



# NWT PETROLEUM RESOURCES

## A Path to Northern Benefits and Energy Security

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# RESSOURCES PÉTROLIÈRES DES TNO

Un pas vers la sécurité énergétique  
au profit des ténos

Le present document contient la traduction française du résumé et du message du ministre

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English

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French

Kīspin ki nitawihitīn ē nīhīyawihk ōma ācimōwin, tipwāsinān.  
Cree

Tłıchq̄ yatı k'è'è. Dı wegodı newq̄ dè, gots'ō gone. de.  
Tłıchq̄

ᑭerihł'ís Dēne Sųlíné yatı t'a huts'elkēr xa beyáyatı theᑭᑭ ᑭat'e, nuwe ts'ēn yółtı.  
Chipewyan

Edı gondı dehgháh got'ıe zhaté k'è'è edat'éh enahddhę nıde naxets'é edahłı.  
South Slavey

K'áhshó got'ıne xadā k'é hederı ᑭedłhtl'é yerıniwę ní dé dúle.  
North Slavey

Jii gwandak izhii ginjik vat'atr'ijāhch'uu zhit yinothtan jı', diits'at ginohkhii.  
Gwich'in

Uvanittuaq ilitchurisukupku Inuvialuktun, ququaqłuta.  
Inuvialuktun

Ċ'bdĊ ħħ'bbΔĊ ΛΛLJΔΛΛĊ ΔđħĊĊĊĊ'bbĊĊĊĊĊ, ĐĊĊĊĊĊĊ Đ'bbĊĊĊĊĊĊĊĊ.  
Inuktitut

Hapkaa titiqqat pijumagupkit Inuinnaqtun, uvaptinnut hivajarłutit.  
Inuinnaqtun

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**The Honourable Wally Schumann**  
Minister of Industry, Tourism  
and Investment

## MESSAGE FROM THE MINISTER

The Northwest Territories has significant and varied energy resources. The responsible development of these resources can create meaningful jobs for residents, opportunities for businesses, and sources of revenue to support territory-wide public programs and services for NWT residents.

NWT petroleum resources, in particular, offer a frontier for exploration; and represent, in their development and delivery to market, significant opportunities to grow and diversify our economy.

In time, our natural gas resources can also contribute to regional energy security, lessen our reliance on imported diesel, reduce energy costs and lower NWT greenhouse gas emissions.

None of this, however, will happen overnight. Realizing the benefits of NWT petroleum resources will take time, commitment and innovation. All of which we have.

*NWT Petroleum Resources - A Path to Northern Benefits and Energy Security* presents a balanced, viable and made-in-the-NWT approach to advancing petroleum development in the NWT for the benefit of all residents.

Its aim is to realize both short and long-term economic benefits from our territory's petroleum resources; positioning and preparing the NWT to realize eventual industry investment, while, pursuing local energy security, addressing and recognizing climate change, and advancing our growing Knowledge Economy.

Access to secure, affordable, and environmentally-sustainable sources of energy is essential to the prosperity of the NWT and everyone has a part to play in achieving a more sustainable territory.

I look forward to working with colleagues, stakeholders and Indigenous governments to implement this pursuit of economic opportunity and prosperity on behalf of all residents of the Northwest Territories.



**Wally Schumann**  
Ministre de l'Industrie, du Tourisme  
et de l'Investissement

## MESSAGE DU MINISTRE

Les Territoires du Nord-Ouest sont dotés de ressources énergétiques importantes et variées. L'exploitation responsable de ces ressources peut se traduire par des emplois intéressants, des ouvertures pour les entreprises et des sources de revenus appuyant les programmes et les services publics offerts à la population à l'échelle des TNO.

De leur exploitation jusqu'à leur livraison sur le marché, les réserves pétrolières ténaises, en particulier, ouvrent de nouveaux horizons à l'exploration et offrent de formidables perspectives de faire croître et de diversifier notre économie.

En temps voulu, nos ressources de gaz naturel pourront également contribuer à la sécurité énergétique de la région, ainsi que réduire notre dépendance au diésel importé, et diminuer les coûts de l'énergie et les gaz à effet de serre aux TNO.

Ces changements ne se feront pas du jour au lendemain. La concrétisation des retombées des ressources pétrolières ténaises nécessitera du temps, un véritable engagement et de l'innovation, ce dont nous disposons.

La stratégie intitulée *Ressources pétrolières ténaises, un pas vers la sécurité énergétique au profit des Ténais* présente une approche équilibrée, viable et locale pour stimuler l'exploitation pétrolière du territoire au profit de l'ensemble de la population.

Elle a pour but de concrétiser les retombées économiques à la fois à court et à long terme des ressources pétrolières de notre territoire, et à positionner et à préparer les TNO à réaliser des investissements potentiels dans l'industrie, tout en visant la sécurité énergétique et la croissance de notre secteur du savoir.

La prospérité des TNO passe par l'accès à des sources d'énergie fiables, abordables et durables sur le plan de l'environnement et chacun a un rôle à jouer pour assurer la durabilité du territoire.

Je me réjouis de travailler avec mes collègues, les parties intéressées et les gouvernements autochtones afin de saisir ces possibilités économiques et d'assurer l'essor du territoire pour l'ensemble de la population des TNO.

# EXECUTIVE SUMMARY

Petroleum development, when achieved safely and responsibly, can result in significant long-lasting benefits and returns for NWT residents. But while the NWT's petroleum resources sector has long been an industry on the verge of becoming a powerful economic driver, it has, to date, never realized its potential.

Built on the direct input of NWT residents, businesses, governments, industry and stakeholder groups, *NWT Petroleum Resources - A Path to Northern Benefits and Energy Security* offers a balanced approach to developing these resources that all NWT residents can both support and benefit from in the long term.

The strategy sets out a path, in part, to restore the confidence and investment of the petroleum resources industry in our territory while promoting smaller-scale natural gas projects designed to meet the more immediate energy needs of communities and businesses.

It also opens the door for new technologies and research that will help residents pursue economic benefits from the development of petroleum resources within a framework of knowledge and innovation aimed at securing environmentally responsible and affordable energy for everyone.

To improve the NWT's competitive edge for investment and advancement of this sector, the GNWT will: support infrastructure projects that facilitate activity in the NWT's petroleum resources sector; clarify and improve the NWT's oil and gas regulatory framework; and invest in greater public awareness and understanding at home while soliciting investment from industry partners worldwide.

To ensure benefits are fully realized by NWT Residents, the GNWT will assess and advance opportunities to provide locally produced energy to communities; build the NWT's workforce and business capacity to allow Northerners to participate in and benefit from resource development; and take an active role in the governance of offshore oil and gas policy and co-management.

Finally, the GNWT will work, through the implementation of this strategy, to create a sustainable and innovative petroleum resources sector by ensuring decisions about the development of NWT petroleum resources consider both science and traditional knowledge; and by encouraging the application of the Knowledge Economy to petroleum resources.

Framed by a family of GNWT strategies and policies including the *Northwest Territories 2030 Energy Strategy* and the *NWT Climate Change Strategic Framework*, this Strategy identifies 10 goals under three pillars that the GNWT will work towards in association with industry, residents, stakeholders, and federal and Indigenous governments.

“The strategy sets out a path, in part, to restore the confidence and investment of the petroleum resources industry in our territory while promoting smaller-scale natural gas projects designed to meet the more immediate energy needs of communities and businesses.”

# RÉSUMÉ

L'exploitation pétrolière, quand elle est menée de façon responsable et sécuritaire, peut avoir des avantages et des retours durables de taille pour les Ténos. Si le secteur pétrolier des TNO a toujours été sur le point de devenir un moteur économique important, il n'a pas, à ce jour, réalisé son plein potentiel.

Basée sur les commentaires directs de la population, des entreprises, des gouvernements, de l'industrie et des parties intéressées, la stratégie *Ressources pétrolières ténos, un pas vers la sécurité énergétique au profit des Ténos* présente une approche équilibrée de l'exploitation pétrolière que les Ténos peuvent soutenir et dont ils bénéficieront à long terme.

La stratégie établit une orientation, à la fois pour restaurer la confiance de l'industrie pétrolière dans notre territoire et pour rétablir les investissements dans ce secteur; elle encourage par la même occasion les projets de gaz naturel à plus petite échelle conçus pour répondre aux besoins plus urgents en énergie des collectivités et des entreprises.

Elle ouvre également la voie à de nouvelles technologies et recherches qui aideront les Ténos à retirer des avantages économiques de l'exploitation pétrolière dans un contexte de connaissance et d'innovation en vue d'offrir une énergie durable et peu coûteuse pour tous.

Dans le but d'améliorer l'avantage concurrentiel des TNO pour ce qui est de l'investissement et de l'évolution dans ce secteur, le GTNO appuie les projets d'infrastructure qui facilitent les activités du secteur pétrolier ténos; précise et améliore le cadre réglementaire de l'exploitation pétrolière aux TNO; et investit pour mieux sensibiliser le public aux enjeux tout en sollicitant des investissements des partenaires mondiaux de l'industrie.



Afin que les Ténos bénéficient pleinement des retombées générées, le GTNO évaluera et fera avancer les perspectives potentielles pour offrir aux collectivités de l'énergie produite localement, mobilisera la main-d'œuvre locale et développera les capacités des entreprises pour que les Ténos prennent part aux activités pétrolières et en bénéficient, et jouera un rôle actif dans l'orientation des politiques et de la gestion des activités pétrolières extracôtières.

Enfin, par l'intermédiaire de cette stratégie, le GTNO s'efforcera de créer un secteur pétrolier durable et innovant en s'assurant que les décisions prises sur l'exploitation des ressources pétrolières ténosaises s'appuient à la fois sur des données scientifiques et sur les connaissances

traditionnelles, et en intégrant le développement du Nord au secteur du savoir pour encourager la recherche et l'innovation qui stimuleront la viabilité de l'exploitation pétrolière.

Cette stratégie est encadrée par un ensemble de stratégies et de politiques du GTNO, dont la *Stratégie énergétique 2030 des Territoires du Nord-Ouest* et le *Cadre stratégique sur le changement climatique*; elle fixe dix objectifs répartis dans trois catégories que le GTNO s'efforcera d'atteindre en collaboration avec l'industrie, la population, les parties intéressées et les gouvernements fédéral et autochtones.

La stratégie établit une orientation, à la fois pour restaurer la confiance de l'industrie pétrolière dans notre territoire et pour rétablir les investissements dans ce secteur; elle encourage par la même occasion les projets de gaz naturel à plus petite échelle conçus pour répondre aux besoins plus urgents en énergie des collectivités et des entreprises.

# VISION AND PRINCIPLES

*NWT Petroleum Resources - A Path to Northern Benefits and Energy Security* seeks to maximize the benefits of development for NWT residents by strengthening and revitalizing the petroleum resource sector in a sustainable and responsible manner.

## IN DEVELOPING THIS VISION, THIS STRATEGY FOCUSES ON FIVE PRIORITIES:

- **NORTHERN:** NWT petroleum resources are developed and regulated in a manner that reflects northern priorities and values and developed in a manner that provides benefits and a positive legacy for NWT residents.
- **BALANCED:** The development of NWT petroleum resources respects the need to protect and advance the wise use of NWT resources for present and future generations.
- **PREDICTABLE:** Oil and gas regulation and decision-making processes are clear, transparent and consistent to guide responsible development.
- **INFORMED:** Decisions about land use and the development of NWT petroleum resources are made with the participation of NWT residents, by gathering, using and sharing evidence and knowledge.
- **PARTNERSHIP:** Cooperation and meaningful engagement are essential to attract and sustain petroleum resource development in the territory, between GNWT departments, Indigenous government organizations, community governments, industry and residents.

# INTRODUCTION

*The Mandate of the Government of the Northwest Territories 2016-2019* identifies the need to “develop a long-term strategy to attract oil and gas development in the territory”.

*NWT Petroleum Resources - A Path to Northern Benefits and Energy Security* (NWT Petroleum Resources Strategy) fulfills this commitment.

With activity in this sector paused in the NWT there is both time and opportunity to position the NWT as a jurisdiction for future development. With the potential for growth and development comes the need to establish a strong policy foundation and identify a clear path forward.

The April 2014 devolution of decision-making authority for onshore resources to the Government of the Northwest Territories (GNWT) has given NWT residents the authorities to address the resource development and management issues that impact them.

As the land manager on matters related to public land, water and resources, the GNWT needs to balance a number of roles with respect to the petroleum resources sector: attracting investment; managing land and administering land tenure instruments; protecting the environment; regulating activity (through the

Office of the Regulator of Oil and Gas Operations); working with Indigenous governments, organizations and businesses; and advocating for the interests of NWT communities and businesses.

The NWT’s petroleum resources offer the potential to generate revenues capable of supporting and driving the NWT economy: stimulating infrastructure development; advancing new economic opportunities; and supporting public programs and investment.

The Government of the Northwest Territories recognizes that this level of development is reliant on the return of global markets that will justify and sustain industry investment.

This Strategy, therefore, also considers shorter-term opportunities to use NWT natural gas resources to address local energy needs and as a means to grow and advance the NWT’s promising knowledge sector and economy.

# STATE OF THE NWT PETROLEUM RESOURCES SECTOR

While the NWT's petroleum resources sector has long been an industry on the verge of becoming a powerful economic driver, its potential has, to date, never been realized.

Due to investment constraints, companies have, traditionally, only explored for the NWT's petroleum resources when commodity prices were high, or when financial incentives were offered by the federal government – as they were in the 1970s and 1980s.

Long distances, a lack of transportation infrastructure and high costs of energy, capital and labour are commonly identified as contributors to higher exploration, development and production costs.

While more than 1,300 onshore wells have been drilled in the NWT, the majority of these are exploration wells that have helped to build an understanding of NWT resources but are not producing wells.

There are currently eight pools or regions that have produced oil or natural gas in the Northwest Territories – Norman Wells, Ikhil, Cameron Hills, Pointed Mountain and four pools in the Fort Liard area.

Between 2011 and 2013, five companies were awarded 13 Exploration Licences (ELs) in the Canol shale in the Central Mackenzie Valley, resulting in commitments of \$626 million in exploration spending.

As of January 2018, there are currently 13 active ELs held by five companies in the Canadian Beaufort Sea with exploration work commitments of approximately \$1.9 billion and associated work bid deposit securities of approximately \$474 million held by Indigenous and Northern Affairs Canada.

## WORLD-CLASS POTENTIAL

The National Energy Board (NEB) estimates that the NWT could hold as much as 37 percent of Canada's marketable light crude oil and 35 percent of its marketable natural gas. Discovered and recoverable potential for the NWT onshore and offshore is estimated at 1.2 billion barrels (bbl) of conventional oil and 16.4 trillion cubic feet (Tcf) of conventional natural gas. Ultimate conventional potential is estimated to be over five times that. These estimates do not account for larger possible reserves in the deep waters of the Beaufort Sea which have yet to be explored.

In addition to conventional high permeability plays, there is also significant potential for unconventional or low permeability petroleum resources in the NWT.

The May 2015 NWT Geological Survey (NTGS) and NEB joint report *An Assessment of the Unconventional Petroleum Resources of the Bluefish Shale and the Canol Shale in the Northwest Territories* estimated oil-in place in the Canol Shale at 145 bbl of oil; and 45 bbl in the Bluefish shale. If only one percent of this potential is deemed marketable, it establishes these formations as world-class - equal to or greater than - shale oil plays such as the Bakken Formation and the Permian Basin in the United States.

With known high-quality, mature source rocks identified, there is also potential for the discovery of new shale-based reserves in the NWT's mainland basins such as the Devonian Canol Formation and Cretaceous Slater River Formation.

Existing geoscience datasets, established during the Mackenzie Plain Petroleum Project, require detailed study to better understand shale reservoirs. New information from the adjacent Peel Plain is also required to expand the knowledge and mapping of hydrocarbon resource potential in this area.

In a March 2016 Energy Briefing Note, released by the geological surveys of the NWT and Yukon, and the British Columbia Ministry of Energy, Mines, and Natural Gas, the ultimate potential for marketable, unconventional gas in the Liard Basin was estimated at 219 Tcf, the equivalent of 90 years of Canada's natural gas consumption at 2014 levels.

The Liard Basin Hydrocarbon Project, undertaken by the NTGS from 2012-2015, sets the expected marketable gas volume from the NWT portion of the Upper Besa River/Exshaw at 44 Tcf. An additional 33 Tcf of marketable gas is estimated to exist in the NWT portion of the Lower Besa River/Horn River:

# TIMELINE

<b>Pre-1789</b>	Indigenous residents make use of natural petroleum seepages along the Mackenzie River to seal canoes; Explorer Alexander Mackenzie records petroleum seepages from the Lower Ramparts during his exploration of what is now the Sahtu region
<b>1800s</b>	Tar springs at Fort Good Hope are used by Dene and Hudson's Bay traders as a source of pitch
<b>1911</b>	Seepages at Norman Wells identified by Dene and local traders
<b>1913-14</b>	Area of Norman Wells seepages staked by Dr. Bosworth
<b>1919</b>	Imperial Oil acquires the rights to the Norman Wells prospect; drilling commenced in 1920
<b>1920</b>	Northwest Discovery No. 1 flows oil to the surface from fractures in the Canol formation at Norman Wells
<b>1942</b>	As part of war effort, the Canol Project is initiated to transport Norman Wells oil to Whitehorse by pipeline - from initial flows of 3000 bpd it eventually reaches 4400 bpd in 1944; project is dismantled after the war
<b>Mid 1950s</b>	Exploration in the southern NWT - discovery of Cameron Hills field
<b>1960s</b>	Geophysical exploration and drilling in the Mackenzie Valley and Delta begins
<b>1966</b>	Discovery of Pointed Mountain natural gas field by Amoco; production continued until 1998; in 2011 hydraulic fracturing in the field identified the potential for prolific shale gas reserves
<b>1971</b>	Taglu gas field discovered by Imperial Oil
<b>1972</b>	Parsons Lake gas field discovered by Gulf Canada
<b>1973</b>	Niglintgak gas field discovered by Shell Canada
<b>1974</b>	Bent Horn oil field on Cameron Island discovered by Panarctic Oil; oil produced and shipped by tanker from 1985-1996. Field abandoned in 1996
<b>1974</b>	Middle East oil crisis spurs exploration in the north; federal government initiates incentive programs that increase exploration significantly
<b>1975-1985</b>	Intensive exploration and drilling in the Mackenzie Delta and the Beaufort Sea
<b>1977</b>	After extensive public hearings throughout the NWT, the Mackenzie Valley Pipeline Inquiry (Berger Commission) recommended no gas pipeline development in the Mackenzie Valley for 10 years to allow settlement of land claims; federal government ceases issuance of new exploration rights
<b>1984</b>	Amaligak oil field discovered in deeper water of the Beaufort Sea. Over 300,000 barrels of oil transported by tanker to Japan in one shipment
<b>1984</b>	Ikhil gas field discovered near Inuvik
<b>1986</b>	Production facilities at Norman Wells are expanded, and the Norman Wells Pipeline is built to transport oil to Alberta and southern markets
<b>1989</b>	New rights issued for exploration in the Mackenzie Delta-Beaufort Sea
<b>1989-1991</b>	Low commodity prices halt exploration in the Mackenzie Delta - Beaufort Sea
<b>1994</b>	Lands again made available for exploration in the onshore NWT
<b>1999</b>	Ikhil pipeline begins to supply natural gas to Inuvik

2000-2004	Exploration starts again in the Mackenzie Delta
2000	Interest is rekindled in an Alaska Highway Gas Pipeline (Yukon) and a Mackenzie Gas Pipeline Aboriginal Pipeline Group (APG) is formed to represent the ownership interests of the Aboriginal people of the NWT in the Mackenzie Gas Project (MGP); APG becomes a partner in the consortium of companies proposing the Mackenzie Gas Project
2000	EIA and regulatory applications are filed with the Joint Review Panel, the NEB, and northern boards for permits and authorizations related to the Mackenzie Gas Project
2004	Aboriginal Pipeline Group (APG) is formed to represent the ownership interests of the Aboriginal people of the NWT in the Mackenzie Gas Project (MGP); APG becomes a partner in the consortium of companies proposing the Mackenzie Gas Project
2005-2006	Exploration drilling begins again in the Beaufort Sea
2010-2011	NEB and Governor-in-Council approve the Mackenzie Gas Project and issue a Certificate of Public Convenience and Necessity subject to numerous conditions.
2011	One of the Ikhil wells runs dry. The second continues to be a back-up or supplementary supply for power generation in Inuvik
2011	NEB releases the report of its Arctic Offshore Drilling Review, undertaken following the Macondo oil spill in the Gulf of Mexico; NEB revises filing requirements for offshore drilling
2013	Imperial Oil and Chevron request a review by the NEB of their plans for deep water offshore drilling in the Beaufort Sea, specifically the requirement for same season relief well capability. Chevron subsequently decides not to proceed
2014	Devolution occurs; NWT gains more powers over its land, waters and natural resources
2015	Release of Canol and Bluefish shale oil-in-place estimates. The NWT appears to have considerably greater unconventional reserves than expected
2015	Calgary-based Strategic Oil and Gas announces its halting operations at the Cameron Hills production field due to low oil prices
2016	As a precautionary measure, Enbridge shuts down Line 21 to investigate and address slope instability near the Mackenzie River crossing, approximately ten kilometres east of Fort Simpson.
2016	A number of Exploration Licences (ELs) in the Central Mackenzie Valley are terminated by expiration, leaving all outstanding Work Bid Deposits forfeited to the Government of the Northwest Territories (GNWT)
2016	In a December 20, 2016 joint statement, President Barack Obama and Prime Minister Justin Trudeau designate the waters of the Arctic Ocean as being off-limits for new oil and gas leasing and licensing. The Prime Minister states that a science-based review of the Canadian offshore ban would be conducted in five years.
2017	President Donald Trump revokes President Obama's designation signing an executive order aimed at expanding offshore drilling in the Arctic and Atlantic Oceans
2017	Put this between: 2017 The Government of the Northwest Territories issues six Significant Discovery Licences (SDL) in the Central Mackenzie Valley
2017	Imperial Oil announces that the joint-venture partnership driving the Mackenzie Valley Gas Project has been dissolved

## THE NWT'S REGULATORY ENVIRONMENT FOR PETROLEUM RESOURCES

The NWT's regulatory framework, devolved from the Government of Canada in 2014, is embedded within the context of Indigenous land claims and self-government agreements.

It is a regime based on long-standing best practices and requirements, generally well-accepted and understood by governments and stakeholders; and provides for the GNWT to grow its oversight of petroleum development as it continues to evolve.

The development of the NWT's petroleum resources is governed by two pieces of legislation, the Petroleum Resources Act (PRA) and the Oil and Gas Operations Act (OGOA), both mirrored from the original federal legislation.

The PRA administers rights, royalties, benefits plans, the Environmental Studies Research Fund (ESRF) and information management, while the OGOA administers operations.

Although the majority of the onshore regions of the NWT are regulated, under the OGOA, by the Office of the Regulator of Oil and Gas Operations (OROGO), the onshore regions of the Inuvialuit Settlement Region and the Norman Wells Proven Area are administered by the National Energy Board (NEB).

The administration of oil and gas rights under the PRA fits within land use plans and planning processes, while environmental and socio-economic baseline research funded by the ESRF builds datasets, information and knowledge that guides and informs the regulatory regime of the future.

## LAND USE PLANS SUPPORTING THE DEVELOPMENT OF PETROLEUM RESOURCES

In the Tłı̄chǫ, Gwich'in and Sahtu Settlement Areas, existing land use plans provide clarity as to areas where petroleum development can occur. The plans are a result of significant community and stakeholder input and reflect the values and aspirations of the communities and regions. The Gwich'in and Sahtu plans are multi-party agreements, have been jointly approved by the NWT, Canada and the regional Indigenous governments, and are legally binding. The Tłı̄chǫ Land Use Plan applies to Tłı̄chǫ private lands, and is administered by the Tłı̄chǫ Government's Department of Culture and Lands Protection. Calls for bids in these Settlement Areas align with the land use plans to bring increased certainty to the regulatory process.

In the Inuvialuit Settlement Region, Community Conservation Plans advise developers on community land based concerns and interests.

Work is still required to finalize a Dehcho Land Use Plan and bring clarity and certainty for developers in this region of high potential.



## PATHWAYS TO DEVELOPMENT

The GNWT's development of this Strategy has been guided in large part, by an extensive engagement with communities, territorial stakeholders, leaders, subject matter experts, Indigenous groups, industry and the general public.

Between November 2014 and January 2015, interviews were held with representatives of governments, industry, Indigenous organizations, non-government organizations and stakeholders with direct and extensive experience in the petroleum resources sector.

Additional interviews were conducted with a range of individuals, including Indigenous governments, those working in and with the petroleum resources industry in Alberta, and with GNWT employees in a number of affiliated departments.

A series of eight focus groups were held in NWT regional centres: two each in Inuvik, Norman Wells, and Yellowknife, and one each in Fort Simpson and Hay River.

Between March and April 2015, an online public survey solicited the input of the general public and a broad database of interested groups and individuals.

Sector stakeholders, in particular, were asked to assess the NWT as a location for increased petroleum development and investment. Individuals were asked to contribute insights and recommendations – including perceived gaps or barriers – for consideration by the GNWT in its creation of a strategy for the development of NWT petroleum resources.

In all cases, participants described what they saw as opportunities, risks, concerns and key obstacles – as well as the conditions that they felt must be in place to successfully realize increased petroleum investment and development.

The result of this consultation and engagement was documented in the September 2015 publication of *Pathways to Development: Public Engagement Report for the NWT Oil and Gas Strategy*.

# THE PETROLEUM RESOURCES STRATEGY: A MEMBER OF THE FAMILY OF NWT STRATEGIC POLICIES

The development and implementation of this Strategy is not something that has, or will, be done in isolation.

In charting a path for the NWT petroleum resources sector, an all-of-government approach continues to be key.

While this Strategy is focused on developing the economic potential of the NWT's petroleum resources, it recognizes that the coordinated and aligned management of water, air, wildlife and land is also important to creating and sustaining investment opportunities and economic development.

As a member of the GNWT's family of strategic policy documents, the NWT Petroleum Resources Strategy builds upon existing commitments and direction already included in the:

- NWT Land Use and Sustainability Framework
- NWT Climate Change Strategic Framework
- The Traditional Knowledge Policy
- NWT 2030 Energy Strategy
- NWT Transportation Strategy
- NWT Economic Opportunities Strategy
- NWT Mineral Development Strategy
- NWT Water Stewardship Strategy

All GNWT decisions on land and resource management are guided by the overarching Land Use and Sustainability Framework (LUSF). The LUSF provides a foundation for sustainable land use and guides integrated and principled decisions to ensure sustainable land use for the benefit of current and future generations of Northerners. The NWT Petroleum Resources Strategy aligns with the GNWT Land Interest – “The Land Provides Benefits and Wealth”.

With established links to the Northwest Territories 2030 Energy Strategy and the Climate Change Strategic Framework, the Petroleum Resources Strategy compliments a legislative framework that is working to ensure, sustainable and affordable energy costs for NWT residents and businesses.

The GNWT is a signatory to the Pan Canadian Framework on Clean Growth and Climate Change, which commits Canadian jurisdictions to a 30 percent reduction in greenhouse gas emissions by 2030 from 2005 levels. The NWT Climate Change Strategic Framework outlines how the NWT will reduce its greenhouse gas emissions and move to a lower Carbon economy. Using NWT natural gas to displace imported diesel will contribute to this goal.

Meanwhile, the 2030 Energy Strategy aims to increase the use of local and renewable alternatives to diesel and other fuels imported from southern Canada, for both heat and power needs.

While this Strategy considers the means to extract petroleum resources for their economic benefits, the GNWT’s Energy Strategy will work to deliver these energy resources, as well as others, for use in our communities, businesses and homes.

“While this Strategy is focused on developing the economic potential of the NWT’s petroleum resources, it recognizes that the coordinated and aligned management of water, air, wildlife and land is also important to creating and sustaining investment opportunities and economic development.”

# IMPLEMENTATION OF THE STRATEGY

## **This Strategy outlines 10 goals under three pillars:**

- *Improving our Competitive Edge*
- *Ensuring Benefits for NWT Residents*
- *Creating a Sustainable and Innovative Sector*

It includes actions and performance measures to guide its implementation over the next 15 years.

More detailed implementation planning will be undertaken across a number of GNWT departments, Indigenous governments and stakeholder organizations to ensure that the implementation process is balanced, sustainable and feasible.

The key requirements for implementation are captured as follows:

- Goals
- Action Item
- Timelines
- Supporting GNWT Departments
- Links to GNWT Strategies

Projected timelines for the goals and action items included in the Strategy have been separated into three distinct categories:

- Short term (1-3 years)
- Medium term (4-7 years)
- Long term (8-15 years)

The actions of this Strategy are considered to be fluid. Identified measures will ensure that the Strategy is updated, revised and improved upon as needed in a dynamic and evolving context.

The implementation of this Strategy will be monitored by the Department of Industry, Tourism and Investment (ITI) and its measures reported on every 3 years. Unless noted, the implementation of action items will be led by ITI.

The implementation of this Strategy will be monitored by the Department of Industry, Tourism and Investment (ITI) and its measures reported on every 3 years. Unless noted, the implementation of action items will be led by ITI.

# PILLAR I: IMPROVING OUR COMPETITIVE EDGE

Our territory has a unique combination of circumstances that present challenges for attracting investment and realizing value from our petroleum resources.

Developing transportation infrastructure, enhancing our legislative and regulatory framework and promoting our potential to an international audience will all contribute to our ability to attract investment in the development of NWT petroleum resources.

## GOALS

1. Necessary infrastructure in place to facilitate activity in the NWT's petroleum resources sector
2. An improved NWT oil and gas regulatory framework
3. Greater investment in NWT petroleum resources
4. Greater public awareness and understanding of the NWT's petroleum resources sector
5. Land use certainty related to responsible petroleum development

## NECESSARY INFRASTRUCTURE IN PLACE TO FACILITATE ACTIVITY IN THE NWT'S PETROLEUM RESOURCES SECTOR

Improving the NWT's transportation infrastructure will increase predictability, reduce costs, support local businesses, and make the NWT more attractive to investment.

The completion of the Mackenzie Valley Highway offers the greatest potential return on investment, of all NWT transportation infrastructure projects, and is the highest priority for development of the Canol and Bluefish shales in the Sahtú Region. While federal investment is required to build the highway, the rationale is compelling; with expected spending from resource development in the Valley estimated to be 80 times greater than the cost of constructing the highway according to a 2015 review report of the *Canada Transportation Act*.

Pipelines, in particular, are required for the territorial petroleum resources industry. Although mega projects are no longer the rule, the potential exists for small pipeline infrastructure projects to meet the local and regional needs of NWT residents and businesses.

Discussions with NWT Indigenous governments, neighbouring territorial and provincial governments, Canada, international governments, resource companies, financial institutions, universities and non-profit organizations all offer opportunities to bring energy and transportation infrastructure investment in the NWT to the forefront.

In addition to roads and pipelines the NWT stands to benefit, directly and indirectly, from investments in other infrastructure projects including power lines and fiber optic lines and a proposed port on the Beaufort Sea.

## **ACTIONS**

- 1.1 Advance northern corridors to facilitate activity in the NWT's petroleum resources sector.
- 1.2 Support the expansion of marine infrastructure.

## **AN IMPROVED NWT OIL AND GAS REGULATORY FRAMEWORK**

The regulatory system in the NWT has been criticized for unnecessarily increasing the costs and timelines of projects in both the exploration and development phases.

The regulatory process and the number of regulatory bodies involved in it, mean that not every project in the NWT has been assessed in the same way or in the same length of time.

As territorial regulatory processes evolve, flexibility is essential to ensure that the level of regulatory scrutiny, and associated process demands and costs, are in line with the environmental and social risks posed by the proposed activity. Flexibility would allow NWT regulators to adapt their processes as governments, industry and residents gain knowledge and experience from petroleum development.

The GNWT must work collaboratively with regulators, Indigenous governments, the federal government, and industry to define regulatory improvements that support efficient, timely and transparent processes while maintaining high standards for environmental protection and respect for northern values.

The *Petroleum Resources Act (PRA)* and the *Oil and Gas Operations Act (OGOA)* must ensure balanced and effective administration and oversight of related activities in the NWT that serve GNWT policy objectives and the public interest.

## ACTIONS

- 2.1 Review and improve the PRA.
- 2.2 Review and improve the OGOA.
- 2.3 Review and improve existing oil and gas regulations under the PRA and OGOA.
- 2.4 Increase coordination and cooperation across government and with partners in the regulatory process.
- 2.5 Establish and support best practices, service standards and guidelines throughout the regulatory system.
- 2.6 Publish NWT Oil and Gas Regulatory Guide.

## GREATER INVESTMENT IN NWT PETROLEUM RESOURCES

Finding new and different ways to promote and encourage investment in the NWT's petroleum resource potential will work to strengthen the growth potential of the industry.

The Northwest Territories Geological Survey (NTGS) continues to study NWT petroleum potential to provide a compelling, scientific rationale for explorers and investors to seek out and develop the development of NWT petroleum resources.

Increased geoscience information and data will expand our understanding of NWT resources and our ability to target and attract investment.

## ACTIONS

- 3.1 Promote and market NWT oil and gas resources and investment opportunities nationally and internationally.
- 3.2 Characterize NWT resource potential via petroleum geoscience research with Northwest Territories Geological Survey and with partners.
- 3.3 Consider incentives to attract new investors and encourage existing investors to remain committed to the NWT.



## GREATER PUBLIC AWARENESS AND UNDERSTANDING OF THE NWT'S PETROLEUM RESOURCES SECTOR

With increased awareness and understanding, NWT residents will gain confidence to support resource development that is conducted in a responsible and sustainable manner.

Increased access to plain-language environmental, economic and social information relevant to petroleum development and road mapping is key. This includes information on regulatory requirements and industry practices that comes from cross-departmental collaboration supported by a transparent regulatory regime.

### ACTIONS

- 4.1 Develop and distribute public information materials addressing issues and opportunities in the NWT's petroleum resources sector.
- 4.2 Promote open and transparent dialogue on issues and opportunities surrounding petroleum development in the NWT.

## LAND USE CERTAINTY RELATED TO RESPONSIBLE PETROLEUM DEVELOPMENT

The settlement of outstanding land claims will position the NWT for increased interest from potential investors. Settled land claims offer much-needed clarity regarding the access and development of specific land areas; and can include protocols for petroleum exploration and development.

To ensure all benefits of development are realized or considered, they must be known and understood when land use plans are being developed, amended or updated.

As outstanding land claims are settled, the relationship between Indigenous governments and the territorial government must also continue to be strengthened to ensure that all parties involved in petroleum development can realize the benefits.

### ACTIONS

- 5.1 Collect and maintain accurate data and provide prompt information and advice.

# PILLAR II: ENSURING BENEFITS FOR NWT RESIDENTS

The development of the NWT's petroleum resources has traditionally been associated with large projects, designed to pay dividends in the long term.

As the global energy sector goes through a period of unprecedented transformation, technological and methodological innovations are making small-scale, modular solutions increasingly economic and ideal for northern and remote applications. We can realize value from our petroleum resources at home; providing energy security and lowering energy costs and emissions from imported diesel by using our own natural gas resources for heating and powering communities and businesses.

## GOALS

6. Locally produced energy for residents and businesses
7. NWT workforce and business capacity to participate in and benefit from activities in the NWT's petroleum resources sector
8. GNWT is a full partner in offshore oil and gas policy and governance

## LOCALLY PRODUCED ENERGY FOR RESIDENTS AND BUSINESSES

The completion of the Inuvik-Tuktoyaktuk Highway makes local natural gas resources more accessible in the Beaufort Delta Region. This may offer a sensible, lower-cost and lower-emissions alternative to importing diesel and natural gas from Southern Canada, reducing the traditional reliance on diesel and flowing greater economic benefits to Beaufort Delta communities.

The use of locally-available natural gas resources will also reduce the risk of energy supply disruptions when compared to diesel or other fuels - and contribute to greater resiliency in NWT communities and businesses.

In displacing imported diesel for power needs, an optimal energy mix will be sought based on community geography, with hydro, wind, solar and natural gas all being considered. Companies pursuing development projects in NWT will follow a similar determination for their energy needs.

Natural gas, when used as a heat and power source, emits 25 percent less greenhouse gas than diesel fuel. Using NWT natural gas in place of imported diesel not only reduces the emissions from burning diesel, it will also reduce emissions from its transportation.

## ACTIONS

- 6.1 Develop partnerships to advance community and regional natural gas projects.
- 6.2 Attract interest and investment in community and regional natural gas projects.

## NWT WORKFORCE AND BUSINESS CAPACITY TO PARTICIPATE IN AND BENEFIT FROM ACTIVITIES IN THE NWT'S PETROLEUM RESOURCES SECTOR

The NWT must realize its fair share of resource development benefits to build prosperity. Partnerships and collaborations have traditionally served the NWT petroleum resources sector well. Cooperative arrangements provide mutual benefits to all participants while reducing costs and risks for each participant.

In order to be active in the NWT's petroleum resources sector, proponents must confirm how NWT residents will benefit from their projects. The public reporting of these plans and benefits will increase awareness and understanding of the benefits that these activities bring, and allow NWT residents and governments to capitalize on them.

Initiatives that increase the capacity of northern and Indigenous businesses to participate and invest in the full lifecycle of projects, including remediation, will help to ensure benefits to NWT residents are maximized.

Maximizing opportunities for training and development within the territorial petroleum resources sector will be key to its growth. With a better understanding of the skills required, the GNWT, Aurora College, schools, businesses and employers will be able to identify the training and capacity building opportunities that will help residents find meaningful employment without having to leave the NWT.

## ACTIONS

- 7.1 Provide NWT residents and businesses with the opportunity to develop and acquire the skills and capacity necessary to benefit from activities throughout project lifecycles.
- 7.2 Research partnership options between energy companies, NWT businesses and governments.
- 7.3 Report on benefits of petroleum development in the NWT.

## THE GNWT IS A FULL PARTNER IN OFFSHORE OIL AND GAS POLICY AND GOVERNANCE

To advance the economic and environmental interests of the NWT, it is the GNWT's goal to be a full partner in setting policy and governance for energy development in the Beaufort Sea and other NWT offshore waters.

These elements range from co-management and revenue-sharing agreements to regional strategic environmental assessment, to building shipping and navigation capability, emergency and spill response capacity, ports, ice breakers, satellite stations, remote sensing and monitoring capability and innovative marine technologies for a changing Arctic environment and economy.

## ACTIONS

- 8.1 Negotiate Beaufort Sea offshore oil and gas co-management and revenue sharing.
- 8.2 Partner in Arctic offshore environmental and socio-economic research and assessment.
- 8.3 Partner in Arctic offshore policy and decision processes.

“We can realize value from our petroleum resources at home; providing energy security and lowering energy costs and emissions from imported diesel by using our own natural gas resources for heating and powering communities and businesses.”

# PILLAR III: CREATING A SUSTAINABLE AND INNOVATIVE SECTOR

Northern innovation today will unlock the responsible resource development opportunities of tomorrow and align our petroleum resources sector to better meet the new realities we will face.

We need to turn our attention to new technologies and solutions and embrace innovation and the Knowledge Economy to ensure a sustainable sector in the future. The persistence, patience and ingenuity of Northerners can make this happen.

## GOALS

9. Decisions about the development of NWT petroleum resources incorporate science and traditional knowledge
10. A sustainable petroleum resources sector backed by innovation and the Knowledge Economy

## DECISIONS ABOUT THE DEVELOPMENT OF NWT PETROLEUM RESOURCES INCORPORATE SCIENCE AND TRADITIONAL KNOWLEDGE

Baseline environmental monitoring, regular evaluation and research and public reporting are critical to the GNWT's decision-making process and for building public support for territorial policy.

Research and monitoring will inform policy and regulatory processes to ensure that projects are adaptable to changing conditions and minimize their risks and impacts on water, air, climate change, wildlife, health, safety and infrastructure.

Established programs such as the Cumulative Impact Monitoring Program (CIMP) and Environmental Studies Research Fund (ESRF) support science and traditional knowledge relevant to the development and management of petroleum resources.

The GNWT is committed to strengthening the degree to which traditional knowledge is also considered and reflected in its decision making - and in the delivery of programs and services to NWT residents.

## **ACTIONS**

- 9.1 Support the advancement of environmental and socio-economic knowledge through the ESRF and other science programs.
- 9.2 Ensure traditional knowledge is incorporated in decision processes involving the NWT petroleum resources sector.

## **A SUSTAINABLE PETROLEUM RESOURCES SECTOR BACKED BY INNOVATION AND THE KNOWLEDGE ECONOMY**

Innovation, founded in the experience and expertise of NWT residents and businesses, can realize new ways of developing and rehabilitating NWT petroleum resources. Meanwhile, the advancement of the NWT's Knowledge Economy will facilitate the collection, application and sharing of applicable knowledge and data sets.

The NWT is well positioned to benefit from research initiatives and experimental or pilot projects utilizing and studying the North's unique environment, climate and conditions.

Integrating and promoting study of the NWT's petroleum resources sector - including its reclamation - can result in insights and innovations that will, in turn, advance or sustain the safe development of these resources, and which may be shared or exported nationally and globally.

Reduced costs and environmental impacts will improve the rationale for the development of NWT petroleum resources.

## **ACTIONS**

- 10.1 Work with academia, stakeholders and funding partners to attract research and pilot projects centred around the NWT's petroleum resources sector.
- 10.2 Support the creation of Centres of Excellence and advance the NWT Science Agenda to promote innovation and the Knowledge Economy.
- 10.3 Identify opportunities to focus Knowledge Economy developments on the petroleum resources sector to improve efficiencies and strengthen the sustainability of the sector.

# APPENDIX A: SUMMARY OF GOALS

## PILLAR I

### IMPROVING OUR COMPETITIVE EDGE GOALS

1. Necessary infrastructure in place to facilitate activity in the NWT's petroleum resources sector
2. An improved NWT oil and gas regulatory framework
3. Greater investment in NWT petroleum resources
4. Greater public awareness and understanding of the NWT petroleum resources sector
5. Land use certainty related to responsible petroleum development

## PILLAR II

### ENSURING BENEFITS FOR NWT RESIDENTS GOALS

6. Locally produced energy for residents and businesses
7. NWT workforce and business capacity to participate in and benefit from activities in the NWT's petroleum resources sector
8. GNWT is a full partner in offshore oil and gas policy and governance

## PILLAR III

### CREATING A SUSTAINABLE AND INNOVATIVE SECTOR GOALS

9. Decisions the development of NWT petroleum resources incorporate science and traditional knowledge
10. A sustainable petroleum resources sector backed by innovation and the Knowledge Economy



# APPENDIX B: STRATEGY IMPLEMENTATION

The implementation of this Strategy will be monitored by the Department of Industry, Tourism and Investment (ITI) and its measures reported on every three years. Unless noted, the implementation of action items will be led by ITI.

## TIMELINES EXPLAINED:

■ SHORT TERM – 1-3 YEARS

■ MEDIUM TERM – 4-7 YEARS

■ LONG TERM – 8-15 YEARS

PILLAR I: IMPROVING OUR COMPETITIVE EDGE				
GOALS	ACTION ITEMS	TIMELINE	SUPPORTING GNWT DEPARTMENTS	LINKS TO GNWT STRATEGIES
1. Necessary infrastructure in place to facilitate activity in the NWT's petroleum resources sector	1.1 Advance northern corridors to facilitate activity in the NWT's petroleum resources sector	Medium to long term	Infrastructure (Lead)	NWT Multi-Modal Transportation Strategy Corridors to Canada III
	1.2 Support the expansion of marine infrastructure	Medium to long term		Mineral Development Strategy - Strategic Priority 1.3
				Energy Action Plan - Action 7.2.5
				Economic Opportunities Strategy - Objective 4A, 4B
				NWT Transportation Strategy

GOALS	ACTION ITEMS	TIMELINE	SUPPORTING GNWT DEPARTMENTS	LINKS TO GNWT STRATEGIES
2. An improved NWT oil and gas regulatory framework	2.1 Review and improve the Petroleum Resources Act (PRA)	Short to medium term	Justice; Executive and Indigenous Affairs (EIA); Finance	Economic Opportunities Strategy: Objectives 5E, 5F, 6B
	2.2 Review And improve the Oil and Gas Operations Act (OGOA)	Short to medium term	Justice; EIA; Lands; Environment & Natural Resources (ENR)	
	2.3 Review and improve existing oil and gas regulations under the PRA and OGOA	Medium to long term	Justice; EIA; Finance; Lands; ENR	
	2.4 Increase coordination and cooperation across government and with partners in the regulatory process	Ongoing	Justice; EIA; Infrastructure; Lands; ENR; Regulatory Partners	
	2.5 Establish best practices, service standards and guidelines throughout the regulatory system	Ongoing	Justice; EIA; Infrastructure; Lands; ENR; Regulatory Partners	
	2.6 Publish NWT Oil and Gas Regulatory Guide	Short term	ENR; Justice; Lands	

GOALS	ACTION ITEMS	TIMELINE	SUPPORTING GNWT DEPARTMENTS	LINKS TO GNWT STRATEGIES
3. Greater investment in NWT petroleum resources	3.1 Promote and market NWT oil and gas resources and investment opportunities nationally and internationally	Ongoing	Infrastructure	Unlocking Our Potential
				China Strategy and Action Plan
				Energy Action Plan Action 7.7
	3.2 Characterize NWT resource potential via petroleum geoscience research at the Northwest Territories Geological Survey and with partners	Ongoing		Economic Opportunities Strategy - Objective 1A
				NWT Geological Survey Strategic Plan
3.3 Consider incentives to attract new investors and encourage existing investors to remain committed to the NWT	Medium to Long Term	Finance		
4. Greater public awareness and understanding of the NWT's petroleum resources sector	4.1 Develop and distribute public information materials addressing issues and opportunities in the NWT's petroleum resources sector	Ongoing	ENR; Lands; Education, Culture & Employment (ECE); EIA; Infrastructure; Justice	
	4.2 Promote open and transparent dialogue on issues and opportunities surrounding petroleum development in the NWT	Ongoing	ENR; Lands; Infrastructure; Justice; ECE; EIA	

GOALS	ACTION ITEMS	TIMELINE	SUPPORTING GNWT DEPARTMENTS	LINKS TO GNWT STRATEGIES
5. Land use certainty related to responsible NWT oil and gas development	5.1 Collect and maintain accurate data and provide prompt information and advice	Ongoing	EIA; Lands; ENR; Infrastructure; Justice	Land Use Sustainability Framework
				NWT Recovery Strategy for Boreal Caribou
				NWT Water Stewardship Strategy
				Healthy Land, Healthy People: GNWT Priorities for Advancement of Conservation Network Planning

PILLAR II: ENSURING BENEFITS FOR NWT RESIDENTS				
GOALS	ACTION ITEMS	TIMELINE	SUPPORTING GNWT DEPARTMENTS	LINKS TO GNWT STRATEGIES
6. Locally produced energy for residents and businesses	6.1 Develop partnerships to advance community and regional natural gas projects	Short to long term	Infrastructure; ENR; Lands	Energy Action Plan - Action 7.2.4, 7.7.1
				NWT Power Systems Plan
	6.2 Attract interest and investment in community and regional natural gas projects	Medium to long term	Infrastructure	NWT 2030 Energy Strategy
				NWT Climate Change Strategic Framework
			Economic Opportunities Strategy - Objective 4A, 5H	

GOALS	ACTION ITEMS	TIMELINE	SUPPORTING GNWT DEPARTMENTS	LINKS TO GNWT STRATEGIES
7. NWT workforce and business capacity to participate in and benefit from activities in the NWT's petroleum resources sector	7.1 Provide NWT residents and businesses with the opportunity to develop and acquire the skills and capacity necessary to benefit from activities throughout project lifecycles	Medium to long term	Education, Culture and Employment (ECE)	Skills 4 Success - Goals 1 & 4
				Economic Opportunities Strategy Objective 2C - Target 6, Target 7
				Mineral Development Strategy - Strategic Priority 4.6
	7.2 Research partnership options between energy companies, NWT businesses and governments	Medium to long term	Finance; Infrastructure; EIA	
				NWT Labour Force Development Framework
				Schools North Apprenticeship Program
7.3 Report on benefits of petroleum development in the NWT	Short to Medium Term		Workforce Planning Strategy	
8. GNWT is a full partner in offshore oil and gas policy and governance	8.1 Negotiate Beaufort Sea offshore oil and gas co-management and revenue sharing	Short to long term	EIA	NWT Lands and Resources Devolution Agreement - Sections 3.20; 5.3
	8.2 Partner in Arctic offshore environmental and socio-economic research and assessment	Short to long term	ENR; Lands; EIA	
	8.3 Partner in Arctic offshore policy and decision processes	Short to long term	EIA; ENR; Lands; Infrastructure	

## PILLAR III: CREATING A SUSTAINABLE AND INNOVATIVE SECTOR

GOALS	ACTION ITEMS	TIMELINE	SUPPORTING GNWT DEPARTMENTS	LINKS TO GNWT STRATEGIES
9. Decisions about NWT oil and gas development incorporate science and traditional knowledge	9.1 Help advance environmental and socio-economic knowledge through the ESRF and other science programs	Ongoing	ENR; Infrastructure	Mineral Development Strategy - Strategic Priority 1.1
	9.2 Ensure traditional knowledge is incorporated in oil and gas decision processes	Ongoing	ENR; Infrastructure; Lands; Justice	Economic Opportunities Strategy - Objective 3A
				NWTWSS
10. A sustainable petroleum resources sector backed by innovation and the Knowledge Economy	10.1 Work with academia, stakeholders and funding partners to attract research and pilot projects centred around the NWT's petroleum resources sector.	Short to long term	ENR; Infrastructure; Lands; ECE	
	10.2 Support the creation of Centres of Excellence and advance the NWT Science Agenda to promote innovation and the Knowledge Economy	Ongoing	ENR; Infrastructure; ECE	Traditional Knowledge Policy
	10.3 Identify opportunities to focus Knowledge Economy developments on the petroleum resources sector to improve efficiencies and strengthen the sustainability of the sector	Ongoing	ENR; ECE	

# APPENDIX C: MONITORING AND EVALUATION FRAMEWORK

PILLAR I: IMPROVING OUR COMPETITIVE EDGE		
GOALS	PERFORMANCE INDICATOR(S)	PERFORMANCE MEASURES
1. Necessary infrastructure in place to facilitate activity in the NWT's petroleum resources sector	<ul style="list-style-type: none"> <li>Construction of transportation infrastructure</li> </ul>	<ul style="list-style-type: none"> <li>Annual capital investment (\$)</li> <li>Annual number of kilometers completed</li> <li>Number of infrastructure projects in regulatory process</li> <li>Number of infrastructure projects under construction</li> <li>Number of infrastructure projects completed</li> </ul>
	<ul style="list-style-type: none"> <li>Amendments to the Petroleum Resources Act</li> </ul>	<ul style="list-style-type: none"> <li>Bill introduced to amend the <i>Petroleum Resources Act</i></li> <li>Bill passed</li> <li>Come into force order</li> </ul>
2. An improved NWT oil and gas regulatory framework	<ul style="list-style-type: none"> <li>Amendments to the Oil and Gas Operations Act</li> </ul>	<ul style="list-style-type: none"> <li>Bill introduced to amend the <i>Oil and Gas Operations Act</i></li> <li>Bill passed</li> <li>Come into force order</li> </ul>
	<ul style="list-style-type: none"> <li>Development of Regulations</li> </ul>	<ul style="list-style-type: none"> <li>Regulations in force</li> </ul>

## PILLAR I: IMPROVING OUR COMPETITIVE EDGE

GOALS	PERFORMANCE INDICATOR(S)	PERFORMANCE MEASURES
3. Greater investment in NWT petroleum resources	<ul style="list-style-type: none"> <li>• Increase in exploration projects</li> <li>• Increase in development projects</li> <li>• Increase in production projects</li> </ul>	<ul style="list-style-type: none"> <li>• Number of exploration licenses</li> <li>• Number of Significant Discovery Licenses</li> <li>• Number of Production Licenses</li> <li>• Value of work commitments (\$)</li> <li>• NWT spend (\$)</li> </ul>
4. Greater public awareness and understanding of the NWT's petroleum resources sector	<ul style="list-style-type: none"> <li>• Increased opportunities for public engagement</li> <li>• Public understanding of NWT oil and gas resources</li> <li>• Amount of publications, resource materials, online resources</li> </ul>	<ul style="list-style-type: none"> <li>• Number of attendees at public engagement sessions</li> <li>• Public awareness, understanding and attitude (survey methodology)</li> <li>• Number of publications</li> <li>• Number of website visits</li> </ul>
5. Land use certainty related to responsible petroleum development	<ul style="list-style-type: none"> <li>• Amount of land under ILW</li> <li>• Amount of land categorized as proposed conservation/protection</li> <li>• Amount of land accounted for under Land Use Plan</li> <li>• Land Use Plans</li> <li>• Protected Areas</li> </ul>	<ul style="list-style-type: none"> <li>• Number of hectares under ILW</li> <li>• Percent of NWT land base under ILW</li> <li>• Number of hectares under LUPs</li> <li>• Percent of NWT land base under LUPs</li> </ul>



### PILLAR II: ENSURING BENEFITS FOR NWT RESIDENTS

GOALS	PERFORMANCE INDICATOR(S)	PERFORMANCE MEASURES
6. Locally produced energy for residents and businesses	<ul style="list-style-type: none"> <li>Amount of displaced imported energy</li> </ul>	<ul style="list-style-type: none"> <li>Units of natural gas produced for local use</li> </ul>
7. NWT workforce and business capacity to participate in and benefit from activities in the NWT's petroleum resources sector	<ul style="list-style-type: none"> <li>Jobs filled by NWT residents</li> <li>Procurement value sourced from NWT businesses</li> </ul>	<ul style="list-style-type: none"> <li>Number of NWT residents employed (Northern, Northern Indigenous)</li> <li>Percent employed (Northern, Northern Indigenous)</li> <li>Dollar value of procurement</li> <li>Percent value of procurement</li> </ul>
8. GNWT is a full partner in offshore oil and gas policy and governance	<ul style="list-style-type: none"> <li>GNWT partnering in arctic offshore decision processes</li> </ul>	<ul style="list-style-type: none"> <li>Negotiations underway</li> <li>Agreement-in-principle signed</li> <li>GNWT-Federal Agreement signed</li> <li>GNWT-Federal Agreement implemented</li> </ul>

### PILLAR III: CREATING A SUSTAINABLE AND INNOVATIVE SECTOR

GOALS	PERFORMANCE INDICATOR(S)	PERFORMANCE MEASURES
9. Decisions about the development of NWT petroleum resources incorporate science and traditional knowledge	<ul style="list-style-type: none"> <li>Continuing integration of science and Traditional Knowledge into regulatory processes</li> <li>Integration of science and Traditional Knowledge into Environmental Studies Research Fund (ESRF) funded research</li> </ul>	<ul style="list-style-type: none"> <li>Percent of regulatory decisions requiring science and Traditional Knowledge throughout a project lifecycle</li> <li>Percent of ESRF funded studies incorporating science and Traditional Knowledge</li> </ul>
10. A sustainable petroleum resources sector backed by innovation and the Knowledge Economy	<ul style="list-style-type: none"> <li>Lower cost of doing business</li> <li>Lower environmental impact</li> <li>Attract research and development activity relevant to oil and gas</li> </ul>	<ul style="list-style-type: none"> <li>Indexed average cost of allowable expenses (\$)</li> <li>Ratio of amount of water used per unit energy</li> <li>Number of research and development projects in the NWT</li> </ul>





