in each of those years.

7.4 Transportation

The upstream producers of raw oil and natural gas and the mid-stream hydrocarbon storage industries operate with a significant investment in transportation infrastructure. Delivery of marketable hydrocarbons in Ontario is by truck transport, rail, and pipelines.

7.4.1 Truck Transport

Produced raw oil is trucked or moved via a gathering line system to the producer's central field facilities to be transformed into marketable crude oil. Prior to being refined this marketable crude oil is either trucked from the producers central facility directly to a storage terminal company or is trans-loaded onto railcars to be shipped to a refinery.



7.4.2 Pipelines

Produced raw natural gas is collected via a gathering line system to the producer's central field facilities to be transformed into marketable natural gas. The producer's marketable natural gas is transferred into the natural gas transmission pipeline system at the utilities sales meter.



8.0 ONTARIO PROVINCIAL PRODUCTION PROGRAM

The OPI regards its participation in the development of the next Ontario Long-Term Energy Plan as an opportunity for the Ministry of Energy and the industry to collaborate on how oil and natural gas fits into Ontario's current and future energy supply.

In recent years, due to a variety of factors Ontario exploration and production has been in decline with only one new exploration well per year drilled in 2015 and 2016. Based on several independent studies it is estimated that 50% of the potentially recoverable conventional oil and natural gas remains to be developed in the province.

For the industry to achieve the goals it has set the OPI is proposing that the following measures and mechanisms be implemented to enable the industry to fulfill its commitment to the Ontario Long-Term Energy Plan:

8.1 Provincial Production Program

The OPI is proposing the Government of Ontario establish an Ontario Provincial Production Program (PPP) to encourage expanded exploration of crude oil and natural gas in the province by local companies and to attract investment from companies outside the province.

While the purpose of the PPP would be to increase Ontario exploration and production of oil and natural gas the focus of the objectives and elements of the PPP is on local natural gas production to supply Ontario in general but in particular to provide access to natural gas to underserved communities in the province.

8.1.1 Objectives

The PPP would focus on exploration to supply the requirements in the Ontario Long-Term Energy Plan to:

- Increase Ontario produced oil and natural gas to meet local consumer, commercial and industrial demand with a target of 5% of the Ontario's 2017 forecast consumption.
- Support the increased supply of Ontario sourced natural gas with a target of 5% of the Ontario's 2017 forecast consumption.
- Supply underserved communities in Ontario with affordable natural gas including mechanisms for producers to convert locally produced natural gas to electricity in areas where the installation of new natural gas infrastructure is not currently practical, and where an existing utility has a municipal franchise but has chosen not to serve some customers within that jurisdiction.
- Support the updating of geological studies of Southwestern Ontario
- Establish a tax credit program to encourage drilling for untapped oil and natural gas.
- Support the promotion of Ontario's oil and natural gas resources throughout North America in the Government of Ontario's economic development programs that support key industries, small business, training and skills, and infrastructure.

8.1.2 Program Elements

The PPP would include but not be limited to the following elements:

- 1) A “feed-in-tariff” for Ontario natural gas production that would facilitate and maintain an increase in exploration.
- 2) The first phase of funding to support the PPP be derived from paying the Ontario natural gas producers the cost of natural gas as currently charged by the utilities to the end user in the local market less the utilities’ handling cost to accept and distribute the gas locally. Abolish the current pricing mechanism that is used by the utilities that imposes a “deemed” round trip transportation fee for locally produced gas to and from the storage hub, even though the natural gas is never moved beyond the local market.
- 3) The second phase of funding to support the PPP be derived from contracts with the Ontario Government to buy locally produced natural gas preferentially under longer-term contracts.
- 4) The PPP be augmented as required to support the level of capital and operating cost that the producers will be required to incur to meet the natural gas production target of 5% of all the natural gas consumed in the province. The recovery of the “augmented cost” will be reviewed by the Ontario Energy Board.
- 5) The costs that represent “barriers to entry” for the local Ontario oil and natural gas producers be reduced or eliminated to facilitate the proposed production increases. The most pressing is the reduction in the fees that utilities charges to connect to their pipelines.
- 6) The PPP would provide the basis for a strategic reserve that the OPI suggests be developed by the Government of Ontario as a contingency for electricity in the event of an interruption of the power supply from the disruption of nuclear energy or imported natural gas. Ontario has the cavern storage capacity to designate a portion of any new production to a strategic reserve

8.1.3 Production Projections

The initial target of the PPP would be the re-establishing and maintaining of the level of production that it realized at its peak in 1995 of 1.8 million barrels of crude oil and 16 billion cubic feet of natural gas with the goal of reaching 5% of provincial requirements by 2035.

Ontario Oil and Natural Gas Production 2017 to 2023

<u>Year</u>	<u>Oil (barrels/year)</u>	<u>Natural Gas (cubic feet/year)</u>
2017	400,000	6 billion
2025	9.1 million	38 billion
2035	8.1 million	33 billion

The long-term potential of hydrocarbon resources in the province is significant and opportunities remain to develop the province’s established reserves of 190 million barrels of oil and 1.45 trillion cubic feet of natural gas with further exploration.

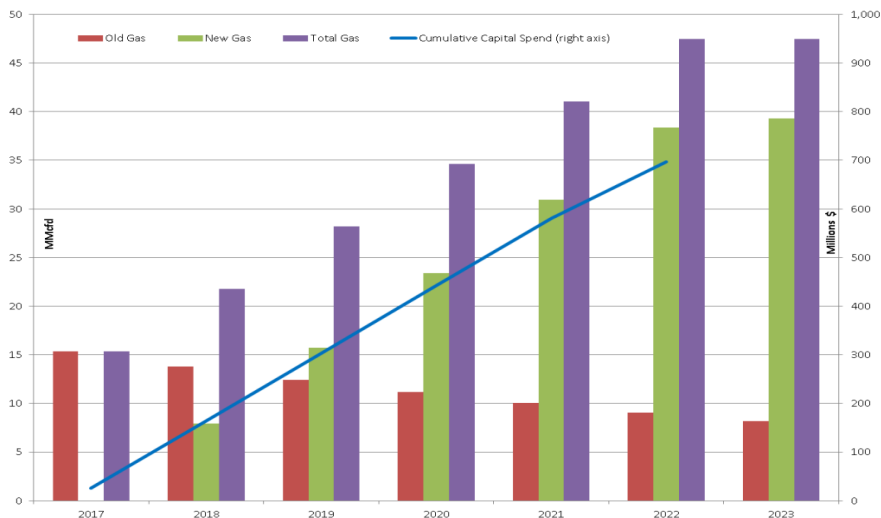
For natural gas, the 5% target would result in Ontario production increasing from its current 6 billion cubic feet (BCF) per year to 33 BCF per year by 2035.

To achieve the 2035 natural gas PPP target of 5%, OPI estimates that it will require:

- \$700 million capital investment program to reach the 5% target of all provincial consumption based on 2017 projections.
- Initial natural gas “feed-in-tariff” that would be funded by paying the local natural gas producers the local price for natural gas at the inlet to a residential or small commercial customer less a handling fee for the utility to accept and distribute the production locally. For example, a feed-in-tariff of \$5.50/MCF would be established based on an assumed local selling price by the distribution utility of \$6.00/MCF and an assumed local handling fee by the distribution utility of \$0.50/MCF.
- Gradual increase in the “feed-in-tariff” to account for any shortfall the Ontario producer industry may encounter to achieve and maintain the 5% target. Based on the “feed-in-tariff” rate above, OPI estimates that the “feed-in-tariff” would need to rise to approximately \$6.54/MCF by the sixth year of the program to break even on the capital carrying and operating & maintenance costs of the PPP for natural gas.

Notwithstanding this potential a Provincial Production Program requires a projection target set by the Ministry of Energy in collaboration with the industry’s present and future capability.

Ontario Provincial Production Program



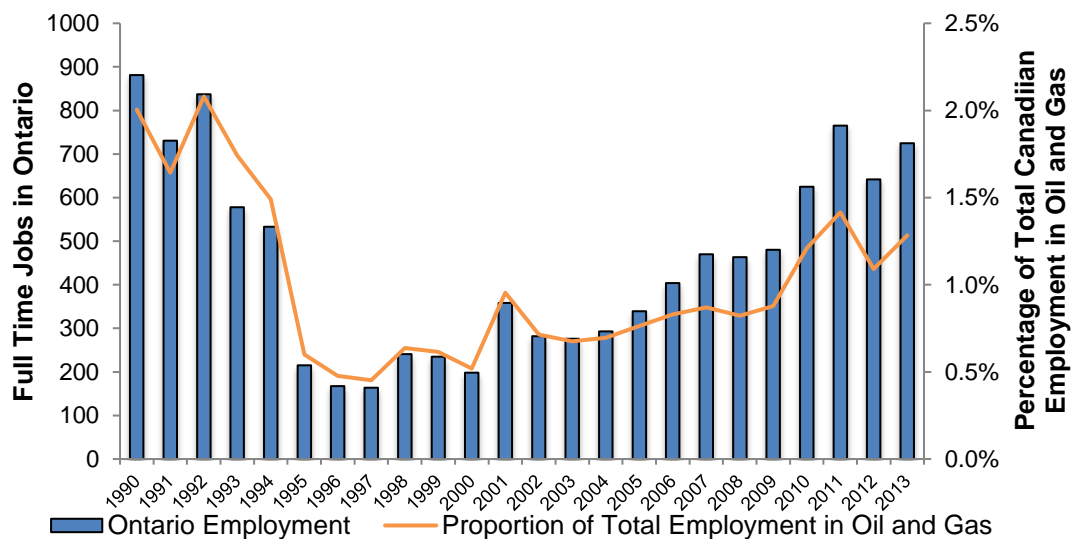
The OPI regards its participation in the development of the next Ontario Long-Term Energy Plan as an opportunity for the Ministry of Energy and our industry to collaborate on how oil and natural gas fits into Ontario’s current and future energy supply.

8.2 Provincial Stimulus Program

The objective of a Provincial Stimulus Program is to work with the Government of Ontario to revitalize the oil and natural gas industry through exploration and development in Ontario to maximize the utilization of the province's natural resources.

The production of Ontario oil and natural gas has supplied energy, created economic activity and wealth creation in the province. At certain times governments have provided support in various ways to stimulate economic development to develop an industry's resources in such sectors as mining, forestry, agriculture, renewable energy, manufacturing, and the automotive sector.

In 2015 – 47 companies produced 400,000 million barrels of oil and 5.6 billion cubic feet of natural gas valued at \$77 million with 700 full-time employees and an additional 1,500 employed indirectly through support services.



In 1994 - 72 companies produced close to 2 million barrels of oil and 16 billion cubic feet of natural gas valued at \$101 million with 1,200 full-time employees and an additional 1,200 employed indirectly through support services.

By meeting the 2022 provincial production targets for the natural gas outlined above the OPI estimates that the industry will employ:

- 1,200 full time employees, up from the current 700;
- 2,400 indirectly employed up from the current 1,500; and
- 200 construction jobs over the six year program

The OPI estimates that the natural gas component PPP will contribute:

- \$10.5 million per year in royalties and \$1 million per year in municipal taxes from the PPP in the seventh year of the program.

8.2.1 Ontario Ministry of Energy

A commitment from the Ministry of Energy that encourages and supports the development of the province's oil and natural gas resources as part of the 2017 Ontario Long-Term Energy Plan to:

- Increase Ontario produced oil to meet local consumer, commercial and industrial demand
- Connect consumers in underserved communities with a supply of affordable natural gas
- Supply Ontario sourced natural gas to the provincial power grid
- Contribute to the Ontario Climate Action Plan

8.2.2 Drilling Incentive Program

A commitment from the Ministry of Finance to:

- Establish a Provincial Tax Credit program as an incentive to encourage drilling for untapped oil and natural gas.
- Initiate an assessment review to correct irregularities between producers and utilities with respect to municipal assessments of pipelines, wellheads and related surface equipment.

Drilling Starts Are Equivalent to a Housing Start



A drilling program sets off a flurry of business opportunities that stimulates economic activity that generates income, creates employment, and tax revenues

8.2.3 Promote Ontario Oil and Natural Gas Industry

A commitment from the Ministry of Economic Development and Growth to:

- Include the industry in the Government of Ontario economic development programs that support key industries, small business, training and skills, and infrastructure.
- Partner with industry to promote Ontario oil and natural gas exploration, development as a profitable business opportunity.

Value of Resource Extraction



General wealth creation benefits the industry and every level of government. Hydrocarbons explored for and produced locally reduces Ontario's greenhouse footprint. Reducing imports off-sets energy requirements for refining, trucking, railing, and pipelining of crude oil and natural gas across the continent

8.2.4 Ontario Oil, Gas and Salt Resources Library

Support the industry funded Ontario Oil, Gas and Salt Resources Library with the resources necessary to establish it as the geological center of excellence dedicated to the development of Ontario oil and natural gas resources (Ontario Geological Survey equivalent).

8.2.4.1 Geological and Geophysical Program

Update geological/geophysical studies of Southwestern Ontario
Seismic Programs / Aerial survey / Geochemistry

9.0 2017 ONTARIO LONG-TERM ENERGY PLAN

A Bridge to the Future

Developing an energy plan in 2016 is a challenging undertaking. The demand for energy is increasing rapidly as is the importance of managing climate change. The source of supply must take into account that managing climate change is a significant factor.

The goal of the Government of Ontario's Climate Action Plan of which one of its signature components is a Cap and Trade Program is an increase over time in vehicle transportation powered by low carbon fuels which will reduce the use of crude oil for gasoline and diesel. Ontario oil and natural gas production has an important role to play as a bridge to that future.

Even while focusing on carbon emissions, the OPI believes that oil and natural gas will continue to be part of the province's energy supply for the foreseeable future. It will remain a requirement for heavy machinery, railway traffic and aircraft as well as an array of manufactured products such as cosmetics, fabric and plastics. And there will be a continuing demand for natural gas for heating, fuel truck transportation, generate power for fuel cells, and to offset the intermittency often involved in the generation of renewable electrical energy.

It is encouraging to note that an overview of the fuels sector will be included in the next LTEP. The OPI is actively promoting Ontario as a profitable exploration and development opportunity throughout North America at selected regional and national conferences. We are there to encourage companies to come to Ontario. It is important for these companies to hear that Ontario has a government that is an open and friendly place to do business.

The oil and natural gas industry has a long history as a value-added contributor to the Ontario economy. To continue to do so the industry has challenges that must be addressed. It is important that the Government of Ontario include the oil and natural gas sector in the economic development of the province's natural resources.

Locally produced natural gas and crude oil not only supports economic growth but it assists in the reduction of green-house-gas emissions when compared to what we believe are higher emissions associated with the production and transmission of imported natural gas and crude oil.

The Premier's Mandate letters to the Ministers of Natural Resources and Forestry, Energy and Economic Development and Growth asks the Ministers to ensure the good stewardship of petroleum resources, implement the long-term energy plan, and support the access to natural gas for underserved communities.

The OPI's objective is to collaborate with the Government of Ontario to revitalize the oil and natural gas industry through exploration and development in the province to maximize the utilization of province's natural resources and to enable the industry to continue its contribution to the Ontario economy.

Ontario's requirement for energy to support its economy is significant. A certain amount of that supply exists in the natural resources of Southwestern Ontario to be explored and produced by an experienced industry sector.

The OPI looks forward to the collaborative stewardship of the province's natural resources with the Ontario Ministry of Energy and on how Ontario's long-standing and historic oil and natural gas industry contributes to the energy requirements of



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