



NORTHWEST TERRITORIES

# Energy Initiatives Report

Reporting on Actions under  
the *2030 Energy Strategy*

# Rapport sur les initiatives énergétiques

DES TERRITOIRES DU NORD-OUEST

Rapport sur les mesures  
prises dans le cadre de la  
*Stratégie énergétique 2030*

2023-2024

Le présent document contient la traduction  
française du sommaire et du message de la ministre.

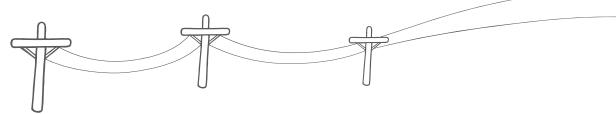
Government of Northwest Territories Gouvernement des Territoires du Nord-Ouest

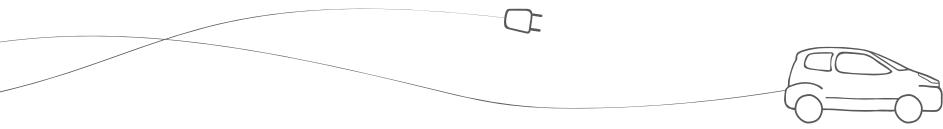




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# MINISTER'S MESSAGE



**The Honourable Caroline Wawzonek**  
*Minister of Infrastructure*

It is my pleasure to present the 2023-2024 Energy Initiatives Report, which details the significant strides made by the GNWT in pursuit of the 2030 Energy Strategy. Guided by our goal to reduce fossil fuel reliance, develop renewable energy, and enhance efficiency, this report illustrates our commitment to a resilient, sustainable energy future that prioritizes affordability and environmental stewardship for all Northerners.

This past year, we have achieved meaningful progress in reducing greenhouse gas emissions, building essential infrastructure, and collaborating with partners across the territory. Working with Indigenous governments, community leaders, and industry, we have expanded renewable energy sources—from wind energy in Inuvik to biomass installations in remote communities—reflecting our dedication to environmental stewardship while addressing the specific needs of our northern communities.

Our unique northern challenges—harsh winters, remote locations, and limited connectivity—contribute to high energy costs, posing significant hardships for residents and businesses. Energy affordability remains one of the most pressing issues in the NWT, especially during winter, when many rely on expensive fossil fuels for heat and power. Residents in the NWT currently pay the highest electricity rates in Canada, an issue made worse by inflation, volatile global markets, and climate change. In response, the GNWT has taken decisive action to reduce these financial burdens through both immediate relief and sustainable solutions, helping stabilize rates and secure a cleaner, more affordable energy future.

To make energy more accessible, the GNWT and its partners have invested \$31.7 million to advance the Energy Strategy's vision, emphasizing energy efficiency as a critical component of affordability. Our support for the Arctic Energy Alliance has enabled residents to reduce consumption and adopt cost-effective technologies, which resulted in 3,000 rebates and \$500,000 in savings annually for residents, primarily in the Beaufort Delta and Sahtu regions. Initiatives like these address the growing issue of energy poverty and demonstrate our commitment to supporting all Northerners.

In addition to these immediate efforts, we are advancing infrastructure projects to ensure long-term stability. Transmission line developments in Fort Providence, Kakisa, and Whatì aim to reduce reliance on fossil fuels, while the new wind turbine in Inuvik is projected to save up to three million liters of diesel per year. Furthermore, the establishment of a fast-charging corridor around Great Slave Lake enables affordable electric vehicle travel between hydroelectric-powered communities, offering a cost-effective transportation alternative that aligns with our net-zero goals.

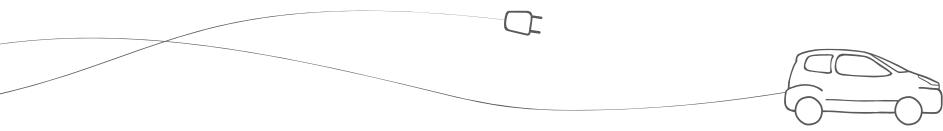
To support residents facing high energy costs, we have bolstered subsidies like the Territorial Power Support Program, the GNWT Rate Equalization Program, and the Senior Home Heating Subsidy, contributing \$10.4 million in 2023-2024 alone. Additionally, with a recent \$30 million subsidy to the NWT Power Corporation, we have mitigated the impacts of low water levels on electricity rates, demonstrating our commitment to shielding residents from further financial strain.

In the pursuit of a long-term energy transition, the GNWT is also dedicated to attracting federal funding for infrastructure upgrades, with a focus on our aging energy systems. The forthcoming Taltson Hydro Expansion Project, which will interconnect hydroelectric resources across multiple watersheds, is one such initiative that promises more drought resilience, lower emissions, and greater stability in electricity rates. Indigenous collaboration remains central to this project, ensuring that local knowledge shapes development, minimizes environmental impacts, and benefits communities.

Our net-zero emissions by 2050 commitment sends a strong signal to private investors that the NWT is building the clean energy needed to support resource extraction projects, especially critical minerals mining, which plays a vital role in the national and global clean economy. With a broader industrial customer base, we anticipate greater stability in electricity rates, benefiting communities across the NWT.

While much has been accomplished, we recognize that energy affordability remains an ongoing challenge. The GNWT has tasked the Department of Infrastructure with developing a renewed energy strategy to guide us toward a net-zero emissions future by 2050, focusing on locally produced energy sources, reliable infrastructure, and enhanced affordability. Through continued commitment and collaboration, we are building a more resilient, secure, and sustainable energy future for generations to come.

*The Honourable Caroline Wawzonek  
Minister of Infrastructure*



# MESSAGE DE LA MINISTRE



**L'honorable Caroline Wawzonek**  
Ministre de l'Infrastructure

J'ai le plaisir de présenter le rapport 2023-2024 sur les initiatives énergétiques, qui décrit les progrès considérables réalisés par le gouvernement des Territoires du Nord-Ouest (GTNO) dans le cadre de la mise en application de sa Stratégie énergétique 2030. Mis par nos objectifs visant à réduire la dépendance aux combustibles fossiles, à renforcer les sources d'énergie renouvelable et à améliorer l'efficacité énergétique, nous avons préparé ce rapport afin d'illustrer notre engagement à bâtir un avenir énergétique résilient et pérenne, qui met l'accent sur l'abordabilité et la gouvernance environnementale pour l'ensemble des Ténois.

Au cours de l'exercice, nous avons réalisé des avancées marquantes aux chapitres de la réduction des émissions de gaz à effet de serre, de la construction d'infrastructures essentielles et de la collaboration avec nos partenaires à travers les Territoires du Nord-Ouest (TNO). En effet, en coopération avec les gouvernements autochtones, les leaders communautaires et les membres du secteur énergétique, nous avons développé les sources d'énergie renouvelable – depuis le recours à l'énergie éolienne à Inuvik jusqu'à l'installation de chaudières à biomasse dans des collectivités éloignées –, ce qui reflète notre dévouement à l'égard de la gouvernance environnementale et de la prise en compte des besoins propres à nos collectivités nordiques.

Les défis uniques auxquels nous sommes confrontés dans le Nord (hivers rudes, isolement géographique et manque de liaisons entre les régions) contribuent au coût élevé de l'énergie, ce qui engendre des difficultés non négligeables pour les résidents et les entreprises. L'abordabilité de l'énergie reste l'un des enjeux majeurs aux TNO, surtout pendant les mois d'hiver, où beaucoup doivent s'en remettre aux combustibles fossiles – particulièrement dispendieux – pour se chauffer et obtenir de l'électricité. Les Ténois sont aujourd'hui les résidents du Canada qui payent les tarifs d'électricité les plus élevés au pays, un problème exacerbé par l'inflation, la volatilité des marchés mondiaux et le changement climatique. En conséquence, le GTNO a pris la mesure décisive de réduire le fardeau financier que représentent ces tarifs au moyen d'aides immédiates et de solutions à plus long terme, ce qui aidera à stabiliser les tarifs et à garantir une énergie plus propre et plus abordable à l'avenir.

Pour rendre l'énergie plus accessible, le GTNO et ses partenaires ont investi 31,7 millions de dollars en vue de concrétiser l'ambition de la Stratégie énergétique 2030, c'est-à-dire de renforcer l'efficacité énergétique comme composante essentielle de l'abordabilité. Notre soutien à l'Arctic Energy Alliance a permis aux résidents de réduire leur consommation et d'adopter

des technologies moins coûteuses, grâce à l'octroi de 3 000 remises et à des économies de l'ordre de 500 000 dollars par an, principalement dans les régions de Beaufort-Delta et du Sahtu. Ce type d'initiatives permet de lutter contre le problème croissant de la pauvreté énergétique et met en évidence notre volonté de soutenir tous les Ténois.

Au-delà de ces mesures de soutien immédiat, nous avons avancé dans nos projets d'infrastructure destinés à assurer une stabilité à long terme. La mise au point de lignes de transport d'énergie à Fort Providence, Kakisa et Whatì vise à réduire la dépendance aux combustibles fossiles. De son côté, la nouvelle éolienne d'Inuvik devrait, selon les prévisions, permettre d'économiser trois millions de litres de diesel par an. Par ailleurs, la création d'un corridor de recharge rapide le long des rives du Grand lac des Esclaves favorise le déplacement à moindre coût en véhicule électrique entre les collectivités alimentées par l'hydroélectricité, offrant ainsi une solution de transport plus abordable et cohérente avec notre objectif de carboneutralité.

Pour soutenir les résidents face aux coûts d'énergie élevés, nous avons étouffé nos subventions telles que le Programme territorial de subvention à la consommation d'électricité, le Programme de péréquation des tarifs du GTNO et la Subvention au chauffage résidentiel pour les personnes âgées, en y consacrant 10,4 millions de dollars rien qu'en 2023-2024. De surcroît, la récente subvention de 30 millions de dollars accordée à la Société d'énergie des TNO a permis d'amortir les retombées de la baisse des niveaux d'eau sur les tarifs de l'électricité, preuve de notre engagement à préserver les résidents de nouvelles difficultés financières.

Dans le cadre de notre transition énergétique à long terme, nous sommes également déterminés à obtenir des aides du gouvernement fédéral pour financer la modernisation des infrastructures, tout particulièrement nos systèmes vieillissants

d'approvisionnement en énergie. Le projet d'agrandissement de la centrale hydroélectrique Talton, qui permettra d'intégrer les ressources hydroélectriques de plusieurs bassins hydrographiques, fait partie des initiatives qui promettent d'améliorer la résilience face aux sécheresses, de réduire les émissions et de stabiliser davantage les tarifs d'électricité. La participation des partenaires autochtones demeure un aspect crucial du projet, car les connaissances locales permettront d'en façoner le développement, de réduire au minimum les effets environnementaux et de maximiser les retombées positives pour les collectivités.

Notre engagement à atteindre la carboneutralité d'ici 2050 envoie aux investisseurs du secteur privé un message fort, à savoir que les TNO bâtissent actuellement le réseau d'énergie propre nécessaire à l'appui de projets d'extraction minière, surtout pour ce qui est des minéraux critiques, qui jouent un rôle vital dans le développement d'une économie propre à l'échelle nationale et mondiale. En élargissant notre clientèle industrielle, nous entendons améliorer la stabilité des tarifs de l'électricité, ce qui profitera aux collectivités ténoises.

Si nous avons beaucoup accompli, nous sommes conscients que l'abordabilité de l'énergie reste un problème. Le GTNO a confié au ministère de l'Infrastructure la tâche de mettre au point une nouvelle stratégie énergétique destinée à nous guider jusqu'à la carboneutralité d'ici 2025, en mettant l'accent sur les énergies produites à l'échelle locale, les infrastructures fiables et une meilleure abordabilité. En poursuivant nos engagements et notre collaboration, nous bâtissons un avenir énergétique plus résilient, plus sécuritaire et plus pérenne pour les prochaines générations.

*L'honorable Caroline Wawzonek, ministre de l'Infrastructure*

# LIST OF ACRONYMS

This page lists and spells out the acronyms used throughout the Report.

AEA	Arctic Energy Alliance	ICIP	Investing in Canada Infrastructure Program
ARI	Aurora Research Institute	INF	GNWT Department of Infrastructure
BEV	Battery Electric Vehicle	kt	Kilotonne
CARF	Capital Asset Retrofit Fund	kW	Kilowatt
CCSF	Climate Change Strategic Framework	LCELF	Low Carbon Economy Leadership Fund
CFR	Clean Fuel Regulations	LED	Light-emitting Diode
CIRNAC	Crown-Indigenous Relations and Northern Affairs Canada	LNG	Liquefied Natural Gas
CNG	Compressed Natural Gas	MTS	Marine Transportation Services
DDC	Direct Digital Control	MW	Megawatt
ECCC	Environment and Climate Change Canada	NTPC	Northwest Territories Power Corporation
ECM	Electronically Commutated Motor	NWT	Northwest Territories
ECC	GNWT Department of Environment and Climate Change	PPA	Power Purchase Agreement
EV	Electric Vehicle	REACHE	(Northern) Responsible Energy Approach for Community Heat and Electricity (Program)
GHG	Greenhouse Gas	SCEDE	Standing Committee on Economic Development and Environment
GJ	Gigajoule	TJ	Terajoule
GNWT	Government of the Northwest Territories	ZEV	Zero Emission Vehicle
HICC	Housing, Infrastructure and Communities Canada		
HNWT	Housing Northwest Territories		

# EXECUTIVE SUMMARY

The 2023-2024 Energy Initiatives Report provides an overview of the GNWT progress toward achieving its energy goals outlined in the *2030 Energy Strategy*. The report highlights key actions and investments made over the past fiscal year, as well as the challenges and opportunities in reducing GHG emissions, stabilizing energy costs, and enhancing energy security across the NWT.

## KEY HIGHLIGHTS:

- **2030 Energy Strategy:** Released in 2018, the *2030 Energy Strategy* serves as a roadmap for a secure, affordable, and sustainable energy system in the NWT. The strategy targets a 30% reduction in GHG emissions from 2005 levels by 2030. The GNWT is committed to a five-year review, with feedback collected from Indigenous governments and Indigenous organizations, utilities, community governments, and industry to shape the next phase of the strategy.
- **Investments and Outcomes:** In 2023-2024, the GNWT invested \$31.7 million in energy initiatives, projected to reduce GHG emissions by 7.3 kilotonnes annually. These efforts align with the release of the 2022-2025 Energy Action Plan, which prioritizes renewable energy development, energy efficiency, and GHG reductions.
- **GHG Emissions:** The NWT achieved a 22% reduction in GHG emissions by 2022, thanks to a combination of individual, business, and governmental actions. In 2023-2024, we estimate emissions were further reduced by approximately 24,000 tonnes of CO<sub>2</sub>e by the activities outlined in this report. The GNWT will continue to explore net-zero pathways through to 2050, with a focus on improving energy efficiency, reducing reliance on diesel, and enhancing renewable energy sources.

## STRATEGIC OBJECTIVES:

The report outlines six strategic objectives to guide energy initiatives across the NWT:

1. **Work Together:** This objective means to enhance collaboration between the GNWT, communities, Indigenous governments, and the private sector to develop local energy solutions. In 2023-2024, the GNWT conducted broad public engagement with representatives from across the NWT. The feedback was used in the publication of a report called *Our Energy and Climate Future in a Changing World* which will inform the upcoming renewal of the *2030 Energy Strategy*.
2. **Reduce Diesel:** The GNWT aims to reduce diesel use in power generation by 25% by supporting renewable energy projects and infrastructure improvements. The Inuvik Wind project was completed this year, potentially saving 3 million liters of oil per year. Other projects advanced in 2023-2024 include the transmission line to Fort Providence and the LNG plant in Fort Simpson.
3. **Transportation:** A key focus is reducing transportation emissions by 10% per capita, with initiatives such as promoting electric vehicles (EVs) and alternative fuels. As part of the GNWT's commitment to installing a corridor of fast EV chargers from Yellowknife to the Alberta border, two fast chargers were installed in Yellowknife in 2023-2024, with other stations to be completed in 2024-2025.

4/5. **Heat and Efficiency:** This objective aims to increase the use of renewable energy for heating to 40% and improve building energy efficiency by 15% per capita. To advance this objective, the GNWT invested \$18.7 millions for various energy efficiency and renewable energy programing. This funding includes the \$7.1 million provided to the AEA, which reduced territorial emissions by about 1,500 tonnes of CO<sub>2</sub>e last year.

6. **Long-term Vision:** The GNWT is working to advance long-term projects, including the Taltson Hydro Expansion, to provide clean, affordable energy to NWT residents. In coming years, the GNWT will also be updating its approach to energy with the renewal of the *2030 Energy Strategy*.

### LOOKING AHEAD:

The GNWT remains committed to meeting its 2030 climate target and is exploring opportunities for greater Indigenous participation, federal funding, and making use of technological advancements in energy. The further electrification of transportation and heating, for example, has the potential to reduce GHG emissions and provide the opportunity to stabilize electricity costs in the NWT by improving economies of scale.

In 2024-2025, the GNWT will be revisiting the territorial approach to energy. This work was initiated in 2023-2024 with broad public engagement,

with insights compiled in the *Our Energy and Climate Future in a Changing World* report. Our recent commitment to reducing emissions to Net-Zero by 2050 will also inform the transformational changes in our approach to energy in this renewed strategy to be published in 2025-2026.

In conclusion, the 2023-2024 Energy Initiatives Report highlights the GNWT's ongoing efforts to transition the NWT to a more sustainable and secure energy system, with a focus on reducing emissions, increasing renewable energy usage, and ensuring energy affordability for residents and businesses.

# SOMMAIRE

Le rapport 2023-2024 sur les initiatives énergétiques offre un aperçu des progrès réalisés par le gouvernement des Territoires du Nord-Ouest (GTNO) pour atteindre les objectifs énergétiques cités dans sa *Stratégie énergétique 2030*. Le présent rapport met en lumière les principales mesures et les principaux investissements effectués au cours de l'exercice écoulé, ainsi que les défis et les occasions qui se présentent dans le cadre de la réduction des émissions de gaz à effet de serre (GES), de la stabilisation des coûts de l'énergie et du renforcement de la sécurité énergétique à travers les Territoires du Nord-Ouest (TNO).

## FAITS SAILLANTS

- Stratégie énergétique 2030 :** Publiée en 2018, cette Stratégie est une feuille de route pour aboutir à un réseau énergétique sécuritaire, abordable et pérenne aux TNO. Elle vise une réduction de 30 % des émissions de GES d'ici 2030, par rapport au niveau de 2005. Le GTNO s'est engagé à réaliser un examen au bout de cinq ans, en recueillant les commentaires des gouvernements et des organisations autochtones, des entreprises de services publics, des administrations communautaires et des membres du secteur afin de façonner la prochaine phase de la Stratégie.
- Investissements et résultats :** En 2023-2024, le GTNO a investi 31,7 millions de dollars dans des initiatives énergétiques, ce qui devrait contribuer à réduire les émissions de GES de 7,3 kilotonnes par année. Ces efforts s'inscrivent dans le cadre du Plan d'action énergétique 2022-2025, qui priorise le développement des sources d'énergie renouvelable, l'efficacité énergétique et la réduction des GES.
- Émissions de GES :** Les TNO sont parvenus à réduire de 22 % les émissions de GES en 2022, grâce à une combinaison de mesures visant les particuliers, les entreprises et les gouvernements. En 2023-2024, on estime que les actions soulignées dans le présent rapport ont permis de réduire les émissions d'environ 24 000 tonnes d'équivalent de dioxyde de carbone (éq. CO<sub>2</sub>) supplémentaires. Le GTNO continuera d'explorer les moyens d'atteindre la carboneutralité jusqu'à 2050, en privilégiant toutefois l'amélioration de l'efficacité énergétique, la réduction de la dépendance au diesel et le renforcement des sources d'énergie renouvelable.

## OBJECTIFS STRATÉGIQUES

Le présent rapport établit six objectifs stratégiques destinés à orienter les initiatives énergétiques aux TNO :

- Travailler ensemble :** Il s'agit d'améliorer la collaboration entre le GTNO, les collectivités, les gouvernements autochtones et les membres du secteur privé pour mettre au point des solutions énergétiques à l'échelle locale. En 2023-2024, le GTNO a mené des échanges de grande envergure avec des représentants un peu partout sur le territoire, et la rétroaction ainsi obtenue a servi à rédiger le rapport « Notre avenir énergétique et climatique dans un monde en transformation », lequel orientera le renouvellement à venir de la *Stratégie énergétique 2030*.

2. **Réduire la consommation de diesel :** Le GTNO cherche à réduire de 25 % la consommation de diesel servant à la production d'électricité en appuyant des projets d'énergie renouvelable et des améliorations infrastructurelles. Le projet éolien d'Inuvik, par exemple, a été achevé cette année et permettra potentiellement d'économiser 3 millions de litres de mazout par an. D'autres projets ont progressé en 2023-2024, parmi lesquels figurent la ligne de transport vers Fort Providence et la centrale de gaz naturel liquéfié à Fort Simpson.
3. **Moderniser le transport :** L'une des priorités consiste à réduire les émissions liées au transport de 10 % par habitant, au moyen d'initiatives telles que la promotion de véhicules électriques et de combustibles de remplacement. Dans le cadre de l'engagement pris par le GTNO à établir un couloir de recharge rapide pour véhicules électriques entre Yellowknife et la frontière avec l'Alberta, deux bornes de recharge ont été installées à Yellowknife en 2023-2024, auxquelles doivent s'ajouter d'autres bornes en 2024-2025.

4/5. **Mettre l'accent sur le chauffage et l'efficacité énergétique :** Il s'agit de porter à 40 % le recours aux sources d'énergie renouvelable pour le chauffage et d'améliorer de 15 % par habitant l'efficacité énergétique des bâtiments. Pour parvenir à cet objectif, le GTNO a investi 18,7 millions de dollars dans divers programmes pertinents, dont un versement de 7,1 millions de dollars à l'Arctic Energy Alliance, qui a réduit les émissions territoriales d'environ 1 500 tonnes d'éq. CO<sub>2</sub> lors de l'exercice précédent.

6. **Concrétiser l'ambition à long terme :** Le GTNO s'efforce de poursuivre ses projets à long terme, y compris l'agrandissement de la centrale hydroélectrique Talton, pour fournir une énergie propre et abordable aux Ténois. Le GTNO veillera également, au cours des prochaines années, à actualiser sa démarche en matière d'énergie en renouvelant la *Stratégie énergétique 2030*.

## REGARD VERS L'AVENIR

Le GTNO reste déterminé à atteindre ses objectifs climatiques pour 2030, et examine à cet effet les possibilités de favoriser la participation des Autochtones, d'obtenir davantage de financement du gouvernement fédéral et de mettre à profit les avancées technologiques en matière d'énergie. La poursuite de l'électrification des transports et du chauffage, par exemple, pourrait aider à réduire considérablement les émissions de GES et permettre de stabiliser les coûts de l'électricité aux TNO grâce à de meilleures économies d'échelle.

En 2024-2025, le GTNO reverra sa démarche énergétique pour le territoire, un travail qui a débuté en 2023-2024 par de vastes échanges avec le public et qui a donné lieu à la publication du rapport « Notre avenir énergétique et climatique dans un monde

en transformation ». L'engagement que nous avons récemment pris pour tomber à zéro émission nette d'ici 2050 servira également de référence pour apporter des changements transformationnels à notre démarche énergétique, dans le cadre de la nouvelle stratégie qui sera publiée en 2025-2026.

En conclusion, le présent rapport 2023-2024 sur les initiatives énergétiques souligne les efforts en cours fournis par le GTNO pour aboutir à un réseau énergétique plus durable aux TNO, l'accent étant mis sur la réduction des émissions, le recours accru aux sources d'énergie renouvelable et la garantie d'une énergie abordable pour les résidents et les entreprises.

# INTRODUCTION

The Northwest Territories' (NWT) overall annual emissions were 1,353 kilotonnes of carbon dioxide equivalent (kt of CO<sub>2</sub>e) in 2022, the most recent year for which data is available. This corresponds to a 22% reduction in greenhouse gas (GHG) emissions since 2005. This is due to actions taken by individuals, businesses, and governments across the NWT, as well as a reduction in mining activity over this period. The NWT is on track to meet its goal of reducing emissions by 30% by 2030.

*The 2023-2024 Energy Initiatives Report: Reporting on Actions under the 2030 Energy Strategy (Report)*, summarizes the key energy actions and initiatives undertaken by the Government of the Northwest Territories (GNWT) and its partners over the past fiscal year. While most projects directly or indirectly reduce GHG emissions, the *2030 Energy Strategy* is also committed to stabilizing energy costs and increasing energy security across the NWT. The GNWT invested \$32 million in 2023-2024 to advance the objectives of the *2030 Energy Strategy* and estimates its actions and

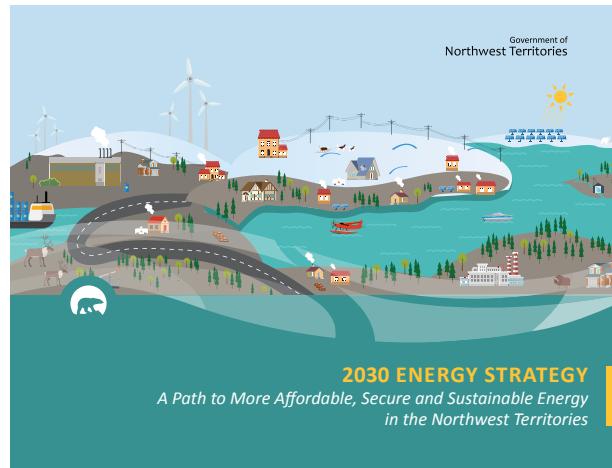
initiatives will directly reduce territorial emissions by 50.7 kt of CO<sub>2</sub>e by 2028.

This year's report provides an overview of projects, programs, policy initiatives, and studies conducted by the GNWT and its partners over the past fiscal year. The Report also includes an overview of the NWT's current energy and GHG emissions context.

The Report also includes an update on the ongoing renewal of the *2030 Energy Strategy*, which is anticipated to be completed by the end of 2025-2026.

## 2030 ENERGY STRATEGY

All the actions and initiatives in this report fall under the *2030 Energy Strategy* (Strategy). Released in 2018, the *Strategy* sets out the GNWT's long-term approach to supporting secure, affordable, and sustainable energy in the NWT. This includes support for energy efficiency and conservation programs, local renewable and alternative energy solutions, and larger-scale energy projects. 2023-2024 was the sixth year of implementing the *Strategy*. During this fiscal year, the GNWT initiated the five-year review of the *Strategy* (see next section).



# TOWARDS A RENEWED APPROACH TO ENERGY AND GHG EMISSIONS REDUCTIONS

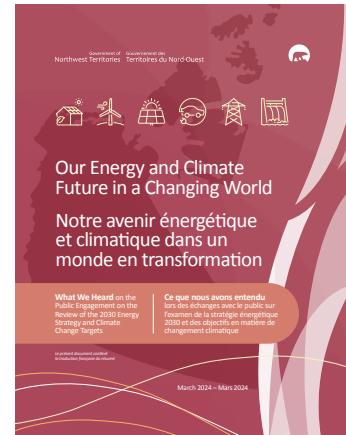
The Government of Northwest Territories (GNWT) released the [\*2030 Energy Strategy\*](#) in 2018, and committed to reviewing it after five years. In 2023, the GNWT sought feedback on potential revisions to the approach to energy and climate mitigation issues, and what changes, if any, should be made to the NWT emissions reduction target.

Opportunities for feedback included public submissions, in-person meetings, and a three-day, in-person dialogue with 148 representatives from Indigenous governments and Indigenous organizations, the NWT Climate Change Council, the NWT Climate Change Youth Council, non-governmental organizations, utilities, industry, businesses, and the territorial and federal governments.

This engagement's results were released in the March 2024 report [\*Our Energy and Climate Future in a Changing World\*](#).

Generally, participants agreed on the following:

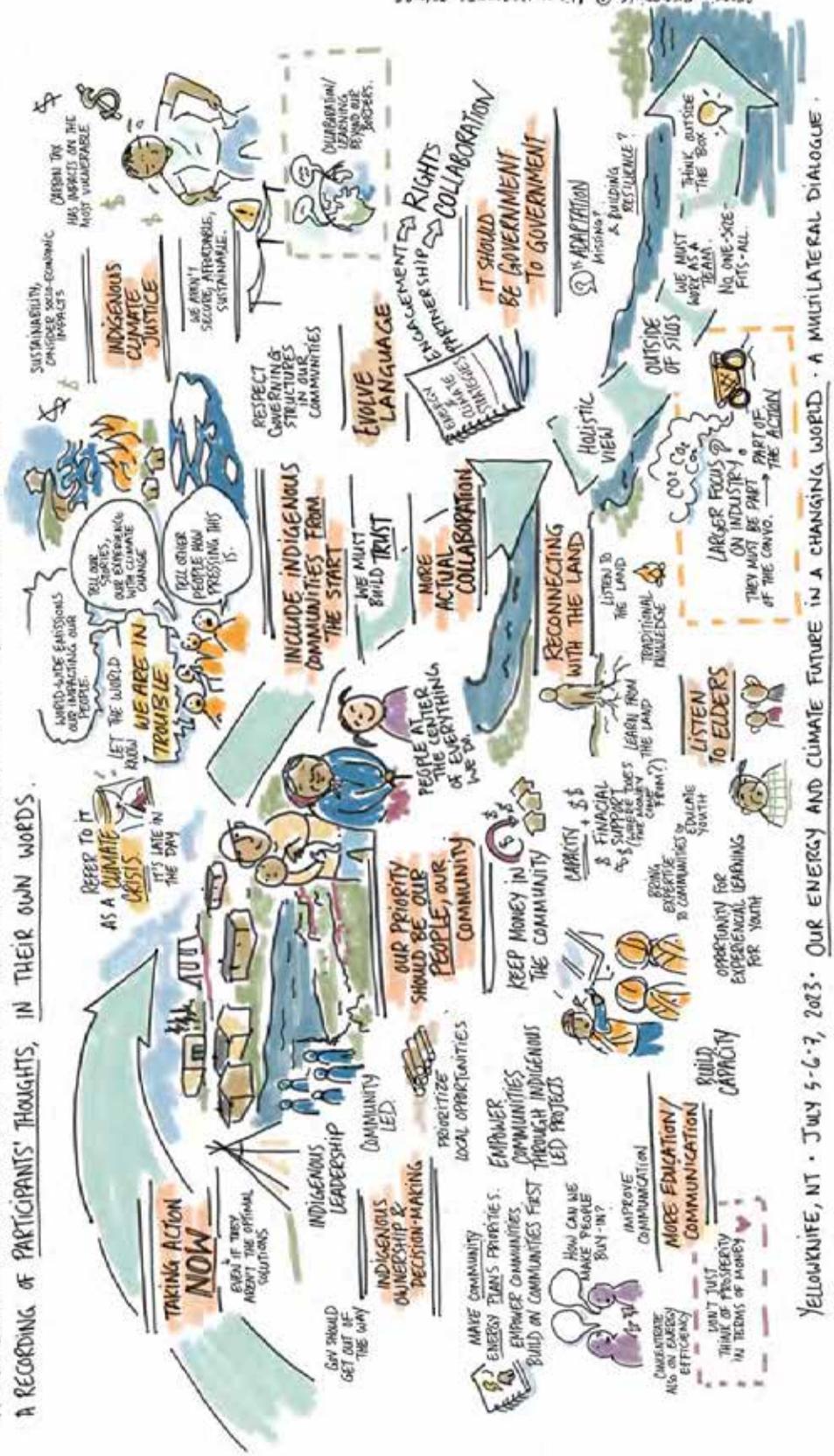
1. Increase the 2030 emissions reductions target and/or set a long-term target to guide the NWT's efforts beyond 2030.
2. Articulate clear roles and responsibilities for all parties involved in the energy transition, including more involvement for Indigenous governments and Indigenous organizations in making decisions on energy and climate change, especially when setting emissions reduction targets.
3. Economy and affordability are key.
4. Utilities will play a critical role, and the utility regulator, electrical utilities, the GNWT, and interested Indigenous governments and Indigenous organizations should plan for this by developing appropriate planning, regulatory, and policy tools.
5. Leverage known, proven technologies.



This feedback is used in 2024-2025 to inform the GNWT's review of the *2030 Energy Strategy* and Goal 1 of the *2030 NWT Climate Change Strategic Framework*. As part of this review, the GNWT announced in October 2024 a new emissions reduction objective of achieving net-zero GHG emissions by 2050. This aspirational commitment will guide the development of a revised energy strategy that considers the feedback received during the 2023 engagement and addresses the 2050 net-zero objective. The Department of Infrastructure intends to release a renewed approach to energy in the NWT by the end of 2025-2026. Ultimately, the new strategy will ensure progress towards an energy and climate future where Northerners have continued access to secure, affordable, and sustainable energy in a healthy environment.

## A REVIEW OF PRINCIPLES AND VALUES GUIDING THE GNWT'S ENERGY & CLIMATE STRATEGIES





Graphic artist Alison McCreesh recorded visual minutes during the in-person part of the engagement. This drawing is part of a series of drawings gathered in a booklet entitled [A Visual Summary of What We Heard During the Multilateral Dialogue](#).

# PROGRESS TOWARDS NWT 2030 CLIMATE TARGET

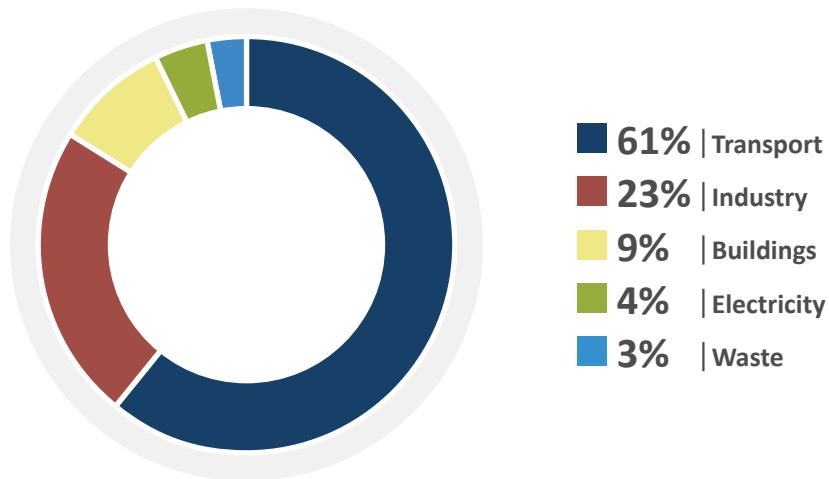
The NWT is dedicated to reducing GHG emissions by 30% below 2005 levels by the year 2030, translating to an absolute target of 1,094 kt of CO<sub>2</sub>e. This section presents a comprehensive overview of GHG emissions and sector-specific trends, tracks progress towards the 2030 target, and provides a detailed breakdown of anticipated direct GHG reductions from key programs and initiatives, categorized by strategic objective.

## GREENHOUSE GAS EMISSIONS IN 2022

In 2022—the most recent year for which emissions data is available—the Northwest Territories' overall annual emissions were 1,353 kt of CO<sub>2</sub>e. Transportation, building heating and power, and industrial activities utilize fossil fuels that result in the majority of GHG emissions in the NWT.

Historically, the transportation sector has dominated NWT's GHG emissions, and 2022 continued this trend. Driven primarily by industrial activities, transportation contributed 61% of the territory's emissions. The industrial sector followed, with on-site energy use responsible for 23% of NWT's GHG emissions. Buildings, electricity and waste are respectively responsible for 9%, 4% and 3% of overall territorial emissions (Figure 1).

**Figure 1. NWT Greenhouse Gas Emissions by Sector in 2022**



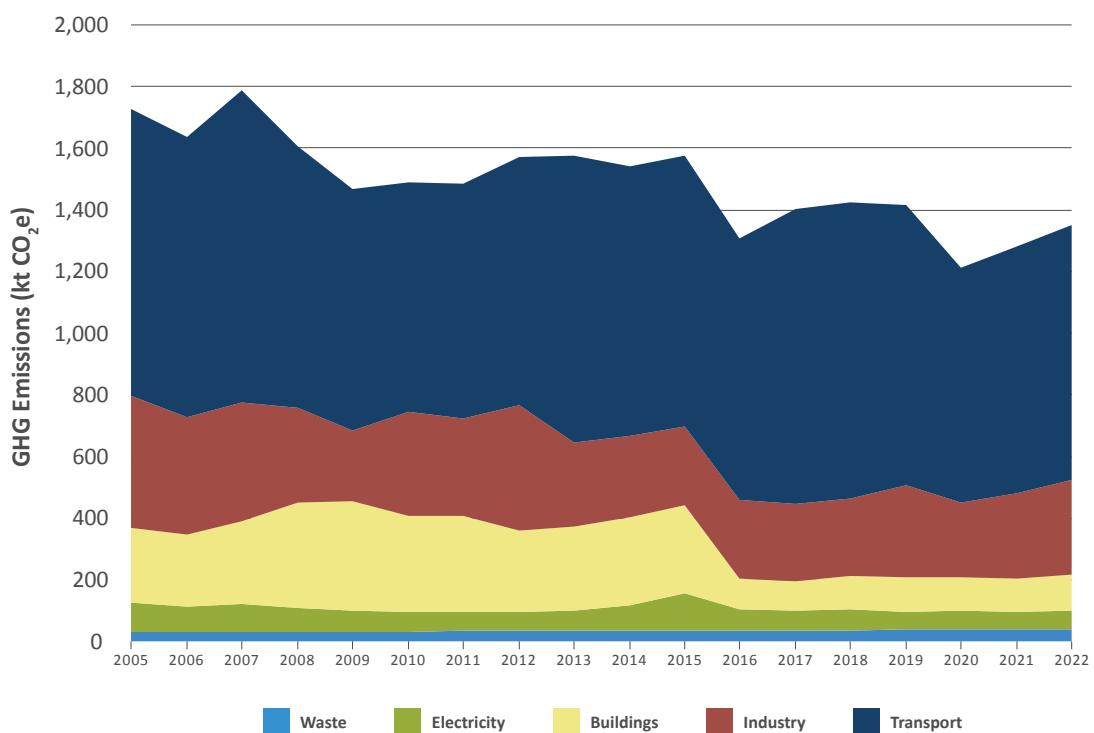
*Source:* Environment and Climate Change Canada

*Note:* When accounting for transportation emissions occurring at mine sites, industrial emissions represent 37% of NWT GHG emissions, and transportation emissions are reduced to 46%.

## HISTORICAL GREENHOUSE GAS EMISSIONS

Territorial emissions fluctuate each year due to economic activity and climate conditions, both of which affect the total demand for fossil fuels. Figure 2 depicts the overall decline in NWT emissions since 2005. Notably, in 2022, the NWT emitted 22% fewer GHGs compared to 2005, which serves as the baseline for the 2030 territorial target.

**Figure 2. NWT Greenhouse Gas Emissions between 2005 and 2022**



*Source: Environment and Climate Change Canada, NTPC, Naka Power*

*Note: Emissions from agriculture are close to zero.*

## BREAKING DOWN EMISSIONS REDUCTIONS FROM NWT ENERGY INITIATIVES

Over the next several years, the GNWT and its partners will continue to make significant investments to improve the reliability of the NWT's energy system, stabilize energy costs and reduce GHG emissions. Table 1 forecasts GHG emissions reductions expected from various energy initiatives and projects conducted by the GNWT and its partners through to 2028. This table does not include an estimate of the emission reductions resulting from the *NWT Carbon Tax*, federal climate change policy, and from community and individual actions.

Activities planned and funded under the *2022-2025 Energy Action Plan* are anticipated to reduce 50.7 kilotonnes of emissions in 2028. Annual GHG emissions reductions estimates are expected to continually increase through to 2030, as new initiatives are launched and as residents and businesses improve energy efficiency and shift to low-carbon technologies such as electric vehicles and biomass heating.

**Table 1. Emissions reductions from projects and initiatives under the *2030 Energy Strategy* (in kt CO<sub>2</sub>e)**

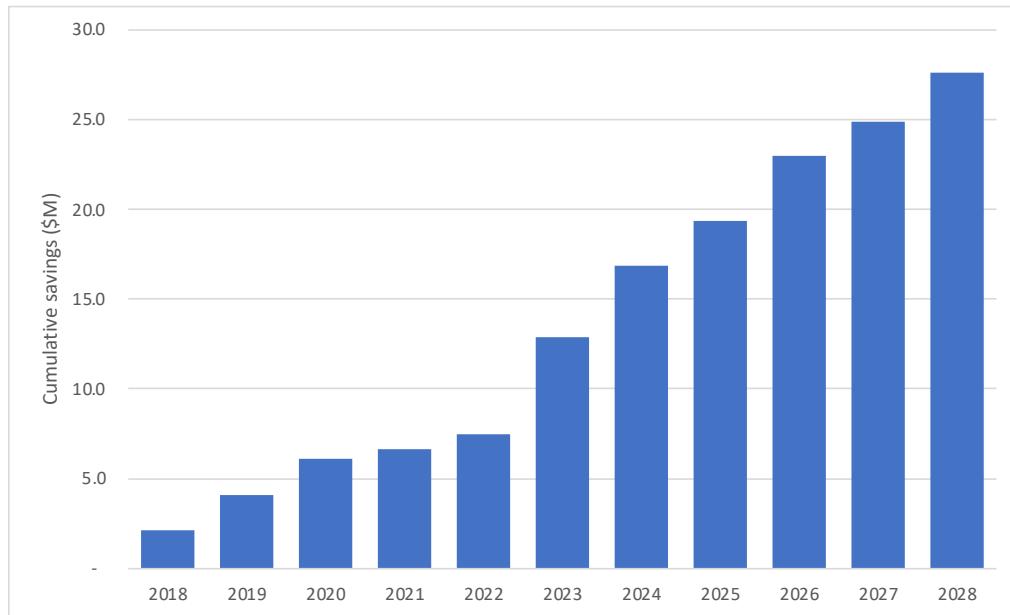
STRATEGIC OBJECTIVE	ENERGY INITIATIVE	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
		Actual	Actual	Actual	Actual	Actual	Actual	Forecast	Forecast	Forecast	Forecast	Forecast
1	Community Projects: heating	-	-	-	-	-	-	TBD	TBD	TBD	TBD	TBD
1	Renewable Energy Community Projects and Net-metering Program	0.2	0.5	0.8	0.8	0.7	0.9	2.3	2.5	2.6	2.7	2.9
2	Diesel Plant Replacement	-	-	-	-	0.1	0.2	0.2	0.2	0.2	0.2	0.2
2	Inuvik Wind	-	-	-	-	-	6.0	6.0	6.0	6.0	6.0	6.0
2	Transmission lines	-	-	-	-	-	-	-	-	3.0	3.0	4.4
2	Liquefied Natural Gas Projects	-	-	-	-	-	-	-	-	-	-	-
3	Electrification of Transportation (including AEA's EV Rebates)	-	-	0.0	0.0	0.1	0.2	0.3	0.5	0.7	1.0	1.3
3	Marine Vessels Upgrade	-	0.4	0.4	0.4	0.4	0.4	0.4	1.2	1.2	1.2	1.2
4and5	GHG Grant Program	-	-	0.1	0.6	1.2	2.2	5.4	6.4	7.3	8.2	9.1
4and5	AEA Programs (Excludes EV Rebates)	0.6	2.0	3.3	4.3	5.2	6.7	7.8	8.9	10.0	11.1	12.2
4and5	Capital Asset Retrofit Fund	3.0	4.6	6.6	5.9	5.5	6.6	7.7	8.7	9.8	10.9	12.0
4and5	NWT Housing Corp	-	-	-	0.3	0.6	0.6	0.9	1.2	1.4	1.4	1.4
6	Hydro Upgrades	-	-	-	-	-	-	-	-	-	-	-
6	Liquid Biofuels	-	-	-	-	-	-	TBD	TBD	TBD	TBD	TBD
6	Taltson Hydro Expansion	-	-	-	-	-	-	-	-	-	-	-
<b>Total (kt CO<sub>2</sub>e):</b>		<b>3.9</b>	<b>7.5</b>	<b>11.2</b>	<b>12.2</b>	<b>13.7</b>	<b>23.7</b>	<b>31.0</b>	<b>35.6</b>	<b>42.2</b>	<b>45.8</b>	<b>50.7</b>
<i>Fuel Savings Equivalent (M of L)</i>		1.4	2.7	4.1	4.4	5.0	8.6	11.2	12.9	15.3	16.6	18.4

**Note:** Emissions reductions are cumulative (they capture reductions from previous years) and calculated above 2018 levels, the year the Strategy was launched.

Emissions reductions advanced under the current Strategy are projected to equal an annual saving of 18.4 million litres of diesel oil by 2028, equivalent to

\$27.6 million (Figure 3). In fact, the current plan puts Northerners, communities and businesses on track to achieve a cumulative saving of \$150 million by 2028.

**Figure 3. Cumulative energy savings from energy projects advanced under the Strategy**



*Assumptions:* All projects displace diesel and diesel costs \$1.5 per litre.

# NWT ENERGY SNAPSHOT

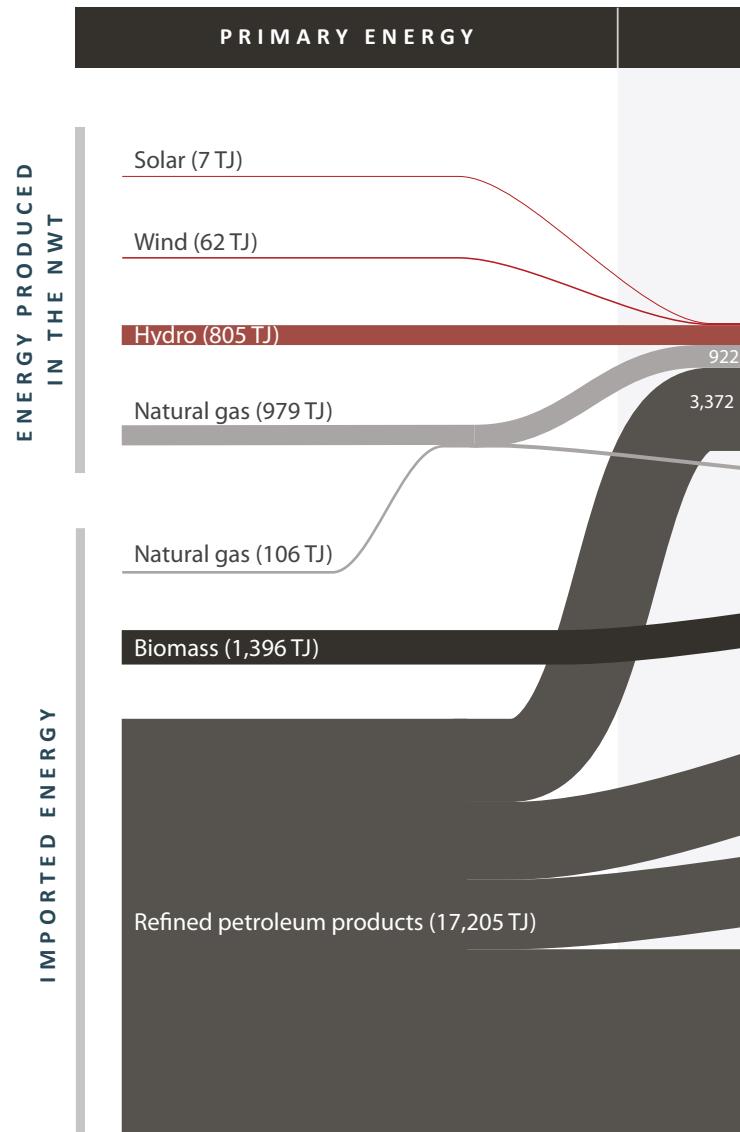
## NWT Energy Supply and Demand

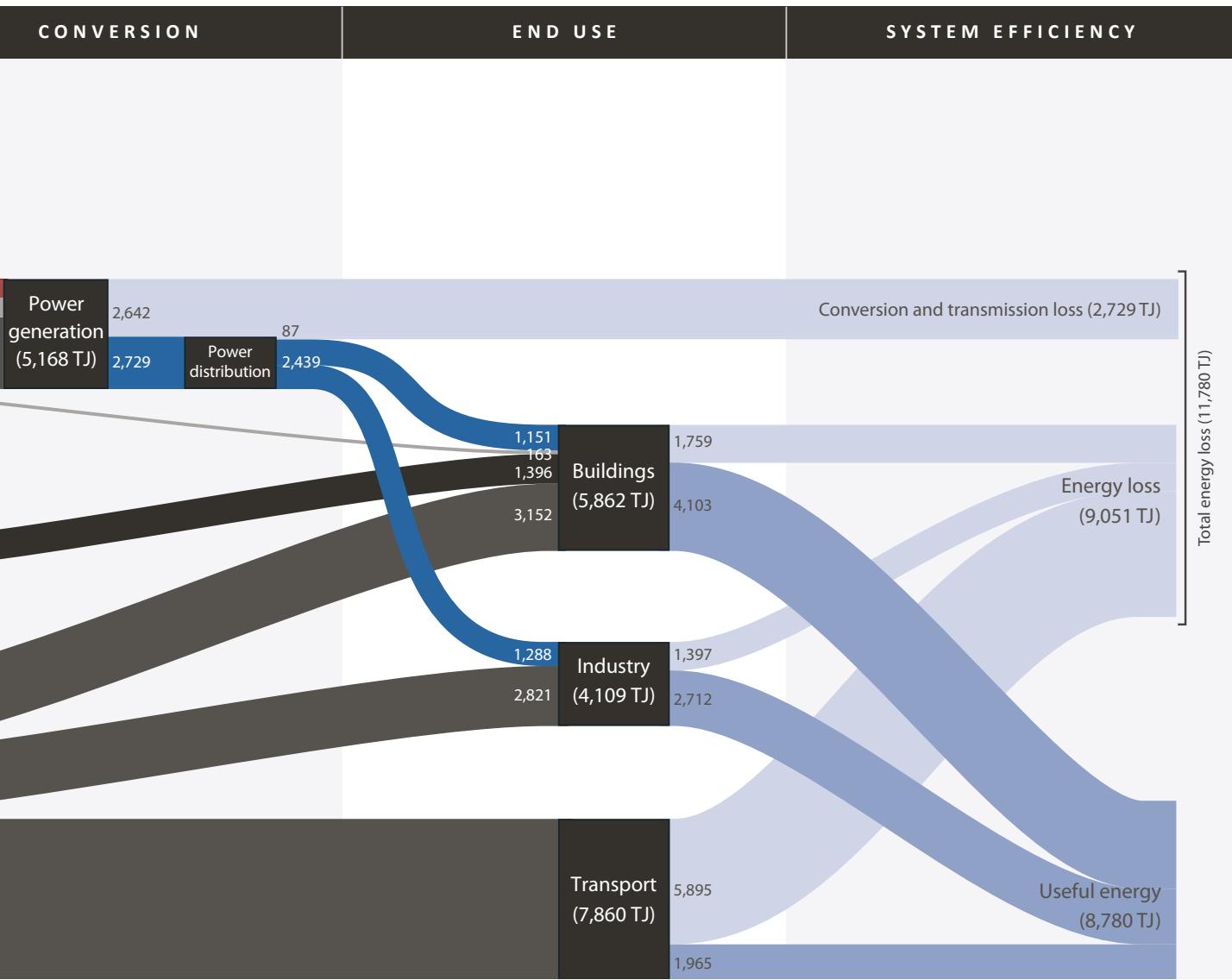
In 2022, the latest year for which data is available for this data source, the NWT's primary energy supply amounted to 20,560 TJ. Fossil fuels were the main source of energy, accounting for 85% of the overall territorial energy supply. This represents the equivalent of approximately 500 million litres of diesel fuel.

The diagram above shows the energy flow from its primary sources to its conversion to fuels and electricity, and how fuel and electricity are used to deliver heating, lighting and move people and goods. The width of each line shows the quantity of energy used, while the left side of this diagram highlights the difference between local (top) and imported (bottom) energy in the NWT. Meanwhile, the right side (under System Efficiency) depicts where energy is most efficiently used (buildings and industry) and sectors relying on less efficient technologies (power generation and transportation).

Transportation accounts for most of the energy used, with industry driving a large share of the demand. Refined petroleum products, such as gasoline and diesel, were industries' primary source of energy. Buildings primarily use a mix of electricity and petroleum products like heating oil and propane, with biomass becoming an emerging alternative for heating.

Figure 4. Energy flows in the NWT in 2022  
(in terajoules)





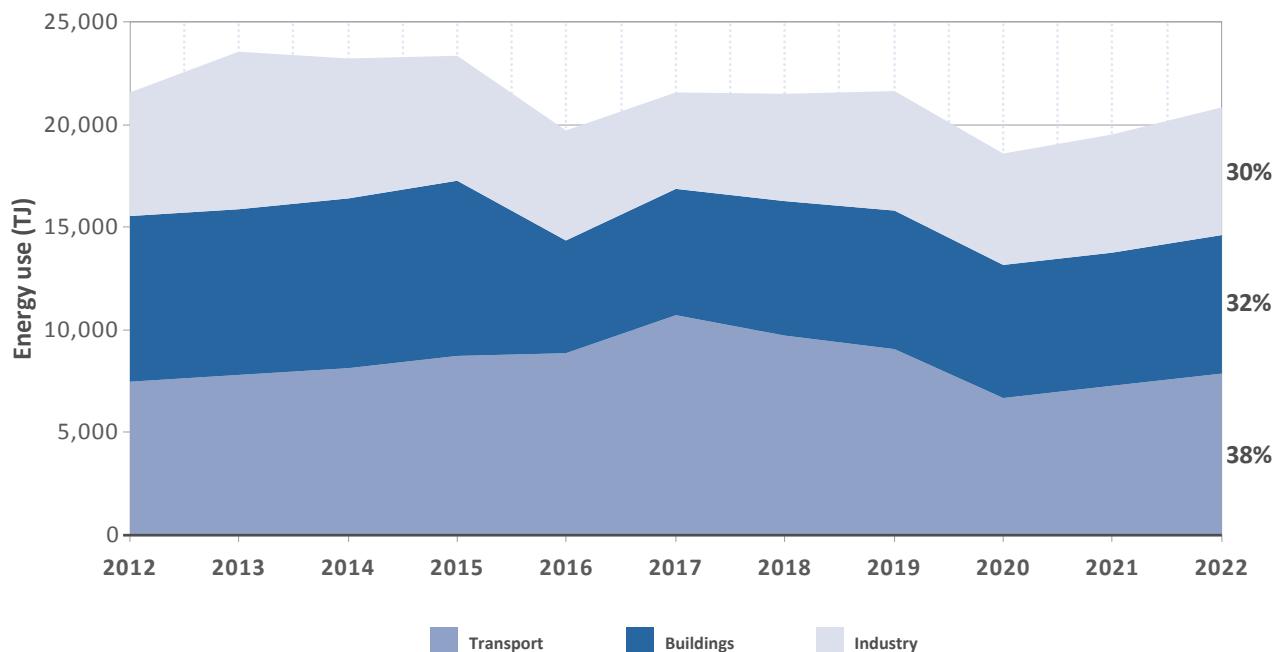
**Source:** Statistics Canada, GNWT, NTPC, Naka Power

**Notes:** Imported natural gas corresponds to liquified natural gas imported for Inuvik's power plant. Energy loss from the end use is estimated using the average conversion efficiency of technologies for a given sector in North America. Biomass fuel use was estimated by the GNWT and this is currently being reviewed..

## PRIMARY ENERGY DEMAND

Figure 5 shows NWT primary energy use for each sector between 2012 and 2022. The NWT's energy demand increased by 7% between 2021 and 2022, primarily due to rising energy requirements for industry (+9%) and transport (+8%).

**Figure 5. Primary energy demand by sector between 2012 and 2022**



**Sources:** Statistics Canada, GNWT

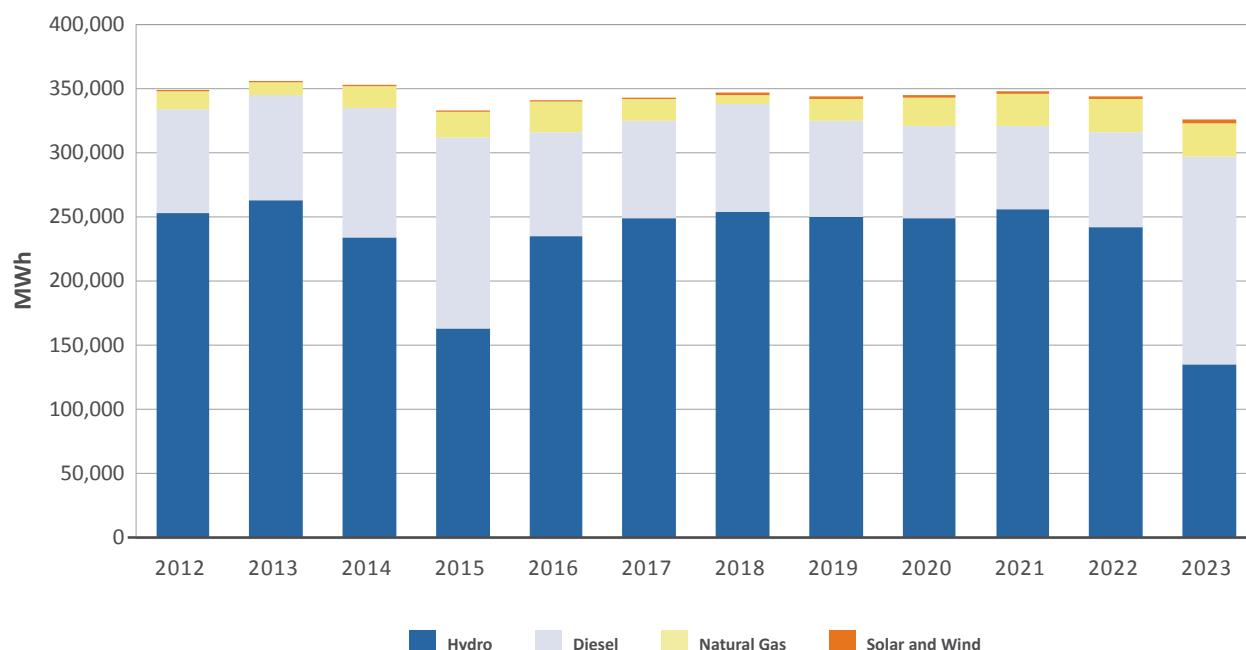
**Note:** Buildings' energy demand includes power and biomass consumption. Industry's energy demand includes energy used in the agricultural sector.

## POWER GENERATION

The Northwest Territories face unique challenges in generating and managing electricity due to its isolation from the North American electricity grid. Figure 6 illustrates the breakdown of energy sources used for electricity generation in NWT communities from 2012 to 2023.

In 2023, communities consumed a total of 326,131 megawatt-hours, which is 5% lower than in 2022. This decrease can primarily be explained by the 2023 summer evacuation due to forest fires, which saw up to 68% of residents leave the Territories for weeks.

**Figure 6. Community power generation by type between 2012 and 2023**



**Sources:** NTPC, NAKA

**Note:** While utilities provide most NWT communities with electricity, industrial sites in the territory—such as mines—generate their own electricity on-site, primarily from diesel generators. Power generation from industry is excluded from this chart, except for electricity sold by Imperial Oil to NTPC in Norman Wells.

Communities not connected to one of the NWT's two hydroelectricity grids—the Snare system in the North Slave and the Taltson system in the South Slave—rely on fossil fuels, such as diesel and natural gas, for their electricity needs. In 2023, due to low water flows in the Snare system and refurbishment work at the Taltson generating facility, diesel generation was increased to compensate for reduced hydroelectric output, which provided only 41% of the electricity needs, compared to a ten-year average of approximately 70%.

As a result, fossil fuels led electricity generation in 2023, with diesel contributing 50% and natural gas 8%. Meanwhile, community-scale solar and wind power contributed less than 1% to the total generation mix. Notably, in 2023, wind power began contributing to the energy mix for the first time with the Inuvik wind project starting operations.

# ENERGY TRANSITION INVESTMENTS

The GNWT and its partners—including the federal government, the Northwest Territories Power Corporation (NTPC) and the Arctic Energy Alliance (AEA), as well as residents, communities, businesses and industry—are making significant investments to implement the *Strategy*. Between 2018 and 2024,

the GNWT invested \$195 million to advance the objectives of the *Strategy*. This figure does not account for programs and policies implemented by the GNWT to help stabilize the cost of energy (see box below).

## ► STABILIZING THE COST OF ENERGY

Energy transition investments in this budget do not include programs and policies implemented by the GNWT to help stabilize the cost of energy and support low-income households, which amounted to \$17.3 million in 2023-2024. The GNWT has also provided one-time subsidies in the past to prevent potential increases to electricity rates, including \$15.2 million in 2023-24 to address additional generation cost caused by low water. Programs and subsidies include:

- **The Territorial Power Support Program (TPSP)** – This program offers a subsidy on power costs to reduce the financial burden on residents outside of Yellowknife. This subsidy amounted to \$8.1 million in 2023-2024.
- **The GNWT Rate Equalization Program (GREP)** – This program is designed to equalize power rates across the territory by providing financial support to offset higher electricity rates in Naka Power communities. This subsidy amounted to \$0.33 million in 2023-2024.
- **Senior Home Heating Subsidy** – This subsidy is designed to provide financial aid to eligible clients for home heating. This subsidy was of approximately \$2 million in 2023-2024.
- **Government Electricity Rates** – Governments in NTPC communities can pay as much as 20% higher electricity rates to reduce rates for other clients. This subsidy amounted to approximately \$6.9 million in 2023-2024.
- **Electricity Sector Capital Subsidies** – Under the NWT's allocation from the federal Investing in Canada Infrastructure Program, the GNWT has allocated up to \$120 million to NTPC through to 2030 to help offset the cost of major infrastructure upgrades and mitigate rate increases.

In 2023-2024, the GNWT invested \$31.7 million to support energy projects and initiatives across the NWT. This represents a 18% increase in budget when compared to the previous fiscal year (\$26.9 million). This is explained by normal variations in the pace of spending during the progress of larger projects.

Table 2 provides a breakdown of energy-related investments made by **Strategic Objective** since 2018-2019.

**Table 2. GNWT Energy-Related Investments by Strategic Objective**

STRATEGIC OBJECTIVE	2018-2019	2019-2020	2020-2021	2021-2022	2022-2023	2023-2024
1. Working Together	N/A	\$103,000	\$807,000	\$585,000	\$422,000	\$664,000
2. Electricity		\$12,444,000	\$21,480,000	\$36,287,000	\$11,188,000	\$8,419,000
3. Transportation		\$421,000	\$530,000	\$823,000	\$872,000	\$1,911,000
4 and 5. Energy Efficiency and Space Heating		\$9,379,000	\$10,368,000	\$12,480,000	\$11,619,000	\$18,738,000
6. Long Term Vision		\$3,492,000	\$4,872,000	\$2,716,000	\$2,817,000	\$1,985,000
<b>Total</b>		<b>\$21,000,000</b>	<b>\$25,837,000</b>	<b>\$38,007,000</b>	<b>\$52,891,000</b>	<b>\$31,718,000</b>

*Note: Breakdown for investments made in 2018-2019 is not available. Figures may not add up due to rounding.*

Table 3 provides a breakdown of \$31.7 million in energy-related investments by funding stream that the GNWT made during 2022-2023.

**Table 3. GNWT Energy-Related Investments by Funding Stream**

FUNDING STREAM	2018-2019	2019-2020	2020-2021	2021-2022	2022-2023	2023-2024
GHG Grant Programs	N/A	\$159,000	\$331,000	\$1,369,000	\$2,000,000	\$6,376,000
Arctic Energy Alliance (core funding and LCELF funding)		\$4,990,000	\$5,191,000	\$4,117,000	\$4,240,000	\$7,089,000
Federal Low Carbon Economy Leadership Fund Portfolios (excluding AEA supplement)		\$449,000	\$1,239,000	\$2,923,000	\$206,000	\$400,000
Federal Investing in Canada Infrastructure Program Projects		\$11,814,000	\$20,469,000	\$34,556,000	\$10,721,000	\$8,110,000
Crown-Indigenous Relations and Northern Affairs Canada (Taltson Expansion)		\$2,288,000	\$3,995,000	\$2,228,000	\$2,300,000	\$1,384,000
Energy Core Funding		\$843,000	\$1,146,000	\$1,982,000	\$1,750,000	\$3,004,000
Capital Asset Retrofit Fund		\$3,800,000	\$3,800,000	\$3,800,000	\$3,800,000	\$3,800,000
Salaries and Administrative Expenses		\$1,494,000	\$1,836,000	\$1,916,000	\$1,900,000	\$1,555,000
<b>Total</b>		<b>\$21,000,000</b>	<b>\$25,837,000</b>	<b>\$38,007,000</b>	<b>\$52,891,000</b>	<b>\$31,718,000</b>

*Note: Breakdown for investments made in 2018-2019 is not available. Figures may not add up due to rounding.*

Funding from Housing, Infrastructure and Communities Canada (HICC), formerly called Infrastructure Canada, is provided through a 10-year agreement signed between HICC and the GNWT in 2018. In total, \$323 million of federal-territorial funding is available (from 2018 to 2032) to support projects that reduce reliance on diesel fuel and reduce GHG emissions. This level of investment in the NWT's electricity system will also help improve system reliability and stabilize future electricity costs.

# ENERGY CHALLENGES IN THE NWT

The NWT faces many challenges, which in some cases will require solutions that differ from those in other Canadian jurisdictions.

## UNIQUE CIRCUMSTANCES

The NWT's immense geography (1.3 million km<sup>2</sup>) and low and disperse population (approximately 45,000 residents) means that the territory has a fragmented energy system. The NWT is not connected to the North American electricity system, eliminating the possibility of buying from, or selling power to, southern jurisdictions. There are two separate hydro

zones, and 25 local grids in remote communities that are supplied by mostly diesel-generated electricity (thermal communities). Extreme winter temperatures also make it difficult to find and supply viable or affordable heating and transportation fuel solutions in the North.

## BALANCING TRADE-OFFS: RELIABILITY, AFFORDABILITY, SUSTAINABILITY

Energy security is a vital issue in the North, as the reliability of energy systems in cold, remote areas can be a matter of life and death. Energy affordability is also critical, as the NWT already deals with some of the highest energy costs in Canada. This means that even though residents and businesses in the NWT are committed to doing their part to reduce GHG emissions, all energy initiatives in the Strategy are led by a trade-off triangle, which ensures communities, businesses, industry, and people in the NWT have access to reliable, affordable, and sustainable energy.

Massive investment into capital generation assets, development of transmission lines to bring clean hydroelectricity to thermal communities, and deployment of higher efficiency end-use technologies are how we are currently achieving our climate commitments while working to also keep energy reliable and costs stable. These investments also generate economic benefits by employing Indigenous and local businesses, building local capacity, and highlighting northern solutions.

## LOW-CARBON TECHNOLOGIES IN THE NORTH

Even technologies proven to work in the North often cost more to implement in the NWT than other provinces. The cost for current projects advanced by the GNWT to reduce emissions in diesel-powered communities ranges from \$330 to \$1,100 per tonne of CO<sub>2</sub> emissions avoided during the life of the project. This is mostly due to reduced economies of scale and our extreme climate.

Without federal funding, most emissions-reduction projects do not make economic sense on their own in the NWT and would increase energy costs for Northerners. The reality is that continued federal support is critical as we transition our energy systems. One notable exception is biomass (e.g., firewood, wood pellets), a low-tech source of energy effectively used to heat buildings throughout the NWT.

# ORGANIZATIONAL ROLES

The GNWT leads the implementation of the Strategy in conjunction with NTPC and the AEA. All three organizations work with NWT communities, Indigenous governments and organizations, and private sector partners on shared objectives that advance the Strategy.

## GOVERNMENT OF THE NORTHWEST TERRITORIES (GNWT)

The GNWT's Energy Division of the Department of Infrastructure (Infrastructure) develops energy policy, secures federal funding for energy initiatives, and administers application-based funding programs that support NWT communities, northern businesses, and industry to reduce their energy use and costs.

The Energy Division works with other Infrastructure divisions to support internal energy initiatives—such as the Capital Asset Retrofit Fund (CARF) program and Marine Transportation Services (MTS) fleet retrofits—as well as other GNWT departments and

agencies to support energy initiatives such as public housing upgrades, community energy planning, and carbon sequestration.

The Energy Division also works closely with other levels of government—including the federal government, community governments, as well as Indigenous governments and organizations—to facilitate engagement, provide advice and partnership opportunities, as well as funding for energy projects throughout the territory.

## NORTHWEST TERRITORIES POWER CORPORATION (NTPC)

NTPC is a GNWT Crown Corporation that owns and operates the NWT's hydroelectric facilities and most of the territory's diesel power plants. Through its capital plan—and in partnership with NWT communities and other utilities—NTPC leads

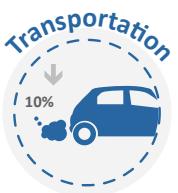
conventional, alternative, and renewable electricity projects to maintain a reliable and affordable electricity system, while working to reduce GHG emissions from diesel-generated electricity.

## ARCTIC ENERGY ALLIANCE (AEA)

The AEA is a non-profit society that helps NWT residents, businesses and communities improve their energy efficiency by providing hands-on energy conservation and efficiency programs and services on behalf of the GNWT. Almost entirely funded by the GNWT and operating through six regional offices, the AEA is the GNWT's primary delivery agent for services such as energy audits and

household appliance rebates, biomass boilers and woodstoves that increase the use of renewable energy for heating, and electric vehicle rebates that reduce transportation emissions. An overview of AEA's activities in 2023-2024 is included in this report.

# SIX STRATEGIC OBJECTIVES



The *Strategy* has six strategic objectives to reach the overarching vision for 2030. The strategic objectives are designed to be achieved through actions and initiatives undertaken by the GNWT and its partners.

This section of the report summarizes the actions and results achieved under each strategic objective in 2023-2024.



## STRATEGIC OBJECTIVE 1 – WORK TOGETHER

### WORK TOGETHER TO FIND SOLUTIONS: COMMUNITY ENGAGEMENT, PARTICIPATION AND EMPOWERMENT

*By improving communication and increasing support, the GNWT is working to ensure communities can partner in developing solutions, undertake projects independently, and stay updated on local initiatives. This section showcases some projects and initiatives the GNWT is actively contributing to.*

#### COMMUNITY PROJECTS

The GNWT recognizes that Indigenous and community governments are increasingly interested in being directly involved in—or in control of—local energy planning and projects. The GNWT works directly with Indigenous and community governments—or through the AEA's community energy planning programs—to help them identify and implement energy projects.



*Energy literacy program offered by the AEA*

## COMMUNITY ENERGY PLANNING

Community energy planning is about identifying local solutions to challenges around energy use (the types of energy that are used to heat and power a community)—as well as energy conservation and efficiency—and finding ways to implement them. Community energy planning also aims to build local capacity and energy literacy, while adhering to local values. The AEA has funding to work with communities to develop community energy plans.

The GNWT encourages communities to develop and implement energy plans. To do this, a community can apply to the AEA's program, or work independently with a consultant. In 2023-24, the AEA has helped develop four community energy plans.

Additional information on community energy planning can be found on the [AEA website](#), including a community energy planning approach, available community energy planning resources and community energy plans, and energy profiles for each NWT community.

COMMUNITY	YEAR
Fort Simpson	2023
Kaa'a'gee Tu First Nation (Kakisa)	2023
Ulukhaktok	2023
Gamèti	2024

## ENERGY PLANNING IN THE GWICH'IN SETTLEMENT AREA

In June 2023, the Department of Infrastructure provided \$50,000 to the Gwich'in Development Corporation to support the development of a Regional Clean Energy Plan. Complementing funding from the Government of Canada, the GNWT funding aimed to support the community engagement conducted

as part of the project (including with traditional knowledge holders, community energy champions, businesses, and Gwich'in participants), which took place at the end of 2023-2024. The GNWT also supported the regional energy planning project by sitting on the Advisory Committee.

## GHG GRANT PROGRAM

The Greenhouse Gas Grant program, funded by the GNWT and Environment and Climate Change Canada, aims to reduce GHG emissions in the Northwest Territories. Designed for NWT governments, organizations, and businesses, the program supports projects like biomass boilers, biomass district heating systems, renewable electricity, and transportation initiatives like electric vehicle charging infrastructure.

In 2023-2024, five projects were approved under the two streams of the Program:

1. The Department of Industry, Tourism and Investment was granted \$255,000 towards connecting the North Arm Territorial Park with the Snare hydro-power grid eliminating the use of fossil fuel generators, reducing 34 tonnes of CO<sub>2</sub>e annually.
2. A \$33,800 grant for NWT Brewery's brewing location to mitigate 29.43 tonnes of CO<sub>2</sub>e annually by reduction of imported CO<sub>2</sub>.

3. Housing NWT was allocated \$750,000 to retrofit the Stanley Isaiah complex in Fort Simpson with a wood-pellet boiler, estimated to reduce 126.3 tonnes of CO<sub>2</sub>e annually.
4. NT Energy received \$1,035,250 for installation of 3 EV charging stations in Fort Smith, Hay River and at the intersection of highway 6, on the way to Fort Resolution, reducing CO<sub>2</sub> emissions by 334 tonnes annually.
5. True North Environmental Ltd.'s Waste oil Recycling facility in Yellowknife, received \$1,784,385 and is poised to cut 583 tonnes of CO<sub>2</sub>e annually from reduced shipments between Yellowknife and Calgary.

Appendix D contains a list of all projects approved under the GHG Grant Program as of March 31, 2024.

## INDEPENDENT POWER PRODUCERS

As part of the Energy Strategy, the GNWT established a participation model to allow NWT residents, communities, and Indigenous governments to participate in the supply of renewable electricity to the grid. While residents can get a credit for power fed into the grid through the net-metering program, communities, and Indigenous governments—and related businesses—developing larger renewable

generation assets can sell power to utilities as Independent Power Producers (IPP) through a Power Purchase Agreement (PPA).

To date, four PPAs have been signed in the Northwest Territories, all with NTPC. These PPAs are listed in Table 4.

**Table 4. Power Purchase Agreements signed with utilities in the NWT**

LOCATION	PROONENT	PROJECT TYPE	INSTALLED CAPACITY (kW)	YEAR PPA WAS SIGNED	YEAR PROJECT CONNECTED TO NTPC GRID	ESTIMATED ANNUAL GHG DISPLACEMENT (t CO <sub>2</sub> e) **
Łutselk'e	Lutselk'e Dene First Nation	Solar	36	2015	2016	50
Aklavik	Nihtat Energy Ltd.	Solar	150	2020	2025*	168
Tulita	Tulita Forest Products Ltd.	Solar	45	2021	2023	57
Inuvik	Nihtat Energy Ltd.	Solar	1,000	2022	2024	1,189

\* Tentative

\*\* Estimate based on the carbon emissions intensity of local electricity grid



## STRATEGIC OBJECTIVE 2 – REDUCE DIESEL

*REDUCE GHG EMISSIONS FROM ELECTRICITY GENERATION IN DIESEL COMMUNITIES BY 25%*

## TRANSMISSION LINES

### FORT PROVIDENCE AND KAKISA TRANSMISSION LINE

The GNWT is proposing to construct a 170-km transmission line from Hay River to Fort Providence, Kakisa, and Dory Point. These communities are accessible by road and relatively close to the existing Taltson hydroelectric system. This project will reduce diesel fuel consumption for power generation by approximately one million litres and reduce GHG emissions by 3,000 tonnes of CO<sub>2</sub>e per year. Replacing diesel electricity with hydroelectricity should also help stabilize the cost of power in these communities in future years.

In 2023-2024, the GNWT submitted the Land Use Permit application to the Mackenzie Valley Land and Water Board during the fall of 2023 and received a Land Use Permit in December 2023. The GNWT is proposing to build the transmission line completely within existing highway corridors to minimize disturbances and impacts.

**Project Funding:** 75% of the funding (\$45 million) has been secured for the project under the Investing in Canada Infrastructure Program (ICIP). The remaining 25% or \$15 million from the GNWT.

**Who will distribute the Power:** The electricity distribution to Fort Providence, Kakisa and Dory Point will continue to be provided by the existing local utility. The hydroelectricity will be provided by NTPC to the local utility, Naka Power, for sale in the community. The Fort Providence diesel power plant will remain in place to serve as back-up power

## WHATÌ TRANSMISSION LINE

This proposed project involves the construction of a 55-km transmission line to connect Whatì to the North Slave hydroelectric system. By displacing diesel generation, the project has the potential to annually save 500,000 litres of diesel, reduce GHG emissions by 1,400 tonnes and reduce operating costs by \$600,000.

The project is located almost entirely on Tłı̨chǫ lands and is supported by the Tłı̨chǫ Government.

generation in the event of a power outage on the new transmission line.

**Tentative Timeline for Construction:** Construction of the proposed transmission line is tentatively planned to begin in spring 2026.

In 2021-2022, the GNWT and Tłı̨chǫ Government initiated discussions and committed to working in partnership to advance the project. In 2022-2023, updates to previous technical studies were completed to identify an acceptable routing corridor for the project. In 2023-2024, the GNWT and Tłı̨chǫ Government committed to continue to collaborate on the project.

## WIND POWER

### INUVIK WIND PROJECT

This project includes the installation of a single 3.5 megawatt wind turbine and battery storage system, a six-kilometre access road, and a distribution line connecting to existing lines near Inuvik's Mike Zubko Airport. \$40 million in funding has been secured for the project, with 75% provided by the Government of Canada and the GNWT providing the remaining 25%. The GNWT has worked closely with the Gwich'in Tribal Council and the Nihtat Gwich'in Council on the Inuvik Wind Project.

The construction of the 6-km access road to the site—along with the wind turbine and battery storage system—started in January 2022. The turbine was wintered in Hay River and was barged to Inuvik. The project was completed and has been producing power for the Inuvik grid since October 2023. Now that it is operational, the project is anticipated to provide 30% of Inuvik's power and offset diesel consumption

by up to 3 million litres per year. This represents over \$3.4 million in annual fuel savings.

Building strong partnerships with Indigenous governments, communities and organizations is critical to advancing the objectives of the Energy Strategy. As the project is within the Gwich'in Settlement Area, contract work flowing from this project during the construction phase significantly benefitted Gwich'in businesses, creating jobs and spurring economic development in the Beaufort-Delta region. Approximately 90% of the work on the road was performed by local businesses.

The project's completion helps stabilize the cost of living and doing business in Inuvik.

## AURORA RESEARCH INSTITUTE WIND AND SOLAR MONITORING PROGRAM

Aurora College's Aurora Research Institute (ARI) has been at the forefront of wind resource assessment in the NWT, conducting over 10 campaigns in the last two decades. These assessments—crucial for the evaluation of wind power generation potential—have been enhanced by Light Detection and Ranging (LiDAR) technology, which uses laser beams to measure wind speed and direction by detecting atmospheric particles. This technology is particularly useful in areas where traditional meteorological towers are not viable.

For some of these campaigns, over a year of data have now been collected and analyzed to determine wind and solar potential. This information will ultimately guide the estimation of wind turbine and solar panel annual energy output, and influence design choices for energy system layouts. The gathered data will be shared with Indigenous and community governments as well as industry partners to support future wind and solar energy developments. Additionally, ARI will disseminate the findings to the public through detailed reports.

## KEY WIND POWER CAMPAIGNS AND PARTNERSHIPS

- **Inuvik Solar Resource Assessment:** Partnering with the Government of Canada's ISSF, this campaign validates solar array efficiencies using SRA System data.
- **Fort McPherson and Tsigehtchic Wind Resource Assessment:** In collaboration with NTPC, Lidar units collect wind data from sites at the local power plants to support local power plant operations.
- **Wekweètì Wind and Solar Resource Assessment:** A joint initiative with the Tł'chǫ Community Government and ATCO, combining Lidar and SRA System data collection.
- **Paulatuk Wind and Solar Resource Assessment:** Teaming up with the Hamlet of Paulatuk, the Paulatuk Energy Working Group and ATCO, this campaign gathers comprehensive wind and solar data.

## DIESEL PLANT REPLACEMENTS AND EFFICIENCY IMPROVEMENTS

### SACHS HARBOUR

This project involved the replacement of the diesel plant, which was at the end of its operating life. A modern plant will facilitate the addition of renewable energy technologies to the local grid. In 2019-2020, the project was approved by HICC —through the Arctic Energy Fund—and a contribution agreement was signed with NTPC. The total budget is \$8.9 million (75% ICIP +25% NTPC). The 75% federal funding means that NTPC saves \$6.7 million from its capital plan, which reduces the pressure on electricity rates.

The existing power plant had a low fuel efficiency of 3.1 kWh/L. Installation of a new high-efficiency diesel

plant provides the community with a reliable and cleaner supply of electricity. The project is expected to displace about 100 tonnes of GHG

emissions per year. The project started construction in the fall of 2020, and after facing delays due to Covid-19, the new power plant was completed and placed in service in March 2024.



New Sachs Harbour Power Plant

## FORT SIMPSON PLANT RELOCATION AND LNG PROJECT

In 2021-2022, the GNWT completed a climate adaptation study that recommended the existing diesel power plant be relocated due to future flooding risks. In 2022-2023, NTPC estimated the scope of work and capital cost to relocate the existing diesel power plant, which will be moved to the same site identified for the Fort Simpson LNG project, therefore integrating the two projects. In 2023-2024, the GNWT

collaborated with NTPC to pursue additional funding for the expanded scope.

Using a more efficient and lower emissions source is expected to result in an 85% reduction in diesel use, avoiding the emission of 1,800 tonnes of GHGs per year, or a 27% reduction.

## LOOKING AHEAD

### HYDROGEN STUDY

In 2023-24, the GNWT initiated a study on hydrogen, the goal of which is to identify niches where hydrogen technology may provide a cost-effective alternative to fossil fuels and competing renewable energy technologies. The study will assess the potential of

producing, importing, exporting and using hydrogen in the NWT. A second phase of the study will look at potential policies the NWT should adopt to foster the adoption of those technologies. The study will be completed in 2024-2025.

### SMALL MODULAR REACTOR (SMRS) NUCLEAR TECHNOLOGY

In 2018, the Government of Canada released a document entitled *A Call to Action: A Canadian Roadmap for Small Modular Reactors*, outlining the status of initiatives for the implementation of modular reactors in Canadian energy systems.

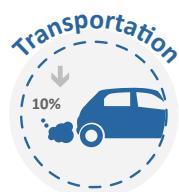
The commercial deployment of this technology will not likely be feasible until 2030.

The GNWT will continue to monitor the progress of global SMR technologies as they undergo further development and achieve regulatory compliance as well as sit on the national SMR Leadership Table.

### UPDATE OF THE NORTH SLAVE HYDROELECTRIC RESILIENCY STUDY

In 2024-2025, the GNWT is planning to initiate a North Slave Resilience Study update, which will involve modelling of the North Slave hydroelectric system water basins, specifically the Snare River basin and the Yellowknife River basin. The water basin review will include a hydroclimatic assessment based on the Coupled Model Intercomparison Project Phase 6 (CMIP6) global climate models.

In addition to modeling and hydroclimatic assessment, a review of infrastructure-based and non-infrastructure-based resiliency options will be provided. This report will help the GNWT understand potential shortfalls in the North Slave hydropower generation system and provide directions and recommendations for non-infrastructure type policies and programs to reduce cost impacts on the GNWT and customers during future droughts.



## STRATEGIC OBJECTIVE 3 – TRANSPORTATION

### *REDUCE EMISSIONS FROM TRANSPORTATION BY 10% ON A PER-PERSON BASIS*

*Reducing emissions from transportation by 10% per capita is a strategic objective of the Strategy. Transportation accounted for 61% of GHG emissions in the NWT in 2022. Increasing electric vehicle (EV) use is one of the main ways the NWT intends to reduce emissions from vehicles.*

#### **PROMOTING EV ADOPTION IN THE NWT**

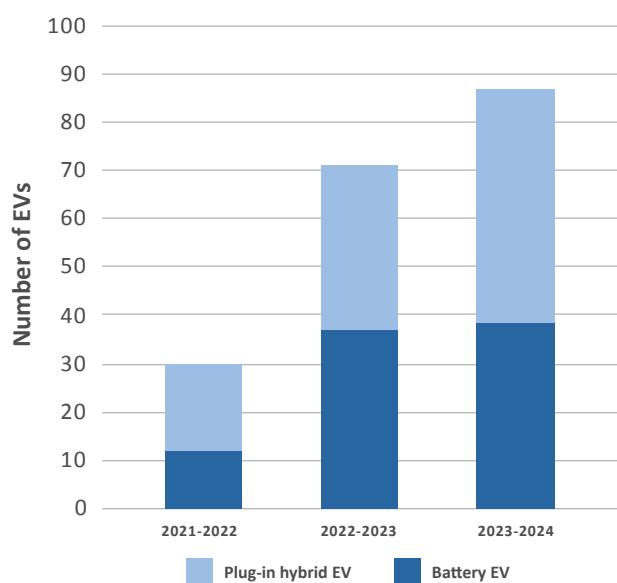
This year, the AEA continued to offer rebates on electric transportation, including pilot rebates for bicycles and on-the-land transportation.

Participants in the program were eligible for up to \$7,500 rebate for the purchase of passenger EVs, in addition to the \$5,000 incentive offered by the Government of Canada. Eligible vehicles include battery-operated EVs as well as plug-in hybrids. The program also supported the purchase and installation of residential charging infrastructure, offering up to \$500. As of March 31, 2024, this popular program has provided incentives for 49 EVs and 24 chargers—with 18 EVs and 8 chargers rebated during 2023-2024. It is estimated that this program collectively contributes to a reduction of 42 tonnes of CO<sub>2</sub>e per year.

While the electric bicycle rebates were popular, it is unclear if GHG emissions were reduced as a result of the subsidy, given that many cyclists may have used an emission free bicycle regardless of the subsidy.



**Figure 7. Electric Vehicles in the NWT**



*Source: GNWT, Driver and Motor Vehicle*

In 2023-2024, the NWT experienced continued growth in EV registrations, with a total of 88 EV registrations, representing a 22% increase compared to the previous year (Figure 7). Of these 88 EVs, 49 are fully electric, relying solely on a battery to store energy, while 39 are plug-in hybrids. The latter category combines a smaller battery with a gasoline engine to extend the range of the vehicle.

## ► FIVE FACTS ABOUT EVs IN THE NWT

- EVs are two to four times less expensive to operate than their gasoline equivalent on a per-kilometre basis in NWT hydro communities.
- EVs work well in the extreme cold despite a known decrease in battery range (gasoline cars and trucks also experience a less-known decrease in performance in extreme cold, with reduced fuel efficiency).
- Most modern EVs use heat pumps to efficiently heat the cabin and offer a comfortable experience in winter.
- Fast charging stations can fully charge an EV in less than an hour.
- The GNWT intends to complete a corridor of fast-charging stations to connect communities around Great Slave Lake in 2025.

### DEVELOPING EV CHARGING INFRASTRUCTURE

In previous years, the GNWT and the AEA subsidized the deployment of two Level 2 charging stations in Yellowknife, such as the one near City Hall and at the AEA office in Yellowknife, which are currently available for public use at no cost. Level 2 chargers operate faster than Level 1 chargers, which run on regular 110-volt outlets, and have the ability to fully charge an EV in five to 12 hours (depending on several factors such as battery size). While Level 1 and 2 chargers can effectively serve the daily commuting needs within a community, faster chargers become essential for longer trips, such as travel between communities.

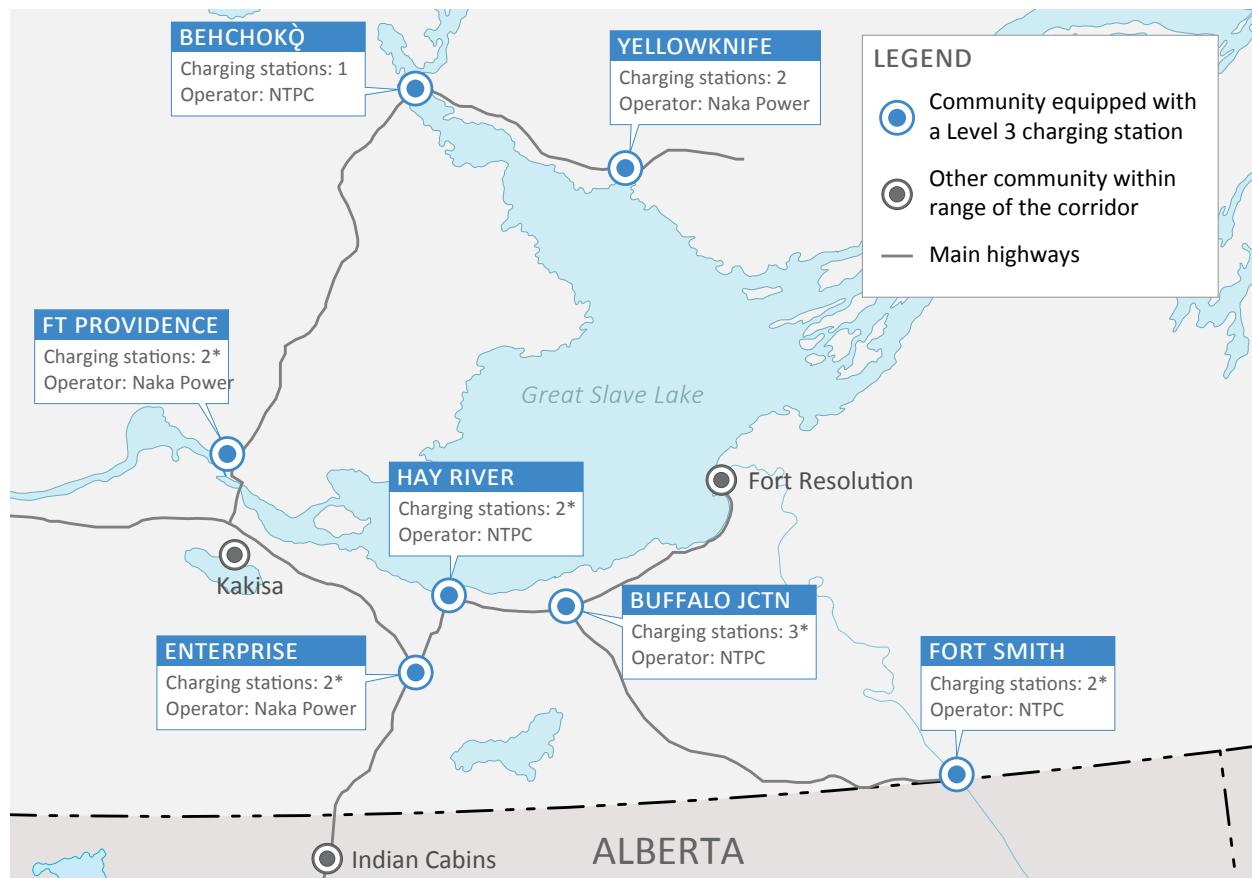
In 2021-2022, the GNWT announced its intention to establish a corridor of fast chargers in hydro communities around Great Slave Lake, connecting the NWT to Alberta (Figure 8). The selection of fast charger locations was informed by practical considerations, taking into account the availability of utility infrastructure, as well as insights derived from a 2020 study focused on EV adoption and corresponding EV infrastructure requirements. The corridor will include fast charging stations situated at six locations around Great Slave Lake. Each location will be outfitted with at least one Level 3 charger,

known for its capability to recharge an EV in less than an hour. In some instances, a combination of Level 3 and Level 2 chargers will be provided, adding flexibility for EV users.



EV Fast Chargers Installed by Naka Power in Yellowknife

**Figure 8. Proposed Level 3 charging stations**



As part of this plan, the GNWT allocated funds for the installation of two Level 3 chargers in Yellowknife in 2021-2022. In 2022-2023, the GNWT provided funds through the GHG Grant Program to install a Level 3 charger in Behchokò. Similar chargers are planned for installation in Fort Providence, Enterprise, Hay River, Buffalo Junction and Fort Smith, with funding and initiatives aligned with the objectives outlined in the *2022-2025 Energy Action Plan*.

The EV corridor represents a \$3.8 million investment, made possible by combining the following three funding sources:

1. GNWT funding, including new funding requested under the GNWT's *2022-25 Energy Action Plan* (\$1.9 million)
2. The GNWT's GHG Grant Program, supported by the Government of Canada's Low Carbon Economy Leadership Fund (\$1.5 million)

3. The GNWT's Electric Vehicle Infrastructure Program (see the box below), supported by the Government of Canada's Zero Emission Vehicle Infrastructure Program (\$360,000)

Fast chargers forming the EV corridor will be owned and operated by NWT electric utilities, NTPC and Naka Power. It is anticipated the EV corridor be completed in 2025.



## GNWT'S ELECTRIC VEHICLE INFRASTRUCTURE PROGRAM

In 2022-2023, the GNWT announced a new application-based funding program to provide rebates for businesses, governments, utilities, and organizations to install Level 2 and Level 3 chargers in the NWT. By targeting organizations, the new program complements AEA's pilot program, which solely offers rebates for Level 2 chargers for residents and small businesses.

The GNWT received \$414,000 from Natural Resources Canada to administer the program for two years. The GNWT is currently seeking more funding to potentially continue the program for the next two years. More information can be found on the Department of Infrastructure's website.



## STRATEGIC OBJECTIVES 4 & 5 – HEAT & EFFICIENCY

*Increase the share of renewable energy used for community heating to 40% and increase commercial, residential, and institutional building energy efficiency by 15%.*

### ARCTIC ENERGY ALLIANCE (AEA) PROGRAMS AND SERVICES

The AEA is a non-profit society dedicated to helping reduce the costs and environmental impacts of energy in the NWT by providing programs and services to residents, communities, non-profits, and businesses. Funded by the GNWT, the AEA is one of its most important partners and delivery agents for energy initiatives across the NWT.

The AEA delivers programs and services directly to all NWT communities through six regional offices—Fort Simpson, Hay River, Inuvik, Norman Wells, Behchokǫ and Yellowknife—and maintains a close connection to communities throughout the territory.

In 2023-2024, the AEA delivered programs and services in all NWT communities, giving out a total of 3,024 incentives worth \$2.5 million in combined

value. This translates into 1,300 MWh in energy savings—equivalent to taking two communities the size of Wekweètì off the grid—and avoiding the use of 14,000 GJ of fossil fuels. In 2023-2024, programs and services delivered by the AEA reduced territorial GHG emissions by 1.5 kt of CO<sub>2</sub>e, at an average cost per rebate of \$100 per lifetime tonne avoided. 79% of rebates were offered outside of Yellowknife.

In addition to its programs, the AEA undertook nine special projects. One of these projects aimed to test cold-climate air-source heat pumps in the NWT (see box below).

## ▶ AEA'S COLD-CLIMATE AIR-SOURCE HEAT PUMP PROJECT

Air-source heat pumps are a highly efficient way to heat a home using electricity. Plus, when they use a renewable source of electricity—like hydropower—they can practically eliminate GHG emissions related to home heating. Traditionally, however, air-source heat pump technology has not been well suited to the NWT's climate.

In recent years, more and more cold-climate air-source heat pumps have come on the market, but there is still very limited information on how they work in the North and how well they interact with existing heating systems. For these reasons, the AEA started a special project to test cold-climate heat pumps in Yellowknife.

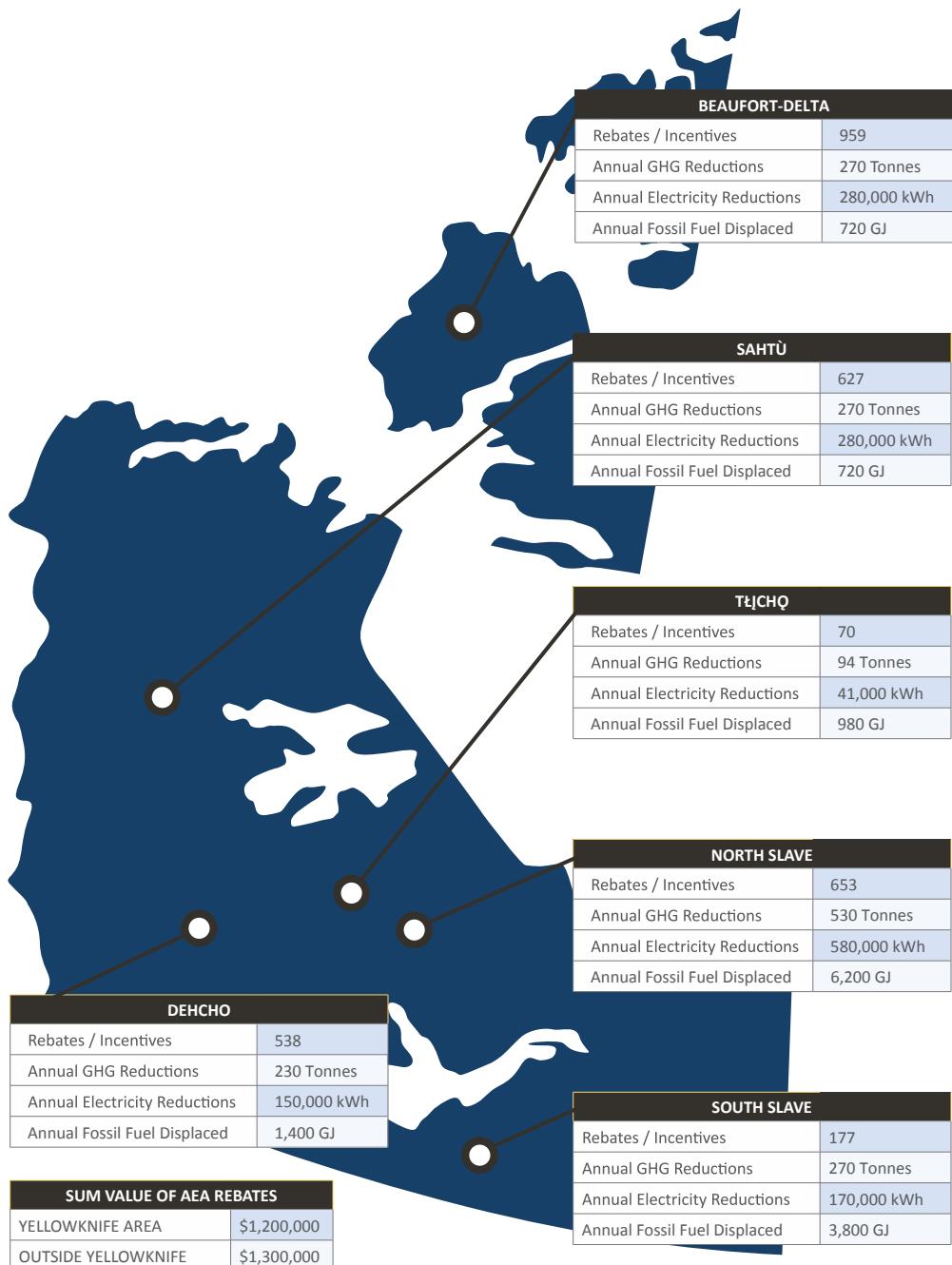
With financial support from the GNWT departments of Environment and Climate Change and Infrastructure, the AEA partnered with Housing NWT to install heat pumps and monitoring equipment in two homes in a single building, with a third home serving as a control (i.e., without a heat pump). The collection of data continues in order to draw firm conclusions. The AEA will continue to monitor the equipment over the coming winters to determine its suitability to the NWT.

Another special project was launched to influence the use of automated vehicle plug-in controllers. This project aims to reduce energy use and cost while normalizing the use among NWT residents, contractors, suppliers, building owners and distributors. AEA produced two promotional videos promoting automated vehicle plug-in controllers. These were aired at local theatres and on CBC Northbeat. AEA also installed two controllers at the Yellowknife office to showcase the technology. They also provided project coordination and funding for installation NT-wide. This resulted in 6 clients installing 97 plug-ins. In addition, 14 rebates were made through the Energy Efficiency Incentive Program. In total 113 energy-saving automated vehicle plug-in controllers were utilized.

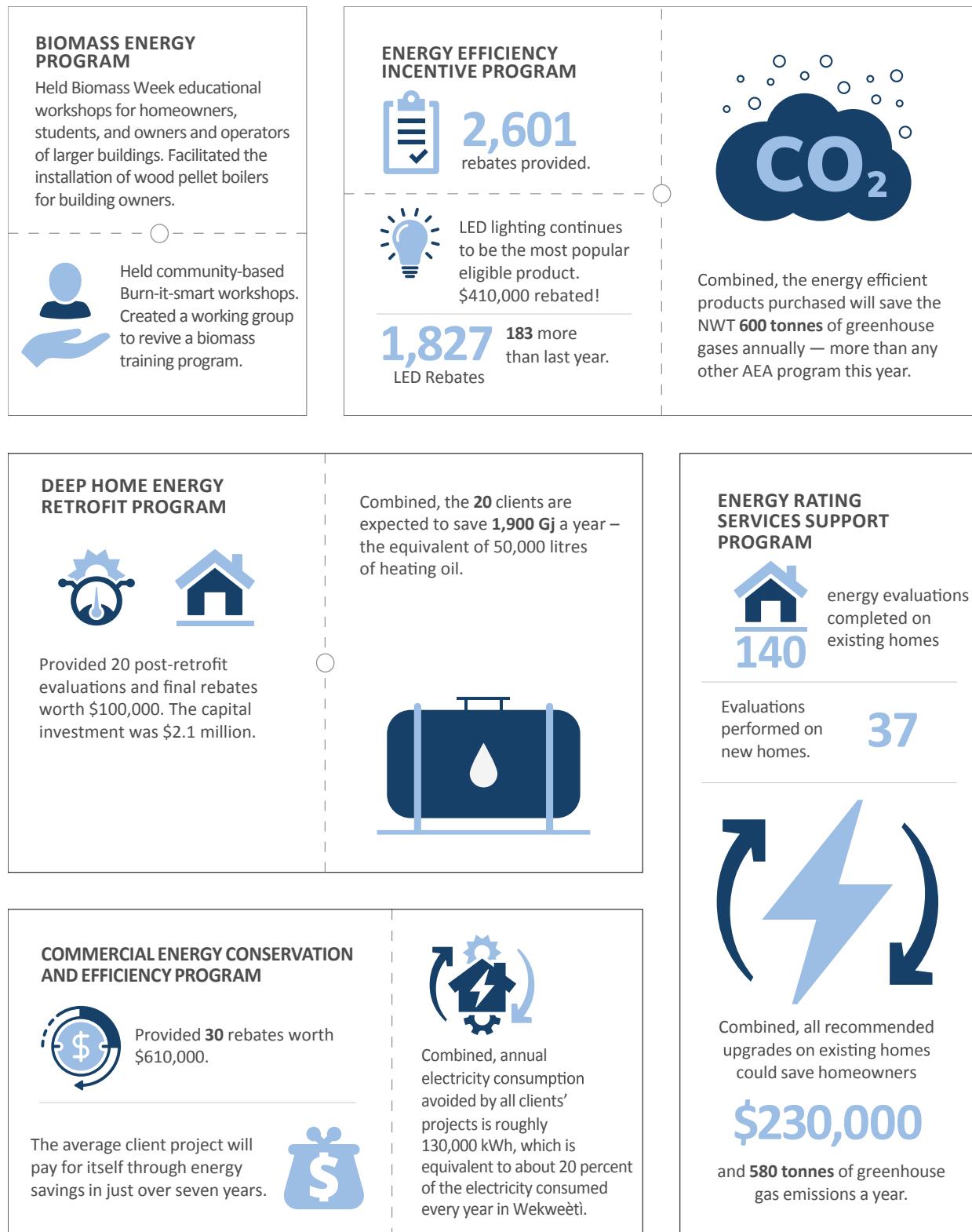
Videos produced by AEA can be viewed on [YouTube](#).

Results from the AEA's 2023-2024 programs are summarized in the following pages. To learn more about individual programs and special projects, [visit the AEA website](#).

## AEA PROGRAMS' REGIONAL RESULTS



## 2023-2024 ARCTIC ENERGY ALLIANCE PROGRAM RESULTS



### COMMUNITY GOVERNMENT BUILDING ENERGY RETROFIT PROGRAM

**\$44,000**

Distributed in rebates in four communities.

Completed **3** desktop "yardstick" energy audits



Expected Savings

**\$22,000**

13 tonnes of potential annual GHG reductions

### NON-PROFIT ENERGY EFFICIENCY AND CONSERVATION PROGRAM

Distributed **10** rebates valued at approximately

**\$190,000**

Combined annual savings of \$38,000



Combined, all client projects will avoid approximately 9 tonnes of greenhouse gases and 110,000 kWh of power every year — equivalent to about 17 percent of the electricity consumed every year in Wekweètì.

### COMMUNITY WOOD STOVE PROGRAM



Coordinated the installation of **61** stoves in five partner communities.



Savings from the **61** wood stoves installed in 2023-2024

Heating oil displaced in litres:  
**22,000**

Annual GHG reductions:

**59**  
Tonnes

Annual savings:  
**\$42,000**

### DESIGNATED INCOME HOME WINTERIZATION PROGRAM



Worked with **5** partner communities to save 280 tonnes of GHG.

Hosted educational workshops for lower-income homeowners in five communities.



Distributed **137** energy efficiency kits to workshop participants, valued at \$420.00 each!

### ALTERNATIVE ENERGY TECHNOLOGIES PROGRAM

**44** Rebates provided.

The **44** systems that the AEA's clients installed are expected to save roughly **210** tonnes of greenhouse gases a year.

The average system will pay for itself in just over 7 years.

## CAPITAL ASSET RETROFIT FUND (CARF)

Initiated in 2007, the CARF program delivers energy efficiency projects for GNWT facilities to reduce their GHG emissions, energy use and operating costs. In 2023-2024, approximately \$3.7 million was assigned to energy retrofit projects, resulting in an estimated \$111,000 of annual savings. Since the inception of the program, CARF projects have now reached overall cumulative total emissions reductions of 164.6 kt CO<sub>2</sub>e in GNWT-owned assets.

Some of the CARF projects commissioned in 2023-2024 are showcased in this report. For a full list of CARF projects funded in 2023-2024, see Appendix B. All biomass boiler replacement projects completed under CARF are listed in Appendix C.

### **HAY RIVER – MTS GARAGE BIOMASS**

A 144 kW containerized biomass package was installed to offset heating oil consumption at the Marine Transportation Services Garage in Hay River. This package consists of three 48 kW biomass boilers with thermal storage and integrated wood pellet storage.

Original savings calculations completed in 2020 showed an estimated fuel savings of \$22,000 per year. Updating those calculations with fuel pricing from 2024 results in estimated savings of \$30,400 per year, highlighting the long-term benefits of biomass systems. This project aims to offset GHG emissions by 100 tonnes per year by annually displacing 37,600 litres of heating oil.

### **TŁIČHQ COMMUNITY SCHOOLS – LED LIGHTING RETROFITS**

Funded by CARF, LED lighting retrofits were completed in three Tłıčhq community schools. The Elizabeth Mackenzie Elementary School in Behchokǫ, Mezi Community School in Whatì, and the Alexis Arrowmaker School in Wekweètì saw a combined investment of approximately \$800,000. The benefits of replacing older lighting technologies include reduced power consumption, increased unit lifespan, reduced maintenance and short payback periods.

This project will reduce annual electrical consumption by 62,000 kWh resulting in estimated savings of \$60,000 per year and providing a payback period of approximately 13.3 years. As Whatì and Wekweètì are thermal zone communities (meaning electricity is provided from diesel generation) there is a direct annual reduction in GHG emissions of 31 Tonnes.

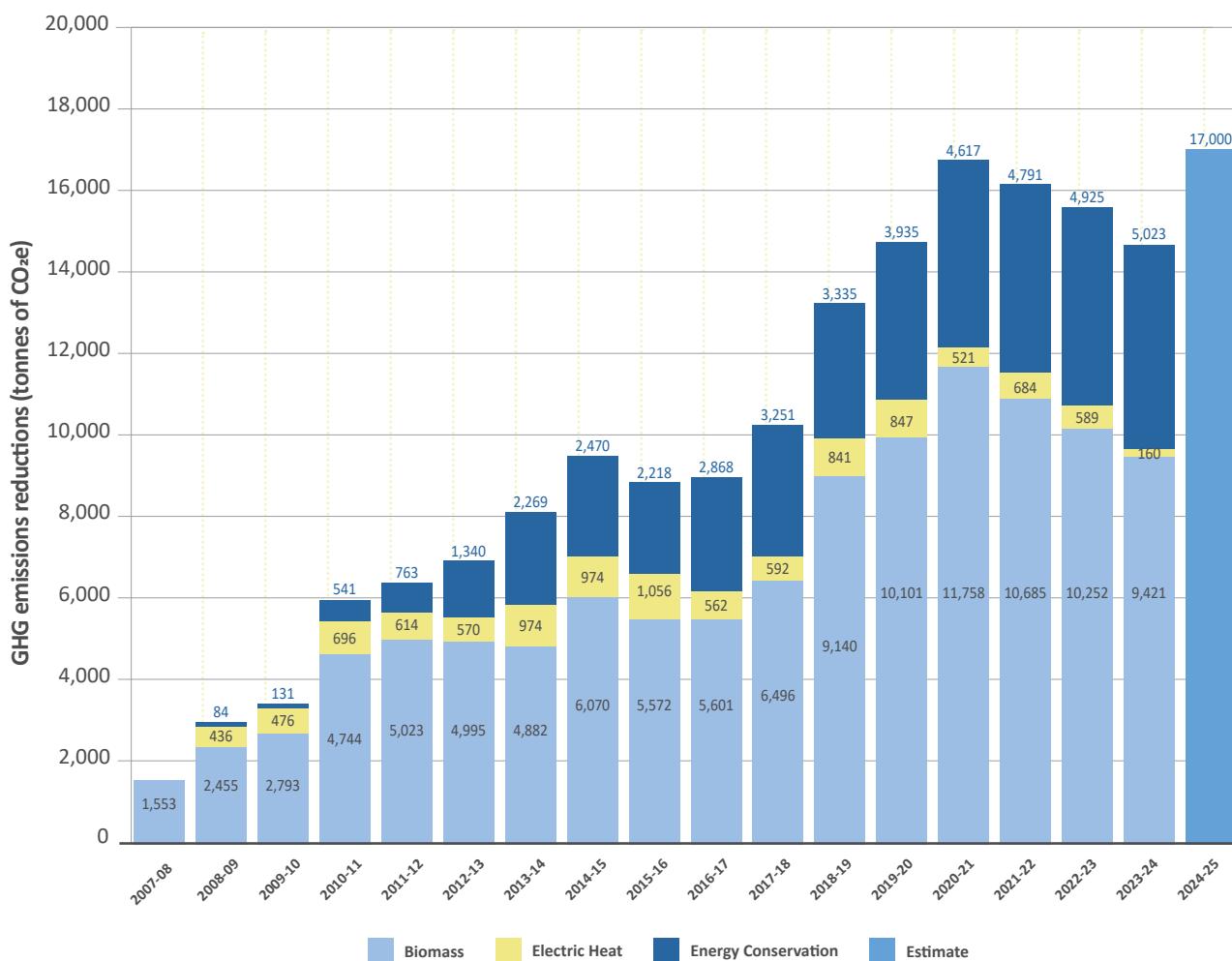
An additional benefit of LED fixtures is their extended life expectancy. In addition to decreased energy consumption the use of LEDs reduces replacement, labour costs, and shipping costs to remote community.

## CARF CONTRIBUTION TO EMISSIONS REDUCTIONS

Projects deployed through the CARF program since 2007-2008 have reduced GHG emissions by 14,604 t of CO<sub>2</sub>e 2023-2024, resulting in annual cost savings of \$5.0 million for the GNWT. The reduction in GHG emissions, following a trend observed since 2020-2021, is slightly lower than in the previous year (15,776 t in 2022-2023) due to an unseasonably warm winter reducing the impact of space heating projects, and a reduction on electrical heating with the Taltson hydro plant being shut down for maintenance making it unfeasible to run electrical boilers in Fort Smith.

Figure 9 shows how, for the period from 2007-2008 to 2023-2024, most of the GHG emissions reductions and resultant cost savings came from a switch to biomass for space heating.

**Figure 9. GHG Reductions from Initiatives in GNWT Buildings since 2007-2008**



See Appendix A for an inventory of GNWT buildings' energy use and GHG emissions.



## STRATEGIC OBJECTIVE 6 – LONG-TERM

*A longer-term vision: develop the NWT's energy potential, address industry emissions and do our part to meet national climate change objectives.*

### HYDROELECTRIC SYSTEMS UPGRADES

#### TALTSON HYDRO OVERHAUL PROJECT

Components of the existing Taltson hydroelectric generating facility are approaching or have already exceeded their useful life. This project is a multi-year initiative to refurbish the turbine and generator components and extend the facility's operating life. \$23.8 million in funding has been secured, which includes 75% from HICC and the remaining 25% from NTPC.

This project is in the construction phase. The turbine and generator were shipped to the site during the 2022-2023 winter road season. Construction is scheduled to be completed in 2024-2025.

Once completed, this project will ensure the Taltson facility will continue to provide clean hydroelectricity for the next 40 to 60 years. This investment in clean electricity infrastructure will provide better opportunities for new business ventures and industries to access low GHG emissions electricity.



*Generator being installed*

# TALTSON HYDRO EXPANSION PROJECT

## **TWICE AS MUCH CLEAN POWER**

In addition to overhauling existing components, the Taltson Expansion Project aims to more than double the hydro capacity in the Northwest Territories. By connecting 10 NWT communities, the unified hydro grid would cover over 70% of the NWT's population. The project offers opportunities to strengthen

Indigenous partnerships, advance community electrification and catalyze economic growth by providing communities and industry with access to clean energy, all while aligning with GHG emission reduction goals.

## **BUILDING INDIGENOUS PARTNERSHIPS**

Since 2018, the GNWT's partnership with the Akaitcho Dene First Nation (ADFN) and Northwest Territory Métis Nation (NWTMN) has been guided by a Memorandum of Understanding (MOU) that signifies a shared commitment to exploring Taltson's potential.

Indigenous partner involvement has been a central focus of the project with more than 30 Working Group Meetings, three Steering Committee Meetings, and numerous technical briefings to the partner leadership of the ADFN, GNWT and NWTMN.

In the summer of 2023, partner representatives toured the existing Taltson facility to learn firsthand about its operations and view the proposed expansion site. Leadership and technical representatives from the ADFN and NWTMN spoke with a hydro operator about their role and how the facility operates. Additionally, there was a helicopter flyover of the proposed site for the Taltson Expansion. The benefit of this visit was providing the partners with a deeper understanding of the operational aspects, and the expansion plans for Taltson.

## **REFINING THE ROUTING**

The Steering Committee is close to selecting a preferred transmission line route, and the comprehensive comparison report is nearly complete. Next steps include routing refinement efforts to

explore landing and substation options in the Yellowknife area and determining the best route from the transmission line to the Jackfish Power Plant.

## **ADVANCING COMMERCIAL ARRANGEMENTS**

Initial discussions have begun on the Memorandum of Intent (MOI) to define the legal entities interested in partnering on the project. This phase also involves

defining cost, risk, and benefit-sharing agreements among the parties. This will need to be determined prior to a construction decision.

## **PREPARING FOR REGULATORY PROCESSES AND NEXT STEPS**

As the focus shifts towards formalizing commercial agreements, the partners are defining the conditions necessary to proceed to construction. This work will ensure that the NWT is best positioned to meet growing energy demands from communities and industry with clean, reliable energy. The project is evaluating the ramifications of climate change and

new federal climate policies on its design and the future energy demand in the territory. Over the next year, the project team will start to prepare for an Environmental Assessment (EA) initiation package, a critical step in obtaining the necessary regulatory permits and authorizations to support construction.

## LOOKING AHEAD

The Taltson Hydro Expansion Project would provide affordable, reliable energy to 11 communities, representing over 70% of the NWT population. The next steps involve creating commercial agreements, continuing regulatory approval processes, and securing additional funding. The project team remains committed to ongoing collaboration, thorough planning, and fulfilling the project's potential.

The project team is actively investigating transmission routing options, identifying environmental impacts, engaging with interested groups, and establishing strong Indigenous partner relationships.

In 2023, a draft project Business Case was provided to all project partners for review, with leadership briefings offered to all parties. A detailed comparison of transmission line options was started. The Steering Committee also received a report on the legacy impacts of the original Taltson facility. In early 2024, the final Business Case was completed, and the Steering Committee shared that they are close to identifying a preferred transmission line.

Ongoing collaboration, commercial arrangements, and technical advancements are steadily defining the project's potential.

## ► ANTICIPATED BENEFITS

- **Better Connectivity:** The new transmission lines will connect the Taltson system to the Snare system, enhancing reliability and resiliency for both.
- **Partnership and Economic Opportunities:** The project will create partnerships and other economic opportunities for Indigenous Governments and job opportunities for NWT residents.
- **Climate Change:** The project could reduce Greenhouse Gas Emissions by up to 240,000 tonnes annually, helping the territory meet its climate change commitments.
- **Economic Growth:** Access to affordable and reliable energy sources will benefit NWT residents and businesses, particularly in the mining and natural resource industries.
- **Stabilized Electricity Costs:** The integrated system will stabilize electricity rates, benefiting over 70% of northern residents.

## ► ENGAGEMENT EFFORTS

- Over 45 Working Group Meetings
- Six Steering Committee Meetings: including Leadership representatives from GNWT, ADFN, and NWTMN
- Numerous technical briefings delivered
- Objective: Developing trust and shaping project trajectory based on partner input

## ► CLIMATE CHANGE CONSIDERATIONS

- Ongoing climate impact studies on project design
- Recognition of Taltson Expansion to replace diesel back-up during Snare drought/low water events
- Evaluation of new Federal climate policies: including the upcoming 2035 ban on the sale of internal combustion vehicles, and the impact on future energy demand in the territory
- Exploration of climate change-related challenges on the evolving energy landscape

## ► FEDERAL FUNDING

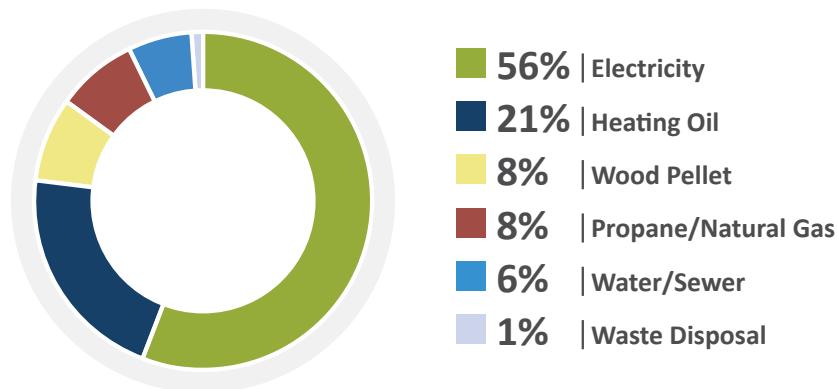
- Amount: \$23 million
- Source: CIRNAC, Government of Canada
- Timeline: Provided since 2019
- Key workstreams: Building Indigenous Partnerships; Design Engineering; Advancing Commercial Arrangements; Preparing for Regulatory Processes

# APPENDIX A: GNWT BUILDINGS ENERGY USE AND GHG EMISSIONS

## GNWT BUILDINGS ENERGY EXPENDITURES

In 2023-2024, the outlays of heat and power for the GNWT facilities totaled \$41.9 million, which is just marginally higher than 2022-2023, representing a 0.3% increase. As shown in Figure 10, electricity expenditure represents more than half the energy cost for the GNWT, followed by the heating fuels (heating oil, wood pellets, propane, and natural gas). Expenditure increases in 2023-2024 in electricity and water/sewer were almost exactly counterbalanced by reductions in heating oil and wood pellets, resulting in a marginal increase in total expenditures compared with 2022-2023. The reduced expenditures in heating oil and pellets were driven mostly by reduction on the amount of heating oil and pellets consumed.

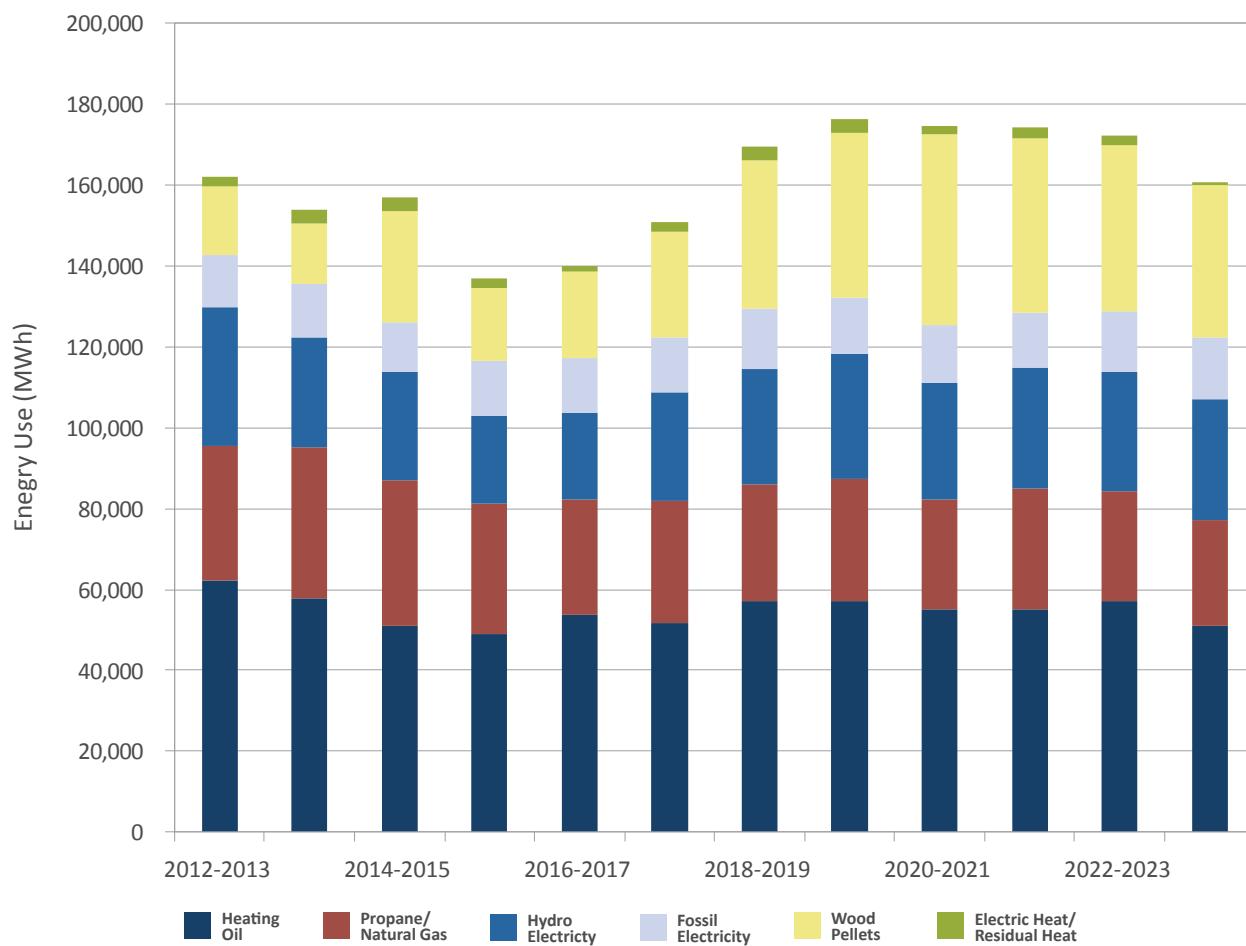
Figure 10. GNWT Utility Expenditures in 2023-2024



## GNWT BUILDINGS ENERGY USE

Figure 11 shows the composition of the GNWT's energy use by fuel type, every year since 2012-2013. The total consumption of energy in 2023-2024 of the GNWT was reduced substantially by 7.7% compared with 2022-2023, caused by reductions on all fuel types except for fossil electricity which saw an increase of 10.5%. The reduction of energy consumption from electric heat/residual heat is remarkable, at 76.6% compared with 2022-2023.

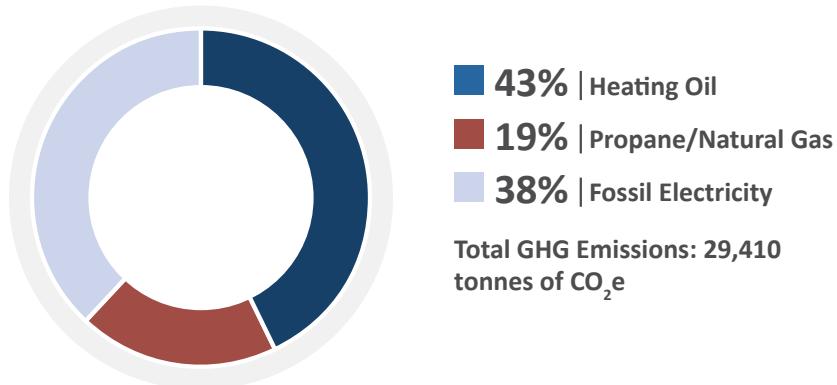
**Figure 11. GNWT Energy Use by Fuel Type in 2022-2023**



## GNWT BUILDINGS GHG EMISSIONS

In 2023-2024, GNWT buildings emitted 29,410 tonnes of GHG due to the burning of fossil fuels to provide space heating, be it directly using heating oil or propane/natural, or indirectly utilizing electricity produced burning fossil fuels (Figure 12). These emissions represent a reduction of 4.2% compared with the previous year, explained by reductions on heating oil and propane/natural gas.

Figure 12. GNWT Greenhouse Gas Emissions by Fuel Type in 2023-2024

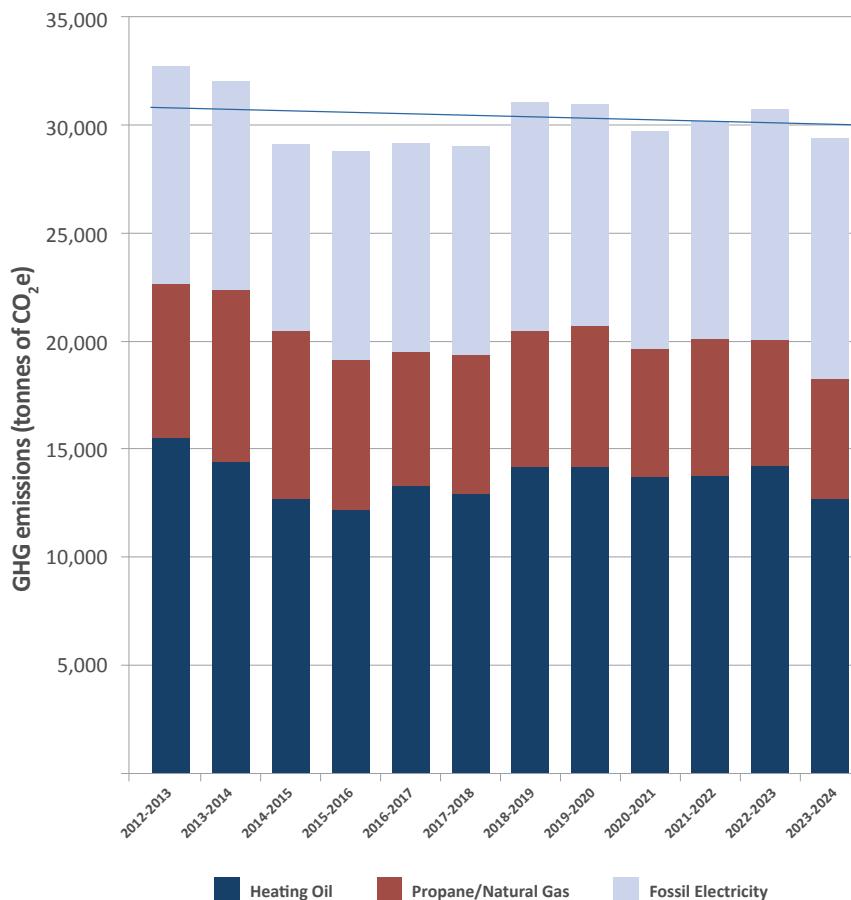


*Note: Emissions from biomass are not accounted for because biomass is a renewable source of energy.*

## GHG EMISSIONS REDUCTIONS TREND

Emissions from the period 2023-2024, with a reduction of 4.3% compared with 2022-2023, strengthen the reductions trend observed since 2021-2013, which reverts slightly in some years without negating the long-term trend (Figure 13).

Figure 13. GNWT Buildings GHG Emissions Trend from 2012 to 2024



*Note: Emissions from biomass are not accounted for because biomass is a renewable source of energy.*

## CACE HEATING BY FUEL TYPE

The energy required for heating in 2023-2024 totalled 415,827 GJ. As shown in Figure 14, 34% of this total was sourced from renewable electricity heat and biomass energy, while the remaining was covered with fossil fuels such as heating oil (44%) and propane and natural gas (23%). In 2023-2024 GHG caused by space heating amounted to 18,313 tonnes of CO<sub>2</sub>e, representing a 8.7% decrease compared with the previous year.

## RENEWABLE HEATING

As shown in Figure 15, space heating continues with a downwards trend since 2020-2021, with continued disruption in the provision of biomass (wood pellets) and a sensible reduction use of electricity for space heating. The 138,392 GJ of renewables heat used in 2023-2024 corresponds to 9,575 tonnes of CO<sub>2</sub>e reduction, assuming the displacement of heating oil.

Figure 14. GNWT Space Heating Energy Sources in 2023-2024

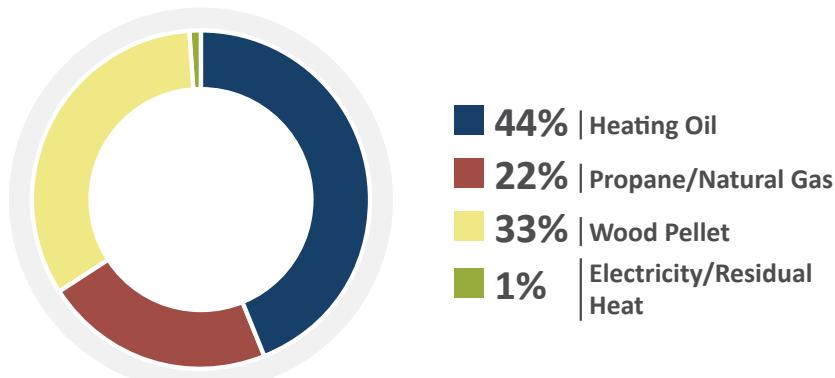
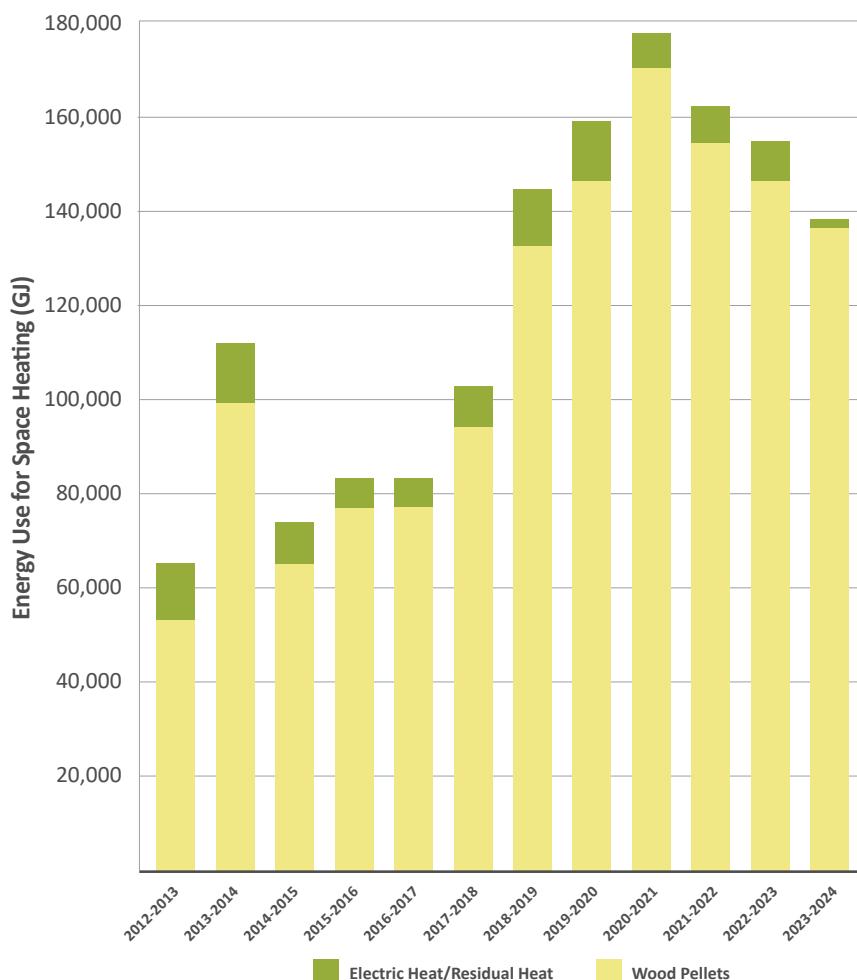


Figure 15. GNWT Space Heating Provided by Renewable Energy from 2012 to 2024



# APPENDIX B: 2023-2024 CAPITAL ASSET RETROFIT FUND PROJECTS

Facility	Location	Details
<b>North Slave Region</b>		
Tłı̨chǫ Communities	Three Community Schools	LED Lighting
Yellowknife	Air Terminal Building	Control Upgrade
Yellowknife	Taiga Lab	LED Lighting
Yellowknife	Stanton Legacy	Exterior LED Lighting
Whatì	FSD Tank Farm	LED Lighting
<b>South Slave Region</b>		
Hay River	MTS Garage	Biomass Boiler
Fort Smith	Aurora College Grand Detour Building	Electric Boiler
Fort Providence	Highways Garage	Biomass Boiler
<b>Deh Cho Region</b>		
Fort Liard	Echo Dene School	Heat Pump Upgrades
Fort Liard	Airport Garage	LED Lighting
Fort Liard	Air Terminal Building	LED Lighting
Fort Liard	ECC Warehouse	LED Lighting – Exterior
Fort Liard	ECC Office	LED Lighting

# APPENDIX C:

## BIOMASS PROJECTS COMPLETED BY GNWT SINCE 2006

FACILITY	LOCATION	COMPLETION YEAR	SIZE (KW)
MTS Maintenance Garage	Hay River	2022	144
Moose Kerr School	Aklavik	2023	300
École St. Patrick High School	Yellowknife	2023	300
GNWT Central Warehouse*	Yellowknife	2022	200
Range Lake North School	Yellowknife	2022	300
Prince of Wales Northern Heritage Centre	Yellowknife	2022	300
Thebacha College and Health Centre	Fort Smith	2022	720
Range Lake North School	Yellowknife	2022	300
Mildred Hall School	Yellowknife	2022	300
Stanton Legacy	Yellowknife	2021	2500
Chief Sunrise School	Kátł'odeeche (Hay River)	2020	150
ENR Lab/Warehouse	Fort Simpson	2019	40
Woman's Territorial Corrections Centre	Fort Smith	2019	300
Inuvik Territorial Hospital	Inuvik	2019	1250
Ecole Alain St. Cyr	Yellowknife	2019	540
Construction Mining Institute Training (CMIT)	Fort Smith	2018	300
Inuvik School Biomass	Inuvik	2018	950
Stanton Territorial Hospital	Yellowknife	2018	2500
Behchokǫ Long Term Care Facility*	Behchokǫ	2017	100
Fort McPherson Health Centre*	Fort McPherson	2017	40
Health Centre	Fort Resolution	2017	100
Health Centre/Long term care facility	Norman Wells	2017	400
Infrastructure Maintenance Shop	Norman Wells	2017	100

(\*) These facilities purchase heat from a third-party biomass boiler.

FACILITY	LOCATION	COMPLETION YEAR	SIZE (KW)
ENR Workshop/Office	Tulita	2017	58
Whatì Health Centre (heat purchase)	Whatì	2017	30
Chief Ts'elehye School	Fort Good Hope	2016	150
Chief Albert Wright School	Tulita	2016	200
Prince of Wales Northern Heritage Centre	Yellowknife	2016	400
New Health Centre	Fort Providence	2015	75
Deninoo School	Fort Resolution	2015	200
New Health Centre	Hay River	2015	950
Airport Terminal Building	Yellowknife	2015	400
South Mackenzie Correctional Centre	Hay River	2014	224
Airport Combined Services Building	Norman Wells	2014	224
Airport Terminal Building	Norman Wells	2014	168
Mackenzie Mountain School	Norman Wells	2014	224
New Office Building	Yellowknife	2014	650
Deh Gah School	Fort Providence	2013	300
Elizabeth MacKenzie Elementary School	Behchokò (Rae)	2012	540
Central Heating Plant	Fort Simpson	2012	980
Fort Smith Health Centre	Fort Smith	2012	750
Combined Service Building (Department of Infrastructure)	Yellowknife	2012	540
P.W. Kaeser High School and Recreation Centre	Fort Smith	2010	750
Thebacha College (GNWT)	Fort Smith	2010	720
Highways Maintenance Garage	Hay River	2010	300
Central Heating Plant (for 4 Hay River Schools)	Hay River	2010	1000
Legislative Assembly Building	Yellowknife	2010	300
Chief Jimmy Bruneau School	Behchokò (Edzo)	2009	720
K'alemi Dene School	Ndilq	2009	60
École St. Joseph School	Yellowknife	2009	540
Sir John Franklin High School*	Yellowknife	2008	750
North Slave Correctional Facility*	Yellowknife	2006	1500

(\*) These facilities purchase heat from a third-party biomass boiler.

# APPENDIX D:

## APPROVED PROJECTS UNDER THE GHG GRANT PROGRAM

**Table 4. Projects approved under the GHG Grant Program in 2023-2024.**

APPROVAL YEAR	PROONENT	TITLE	LOCATION	STATUS AS/OR MARCH 31, 2024	FUNDING AMOUNT (\$)	EMISSIONS REDUCTIONS (TONNES CO <sub>2</sub> E/YEAR)
2018-2019	Community Government of Gameti	Sustainable Northern Agriculture Project	Gameti	Complete	\$133,000	93
2019-2020	Town of Fort Smith Public Government	Energy Management in Community Buildings	Fort Smith	Ongoing	\$360,000	510
2020-2021	Yellowknife Education District no. 1	Pellet Boiler Installations for Mildred Hall School and Range Lake School	Yellowknife	Complete	\$1,125,000	578
2020-2021	Snowshoe Inn	Fort Providence Energy Incubator	Fort Providence	Complete	\$37,000	87
2020-2021	J&R Mechanical Ltd.	Woolgar Avenue Biomass District Heating System	Yellowknife	Complete	\$274,000	396
2021-2022	Yellowknife Catholic Schools	Wood Pellet Boiler Project at Ecole St Patrick and Weledeh Schools	Yellowknife	Complete	\$928,125	449
2021-2022	Gwichin Tribal Council	Biomass Furnaces for Gwich'in Camp	Inuvik	Funded – Retracted by proponent	\$235,000	103
2021-2022	NTPC	Inuvik Power Plant - 3rd LNG Fuel Tank	Inuvik	Ongoing	\$879,000	606
2022-2023	Sunrise Cabinets and Millwork Ltd.	Sunrise Cabinets Energy Upgrade	Enterprise	Funded – Destroyed in Wildfires	\$41,250	11

APPROVAL YEAR	PROONENT	TITLE	LOCATION	STATUS AS/OR MARCH 31, 2024	FUNDING AMOUNT (\$)	EMISSIONS REDUCTIONS (TONNES CO <sub>2</sub> E/YEAR)
2022-2023	Yellowknife Condominium Corporation #32	Ravenscourt GHG Reduction Project	Yellowknife	Ongoing	\$321,200	299
2022-2023	Borealis Development Inc.	The Nest (Bellanca Biomass/HVAC)	Yellowknife	Ongoing	\$600,000	476
2022-2023	City of Yellowknife	Aquatic Center Connection	Yellowknife	Ongoing	\$330,000	645
2022-2023	NTPC	Level 3 EV charging station	Behchoko	Ongoing	\$468,000	140
2022-2023	Liidlii Kue	On the Land Camp Solar Project	Deh Cho Region	Complete	\$77,105	14
2022-2023	Edehzhie	Off-Grid Solar	Deh Cho Region	Complete	\$81,153	9
2022-2023	Yellowknife Post Office	6113 Ltd. - Yellowknife Post Office & Denendeh Manor	Yellowknife	Almost complete	\$393,880	140
2023-2024	NWT Brewery	Carbon Capture and Sequestration	Yellowknife	Funded – Retracted by proponent	\$33,800	29.43
2023-2024	Department of ITI	North Arm Territorial Park Electrification	North Arm	Ongoing	\$255,000	34
2023-2024	NT Energy	South Slave EV Charging Stations	Fort Smith, Hay River & Pine Point	Ongoing	\$1,035,250	334
2023-2024	NWT Housing	Stanley Isaiah Complex – Wood Pellet boiler	Fort Simpson	Ongoing	\$750,000	126.3
2023-2024	True North Environmental Ltd.	Waste Oil Recycling	Yellowknife	Ongoing	\$1,784,385	583
Total					<b>\$10,142,148</b>	<b>5662.73 tonnes of CO<sub>2</sub></b>

# APPENDIX E: HOUSING NORTHWEST TERRITORIES

In 2022-2023 Housing NWT (HNWT) developed and released its 2030 Energy Management Strategy. The Strategy's vision by 2030 and its accompanying three-year Energy Management Blueprint is for HNWT to realize a sustainable housing portfolio that is less reliant on fossil fuels and contributes to the economic, social, and environmental well-being of the NWT and its residents.

The Strategy focuses on four Strategic Objectives:

- Reduce the energy use intensity of our portfolio by 15% below 2016 levels
- Increase capacity to manage and maintain energy solutions
- Increase the use of renewable energy for space heating to 40% by 2030
- Increase partnership opportunities in energy projects

## MEASURING AND REPORTING ON PROGRESS

Housing NWT commits to annual reporting on the progress of its 2030 Energy Management Strategy (EMS). HNWT would like to highlight efforts and initiatives under each of the strategic objectives in the 2023-2024 year. The EMS is currently in its initial phase; subsequent annual reports will feature a more comprehensive set of metrics.

## REDUCE ENERGY USE INTENSITY - ENERGY EFFICIENT HOUSING

**Decrease the energy used per square meter of housing by 15% compared to 2016 levels. This involves improving energy efficiency through capital replacements, retrofits, and other measures.**

HNWT continues to develop energy-efficient housing, with innovative designs that aim to exceed the requirements of the 2020 National Energy Code (NECB) by up to 20%. All new HNWT housing models undergo energy modeling workshops during the design phase to ensure that a balance is reached between cost and complexity of construction and maximum energy efficiency.



*Energy Efficient Housing – Duplex Ft. Simpson*

As part of its strategic goal to reduce energy consumption, HNWT is focusing on replacing outdated single-family homes with simple-form, energy-efficient multi-unit homes. This approach offers a significant opportunity to decrease the overall energy consumption of the housing portfolio while providing affordable and sustainable housing options.

The addition of 48 Housing Units during 2023/2024, marks substantial progress toward reducing the overall energy use intensity of Housing NWT's portfolio. By incorporating modern, energy-efficient designs, these new assets contribute to a lower average energy consumption per unit, improving the portfolio's overall energy performance.

## INCREASE RENEWABLE ENERGY – BIOMASS INITIATIVES

**Increase the use of renewable energy sources for space heating to 40% by 2030. This involves transitioning from fossil fuels to cleaner alternatives including biomass and electrification.**

Significant progress has been made towards Housing NWT's renewable heating goals. To date these efforts have resulted in the conversion of 111 housing units to wood pellet heating and electric boilers (in hydroelectric zones) realizing an estimated annual savings of 244,000 liters of fuel and 656 tonnes of GHG emissions.

### ► STANLEY ISAIAH BIOMASS PROJECT

A new centralized biomass heating plant is under construction for Fort Simpson's Stanley Isaiah Seniors Home, which houses 20 independent living units along with a main health building. Through 2023-2024 the project was designed and critical equipment procured. Onsite installation is underway, and completion is expected by the end of the 2024-2025 fiscal year. The wood pellet boilers are expected to offset 80% of the current fuel oil consumption.



*Stanley Isaiah Wood Pellet Silo and Boiler Container*



## INCREASE CAPACITY FOR MANAGEMENT AND MAINTENANCE – BIOMASS BOILER OPERATOR TRAINING COURSE

**Enhance HNWT's ability to manage and maintain its energy systems effectively. This includes improvements to monitoring, maintenance, and staff training.**

One of the key challenges in expanding the use of biomass heating systems in the NWT is ensuring sufficient local capacity to operate and maintain these systems. To address this, the Arctic Energy Alliance (AEA), the Department of Municipal and

Community Affairs (MACA), Housing NWT, Department of Infrastructure (INF), and the NWT Association of Communities began collaborating in 2023-2024 to enhance this capacity. The group has launched a Biomass Boiler Operator Training (BBOT) program to equip staff and community members with the necessary skills to operate and maintain biomass heating systems. The first course, held in Fall 2024, was well-received, with positive feedback indicating a significant need for continued training opportunities.



*BBOT Group at Sisson's Court District System*

## INCREASE PARTNERSHIPS – ENERGY TABLE AND CHSI

**Expand collaboration with various stakeholders (e.g., communities, other government bodies, and private sector) on energy projects.**

Housing NWT's involvement in the NWT Energy Partnership Table (EPT) directly supports the EMS's partnership goal. Through the EPT, we are actively contributing to strategic energy planning, collaborative knowledge sharing, and initiatives promoting renewable energy and reducing reliance on fossil fuels.

