LEGISLATIVE RETURN

SUBMITTED BY: Hon. Ranj Pillai, MINISTER OF ENERGY, MINES AND RESOURCES

1. On March 19, 2018, Kate White, Member for Takhini-Kopper King

☒ asked the following oral question at page(s) 2116 of *Hansard*

☐ submitted the following written question – WQ No. ____

☐ gave notice of the following motion for the production of papers – MPP No. ____

RE: _____

YUKON LEGISLATIVE ASSEMBLY
LEGISLATIVE RETURN
No. 34-2-186
March 19, 2019
DATE

OR

2. This legislative return relates to a matter outstanding from discussion related to:

Energy supply and demand

on March 19, 2018 at page(s) 2116 of *Hansard.*

The response is as follows:

Enclosed.

March 19, 2019
Date

Signature

Government of Yukon Leads the Way in Addressing Energy Issues and Opportunities in Yukon

INTRODUCTION

The Government of Yukon is achieving and surpassing expectations on implementing various initiatives and ideas related to energy generation and reducing energy use in Yukon.

We have adopted a multi-faceted approach by promoting renewable energy generation, managing electricity and utilities, promoting energy efficiency initiatives, supporting research and training, and demonstrating leadership in the energy sector.

THEME: RENEWABLE ENERGY GENERATION

ON RENEWABLE PROJECTS

The Government of Yukon is leading the way in supporting and developing locally-sourced renewable energy to meet our growing energy needs and promote energy self-sufficiency.

We are successfully working with First Nation governments, communities, Yukon businesses and individual Yukoners to adopt and implement renewable energy generation projects across the territory.

The Government of Yukon's popular micro-generation policy has led to Yukon experiencing high adoption rates for small-scale energy-generation projects.

As a result, we have witnessed major growth and development in locally-sourced renewable energy and a significant boom in our local solar energy industry since the policy was implemented.

As of January 2019, there are 218 different micro-generators using mostly solar energy to generate 2,309 megawatt-hours of new electricity annually.

This includes six Yukon First Nations across the territory who installed eight solar energy generating systems on their institutional and commercial buildings with the help of the Government of Yukon.

The high number of solar energy generating systems has established Yukon as one of the nation's leaders in adopting renewable energy.

We helped the Teslin Tlingit Council in installing 10 biomass boilers as a district heating system for 13 commercial buildings owned by the First Nation.

We coordinated biomass training for Teslin Tlingit Council citizens and Teslin residents who are now operating the biomass district heating system.

The system employs three full-time jobs and 15 part-time jobs in the community of Teslin and is replacing the use of diesel fuel.

These projects are all testaments to our renewable energy initiatives' booming success and to how Yukoners are actively developing local, renewable and clean energy technologies.

The Government of Yukon is also offering $1.5 million over the next four years through the Yukon Development Corporation's Innovative Renewable Energy Initiative fund. Launched in January 2018, the funding is to support small-scale electricity or heat generation projects.

The funding is available for renewable energy generating projects proposed by community-based governments, public membership community organizations, or private sector organizations.

To date, the Government of Yukon has supported projects in Carcross, Teslin, Burwash Landing, Old Crow, Whitehorse and Dawson City.

For example, $500,000 was dedicated to the installation of a 940-kilowatt solar array at the Old Crow airport. This community-driven project led by Vuntut Gwitchin First Nation will provide employment opportunities for Old Crow residents and reduce the community's dependence on diesel fuel by replacing up to 189,000 litres of fuel annually.

By facilitating projects led by local stakeholders, the Government of Yukon can support the expansion of renewable energy throughout Yukon.

Biomass is also eligible for funding under the Innovative Renewable Energy Initiative.

ON BIOMASS

The departments of Energy, Mines and Resources, Highways and Public Works and Education are working to implement the Biomass Energy Strategy for Yukon to promote the development of a biomass energy sector that heats our buildings and homes using wood product.

In three short years since the Biomass Energy Strategy's release, interest in using wood products for generating heat and electricity has skyrocketed. This includes the completion of a wide-ranging work on biomass research and implementation.

In addition to the successful partnership with the Teslin Tlingit Council in implementing its district biomass heating system, the Government of Yukon is working directly with 12 other Yukon First Nations on various research projects, assessments and feasibility studies related to biomass systems implementation in their communities.

This is thanks to funding we have received from the Government of Canada since 2016. These funds have and continue to support multiple biomass projects that are now benefitting local First Nations and promoting economic development, especially within the forestry industry.

As an example, we have completed a feasibility study and business plan on a commercial-scale district heating system for Champagne and Aishihik First Nations-owned buildings. The system would use biomass to generate heat and power.

Another example is a multi-year research project that Vuntut Gwitchin First Nation is undertaking to assess the use of willow to heat commercial buildings in Old Crow.

We have also assessed the potential of using wood waste in biomass systems for four communities in Yukon. Our conclusion is that there is significant opportunity to take advantage of wood waste as an energy resource and we are continuing to work to take advantage of this opportunity.

In 2019, the Government of Yukon is going to operationalize six small biomass systems and build capacity with Yukon First Nations by conducting a tour of successful biomass projects in Yukon and Alaska. The tour will include attending the Yukon – Alaska Wood Energy Conference in Fairbanks, Alaska in April 2019.

These projects and initiatives are all thanks to funding from the Government of Canada's Strategic Partnership Initiatives.

In addition, the Government of Yukon plans to add biomass heating systems to three community schools.

Since the Biomass Energy Strategy's release, there are now two new logging businesses producing woodchips for use by Raven Recycling, Yukon Gardens and other Whitehorse businesses.

ON WIND AND GEOTHERMAL

While there is great work happening to harness solar and wood resources for generating renewable energy, Yukon is fortunate to have wind and geothermal resources too.

The Government of Yukon is doing its due diligence in researching the potential of these two resources.

In 2018, the Yukon Geological Survey undertook research with the Ta'an Kwäch'än Council and Ross River Dena Council to identify regions that have geothermal potential. Their work included measuring ground temperatures from two deep monitoring wells drilled in the Whitehorse and Ross River areas. Results will be published in 2019.

For the past nine years, the Government of Yukon has offered a wind prospecting service to property owners to help determine their property's wind generating potential.

We are currently working with the Vuntut Gwitchin Government in preparation for wind monitoring in Old Crow.

The wind prospecting service has recorded a variety of data sets from 16 locations throughout Yukon. This information is available on the government's website.

ON INDEPENDENT POWER PRODUCTION

The Independent Power Production Policy supports large-scale renewable energy generation projects and was implemented in January 2019.

The policy allows First Nation governments, communities and entrepreneurs to generate renewable energy and feed new electricity into the grid to help meet local demand.

This too has proven to be of high interests among First Nation communities and the private sector, which have come forward with multiple projects, including:

- A wind project and a solar farm project both in Whitehorse;
- A solar farm project by Vuntut Gwitchin First Nation in Old Crow; and
- The N'Tsi wind-diesel energy project by Kluane First Nation in Burwash Landing.

In June 2018, Vuntut Gwitchin First Nation signed a 25-year power purchase agreement (in principle) with ATCO Electric Yukon for its solar project at the Old Crow airport. The purchase agreement is the first of its kind.

The Government of Yukon worked with ATCO Electric Yukon, Yukon Energy Corporation and Yukon Development Corporation to develop regulations, interconnection standards and purchase rates required for the independent production of electricity.

As part of the policy's implementation, the Government of Yukon issued a rate structure that will form the basis for future electricity purchase agreements negotiated between the utilities and the independent power producers. This ensures rates remain stable for Yukoners.

In October 2018, the Government of Yukon removed liquefied natural gas as a qualifying energy source from the policy. Independent power producers will only be able to use renewable energy sources for generating electricity.

We applaud the Vuntut Gwitchin First Nation and Kluane First Nation on their large-scale community energy projects that will allow them to be self-sufficient, reduce their dependence on diesel and to meet their energy needs on their own terms.

Overall, the Government of Yukon is active and hands-on in supporting the adoption, construction and implementation of renewable energy generation projects. Our renewable energy policies and strategies are successfully diversifying our energy supply by expanding the amount of new energy available through renewable sources, encouraging new business opportunities, growing the economy and protecting the environment.

All of this while 93 per cent of Yukon's current electricity demand is being met through hydroelectricity – yet another renewable resource available to us in Yukon.

THEME: UTILITIES AND ELECTRICITY MANAGEMENT

The Government of Yukon works closely with ATCO Electric Yukon, Yukon Energy Corporation and Yukon Development Corporation on electricity matters in Yukon.

Following extensive public consultations, the Yukon Energy Corporation released its 20-year resource plan in June 2017 that addresses the territory's electricity requirements to 2035.

Planning for Yukon's future electricity needs is both crucial and complicated. The resource plan is a proposed action plan on how to address our territory's future energy needs while considering technical, financial, environmental, social and economic factors.

Yukon Energy Corporation is researching and reviewing broader initiatives such as smart grids and evaluating all feasible options.

The Government of Yukon considers the use of diesel and liquefied natural gas by the utilities as a back-up measure to ensure reliable and consistent provision of electricity to Yukoners throughout the year.

However, the Government of Yukon is also examining the potential that connecting to British Columbia's Site C dam may bring to Yukon. Integrating with a larger grid in the south may reduce Yukon's fossil fuel consumption related to electricity generation by providing plentiful clean energy and could help drive economic growth.

THEME: ENERGY EFFICIENCY INCENTIVES

ON FUNDING

In addressing increasing energy demands in our territory, it makes good sense to first reduce energy consumption. The first line of action is to retrofit existing homes and buildings to be more energy efficient by upgrading insulation, improving window quality and draught-proofing.

The Government of Yukon is putting more funding into making Yukon buildings more energy efficient.

We are negotiating numerous funding agreements with the federal government that will see tens of millions of dollars dedicated to energy retrofits for residential, commercial and institutional buildings throughout the territory.

Funding under the federal government's Low Carbon Economy Fund is slated for residential, commercial and institutional building energy retrofits over the next four years. This includes retrofitting Government of Yukon-owned social and staff housing and First Nation government-owned homes and buildings.

Funding from the federal government's Arctic Energy Fund will support upgrading, supplementing or replacing existing fossil fuel-based energy systems with renewable energy options, especially in diesel-dependent communities in the territory.

Additional funding from the federal government's Green Infrastructure Fund will be dedicated to energy-related initiatives, including energy retrofits of Government of Yukon-owned institutional buildings over the next decade.

In addition, the Government of Yukon is investing up to $11.7 million across its departments in energy retrofit activities in the 2018 budget.

Overall, 2018 marks the single largest investment the Government of Yukon has made in energy efficiency in the territory. Once the federal funding is approved, the Government of Yukon is looking forward to working with First Nation governments, municipalities, businesses, local industries and homeowners. We will be ramping up our efforts as we deliver on a suite of new and expanded energy retrofits programs over the next few years.

ON RETROFIT INCENTIVES

Our Good Energy program offers a full suite of incentives to homeowners to improve their homes' energy efficiency.

Homeowners can start with renovations to improve air tightness and increase insulation levels in their existing residences and get a Good Energy rebate.

One of our Good Energy rebates incentivizes switching to energy efficient home heating from renewable sources such as biomass or air source heat pumps.

Uptake over the past four years has been consistently high, with 1,408 retrofits completed, largely focused on improving window quality in homes. Collectively, existing homes have saved enough energy to power approximately 205 non-electrically-heated homes for one year.

Energy retrofit programs deliver measurable benefits to participants. They relieve pressure on our energy-generation needs, reduce collective greenhouse gas emissions and create green jobs that stimulate Yukon's economy.

ON SUPER-INSULATED HOMES INCENTIVE

For the construction of new homes, the Good Energy program also offers an incentive for the construction of super-insulated new homes.

Super-insulated homes meet higher building code standards and use significantly less energy. Builders can get up to $10,000 for new super-insulated homes.

From its inception in 2015, the super-insulated homes rebate had an immediate and significant impact on the local construction industry, with approximately three quarters of all new homes constructed in Whitehorse built to a super-insulated standard.

To date, Yukoners have built 411 super-insulated new homes that saved enough energy to power approximately 469 non-electrically-heated homes for one year.

ON OTHER ENERGY EFFICIENT INCENTIVES

Yukoners can take smaller actions to make their homes more energy efficient. Our Good Energy incentives program plays a significant role in encouraging Yukoners to purchase energy efficient appliances and reduce residential electrical loads.

The statistics for the Good Energy program show that lowering energy use is important to Yukon residents.

Over the last decade, Yukoners who have received Good Energy rebates have saved over $9.7 million in energy costs and prevented 40,000 tonnes of greenhouse gas emissions.

The energy efficiency incentives are making a significant impact. We have collectively saved enough energy to power over 2,400 non-electrically heated homes for one year.

The high participation rates prove that the Government of Yukon's energy efficiency initiatives are successfully encouraging Yukon residents and local businesses to conserve and reduce their energy use and save money.

Building on these successes, we are currently working across departments and with the Government of Canada to expand our existing programs to deliver energy efficiency solutions on a larger scale.

THEME: RESEARCH AND TRAINING

From research and training perspective, the Government of Yukon has actively coordinated research and training workshops on renewable energy resources.

This has helped build local technical knowledge and capacity in renewable resource technology.

In the past, the Government of Yukon has done training workshops on converting a gas vehicle into an electric vehicle, on installing photovoltaic solar energy systems and, as noted earlier, we collaborated with the Yukon College on delivering training on biomass systems.

We actively field test new energy technologies and monitor their performance in cold winter temperatures.

For example, we are working with researchers at the University of Victoria to explore the use of vacuum insulation panels for insulating Yukon buildings.

These panels are installed in several Yukon buildings and are being monitored over the course of several years to see how they perform in our northern climate.

This study is one of the first of its kind in the world. It will provide important long-term field data to support the adoption of this new kind of high-performance insulation.

This study will help the construction community, researchers, designers and end users around the world to better understand how vacuum insulation panels can support energy efficiency.

Another monitoring project is the use of cold-climate air source heat pumps that increasingly are being installed in Yukon.

These systems provide heat-using electricity more efficiently than an electrical heater or conventional oil furnace, and we are monitoring how their performance may be impacted by cold winter temperatures.

Through its partnership with Yukon College's Cold Climate Innovation, the Government of Yukon is involved in a number of leading-edge pilot projects that explore the viability of new technologies in a northern climate context.

While we play a part in research and development, the true leader is the Yukon Research Centre and its Cold Climate Innovation.

One project explores the use of biomass to generate combined heat and power.

Another is the feasibility of converting a regular gas vehicle into an electric vehicle.

The Government of Yukon added an electric vehicle to its fleet, which is being used to gain a better understanding of how promising this technology is as a viable solution for northern commuters.

This pilot project serves to test and track the vehicle battery's range and recharge times at various winter temperatures.

THEME: GOVERNMENT LEADERSHIP

The future of the sustainable energy industry in Yukon is a collaborative one with the public, First Nation governments, and communities playing an important role. The Government of Yukon's role is to facilitate, partner, cooperate and encourage.

ON OUTREACH

The Government of Canada has prioritized improving the use of renewable energy across Canada and is funding energy infrastructure improvements in remote areas through its Pan-Canadian Framework on Clean Growth and Climate Change.

The Government of Yukon provides direct support to Yukon First Nations communities and municipalities to ensure they tap into and benefit from the these federal funding opportunities.

Yukon communities are interested in developing local renewable energy sources and in improving energy efficiency. Yukon First Nations and municipalities request that the Government of Yukon help provide technical support to identify issues and develop/implement solutions related to green energy.

Our multi-year, Community Green Energy Initiative does just that. We help our communities benefit from opportunities and funding for green energy projects by offering capacity and direct government-to-government collaboration to move forward with a renewable energy project.

The Government of Yukon has implemented 56 community-driven energy projects in 13 communities. This include seven strategic energy plans completed for five communities and projects related to biomass system deployment, energy efficiency and asset management. This means that half of Yukon's communities are doing energy transition programming specifically based on their needs and their unique situations.

This results in community-driven projects delivered at a pace necessary to ensure effective participation from community members. It means funding is secured, training is provided and renewable energy projects are successfully implemented.

ON AUDITOR GENERAL'S REPORT

The Office of the Auditor General of Canada conducted an audit and released a report on the Government of Yukon's response to climate change.

We agree and support the Auditor General's four overarching recommendations.

We acknowledge that the government's original commitments associated with Climate Change lacked some of the prioritization, assessment, evaluation and the funding transparency that would have improved the accountability of government.

Work is underway to address our outstanding commitments and the Auditor General's recommendations.

We have dedicated resources and effort to meet our commitments in addressing and mitigating the impacts of climate change and are actively seeking solutions to fulfill our commitments.

ON NEW INTEGRATED STRATEGY

One of our primary responses will be the development of a new strategy for climate change, energy and green economy.

This new strategy aims to support clean, secure and sustainable energy, ensure Yukoners are resilient to the impacts of climate change, and foster new economic opportunities.

We are working collaboratively with Yukon First Nations, transboundary Indigenous groups, and Yukon municipalities on this strategy.

We are also engaging businesses, industry, other stakeholders, and the Yukon public.

This will help us develop a territory-wide strategy that reflects the needs of Yukoners and works for Yukon.

Together, we will build healthy, sustainable communities, while supporting environmentally responsible economic growth in the territory.

The new strategy will update and replace the existing 2009 Climate Change Action Plan and the Energy Strategy for Yukon.

CONCLUSION

It is essential that Yukon be part of the national and global shift to address climate change by building resilient communities and low-carbon economies.

Whether through larger renewable energy projects for a community or smaller retrofits for a more energy efficient home, Yukoners can contribute and support our collective efforts to build healthy, sustainable communities and environmentally responsible development in Yukon.