Diagnosis and Findings

Residential Buildings and Community Buildings within the First Nations in Quebec

Transition énergétique Québec – First Nations Committee

FNQLSDI
First Nations of Quebec and Labrador Sustainable Development Institute

Transition énergétique Québec

Table of contents

Dépôt légal
Bibliothèque nationale du Québec
ISBN 978-2-550-87761-5 (PDF)
(Édition originale : ISBN 978-2-550-87759-2 (PDF))

Introduction

Transition énergétique Québec (TEQ) published Quebec's first Energy Transition, Innovation and Efficiency Master Plan on June 11, 2018. It is the main structuring tool for advancing Quebec's energy transition over the course of the 2018-2023 period.

The Master Plan presents a section relating to First Nations, which recognizes the need to improve knowledge regarding the specific needs and interests of their communities in the area of energy transition and to put in place concrete and adapted measures to adequately meet them. With that in mind, the TEQ-First Nations Committee was set up and entrusted with the mandate to develop an action plan on energy transition, innovation and efficiency that is specifically intended for First Nations, hereinafter referred to as the "action plan".

As part of its process of developing the action plan, the Committee chose to address several themes, including that of First Nations residential and community buildings. In order to define promising measures in this regard, the Committee started by conducting a diagnosis on this theme, which is the subject of this document and concerns the 41 First Nations in Quebec.

This diagnosis is the result of documentary research and work carried out with the TEQ-First Nations Committee in collaboration with building experts from different bodies of the Government of Quebec and the federal government, in addition to Indigenous building experts.

The diagnosis presents a state of the situation of the buildings divided according to the following sections: the demographic and geographic context of the First Nations, the property management of the communities, the characterization of the building stock of the communities, their energy portrait, the available financial assistance programs, existing laws and strategies as well as a brief overview of inspiring initiatives related to energy transition carried out in Quebec and elsewhere in Canada. Finally, the diagnosis reports on the findings and issues related to residential and community buildings to which the action plan must respond.

This diagnosis is certainly not exhaustive and remains global to best present the realities of the different First Nations communities in Quebec. It highlights the main issues that must be worked on to ensure the energy transition of the First Nations residential buildings and community buildings.

Note: This document only presents information and findings concerning the First Nations in Quebec and the Inuit are not included. However, when the document refers to the term "Indigenous" for certain data from the Government of Canada, it may concern the three Indigenous groups that are recognized in Canada (First Nations, Inuit and Métis). In addition, for the purposes of this report, the term "reserve" refers to the communities in which the First Nations are established, which includes Indian settlements and certain lands with special status.

1 GENERAL DESCRIPTION OF THE THEME

This diagnosis deals with the three types of buildings that are found in the First Nations communities in Quebec which are distinguished by their purpose and property regime:

- Community residential buildings: housing owned and administered by Band Councils that is rented to First Nations members;
- Private residential buildings: housing owned by First Nations members;
- Community buildings: buildings owned by the Band Council, but which benefit the entire community. These include community halls, schools, day care centres, health centres, etc.

Both residential property regimes (private and community) are grouped together and hereinafter referred to as “residential buildings”. Residential buildings include single-family homes, condominiums and social housing.

2 CURRENT STATE

In order to fully grasp the energy transition issues that apply to the First Nations building sector, it is necessary to understand the specific context. The First Nations are faced with realities and therefore needs that are different from those of the general population of Quebec. Situations also vary between First Nations, in particular due to the geographic, economic, political and cultural factors that characterize them.

This diagnosis is not intended to be exhaustive but rather aims to identify certain trends among First Nations in Quebec. Indeed, a lot of data that is specific to the communities is not available or has not been collected and gathered as part of this diagnosis. However, certain needs of the communities are well documented and there are findings that can be generalized for the buildings sector that will influence the implementation of energy transition measures.

2.1 Demographic and geographic context

There are ten Nations in Quebec. They make up 1.2% of the total population, or 92,655 people according to the 2016 census. Map 1 shows the locations of the 41 First Nations communities in Quebec where 63.8% of their members reside [1]. The remaining proportion resides outside of the communities. The table in appendix 1 details the resident and non-resident population of each community as well as the administrative region in which it is located.

[1] Statistics Canada, 2016a.

Between 2011 and 2016, Indigenous peoples in Canada experienced a demographic growth of 19.5% compared to 4.2% for the non-Indigenous population. This growth is attributable to the high fertility rate, but also to a higher proportion of individuals identifying themselves as belonging to the Indigenous Nations. The First Nations population in Quebec is young; its average age is just under 35 years compared to 41.2 years for the non-Indigenous population[2].

Map 1. The First Nations communities in Quebec[3]

2.2 Property management: characteristics of the First Nations context

The specificity of the First Nations context with regard to buildings is mainly associated with land and property management on reserve lands which are federally owned lands. The following section presents in greater detail the responsibilities of the various stakeholders (federal government, band councils and individuals) with regard to the ownership, management and financing of buildings on reserves.

[2] Statistics Canada, 2016a.
[3] SAA, 2017.

2.2.1 Land management

The Indian Act dictates the responsibilities relating to land management. It designates reserve lands as land owned by the Crown "that has been set apart by Her Majesty for the use and benefit of a band"[4].

Characteristics of reserve lands, or Indigenous reserves, include being:

- The property of the Crown rather than the property of individuals;
- Reserved for use and occupancy exclusive to First Nations;
- Not subject to seizure by the bank and not mortgageable.

Certain legal provisions render the scope of the Indian Act more flexible with respect to land management such as[5]:

- Certificates of possession assign their holders legal possession of their tracts of land. However, the Crown retains title of ownership of the land;
- First Nations that adopt their own land codes can opt out of certain provisions of the Indian Act.

Thus, while ownership of the land is held by the federal government, building ownership and management remains with Band Councils and individuals.

2.2.2 Property and responsibility for building management on reserve

Two property ownership regimes coexist on reserves: the buildings are owned by either band councils or individuals. The following data provides a quick overview of the ownership status of residential buildings on reserve[6]:

- Most housing is owned by band councils. In Quebec and Labrador, in 2018, 57% of the housing units (approximately 8,800 units) belonged to band councils and 43% (approximately 6,700 units) were private housing units;
- Some communities, such as the Innu communities of the lower north shore region, have an almost entirely community-owned housing stock, while others, such as the Mohawk or Abenaki communities, have a mainly private housing stock.

The situation of community residential buildings [7]:

- Generally-speaking, the federal government funds the majority of the costs associated with the construction of community housing. Maintenance costs are funded in part by government grants and in part by rents charged to residents;
- Housing management is generally handled by the band council's housing department;
- Band councils manage the expenses related to the construction and maintenance of housing while energy bills, for the most part, are transferred to the occupants;

[4] Indian Act (R.S.C. (1985), c. I-5).
[5] AANDC, 2013.
[6] Latouche, 2020.
[7] Standing Senate Committee on Aboriginal Peoples, 2015b.

- Band councils are responsible for enforcing the National Building Code and must provide a code compliance report at three stages of construction;
- The households pay rent to the band council to cover the upkeep costs of housing (insurance, maintenance, services, etc.). Different rent collection policies are in place in the communities.

The situation of private residential buildings[8]:

- Residents do not own their land, but they do own their homes;
- The special status of reserves and land management make access to private property more difficult than elsewhere:
  - Households may have difficulty accessing mortgages since the land cannot be used as collateral in the event of non-payment;
  - It is less advantageous to own and invest in renovations since they do not increase the property value of housing in the context of a limited on-reserve resale market. Indeed, housing can only be transferred to another member of the community or to another "status Indian"[9].
- Band councils manage the federal financial assistance for the construction and renovation of private and community housing and decide how it can be accessed. Owners of private residential buildings can receive financial assistance to build or renovate their property according to the priorities established by the Council and the means at its disposal.

The situation of community buildings:

- Their construction and maintenance are managed by the band councils;
- Communities with independent sources of income can invest in the construction or maintenance of community buildings. Otherwise, funding for their construction comes exclusively from the federal government and sometimes from other one-off assistance programs (such as the Aboriginal Initiatives Fund);
- A comprehensive non-residential infrastructure inspection report in compliance with the Asset Condition Reporting System (ACRS) is conducted every three years in each community. It allows for assessing the financial needs of band councils for repairs and renovations and prioritizes the work to be carried out. During these inspections, no energy assessment is conducted.

[8] Standing Senate Committee on Aboriginal Peoples, 2015a.

[9] Indian Act (R.S.C. (1985), c. I-5).

Regional Tripartite Housing Committee

> The Regional Tripartite Housing Committee brings together the Assembly of First Nations Quebec-Labrador (hereinafter the "AFNQL"), Indigenous Services Canada and the Canada Mortgage and Housing Corporation.

> It was created to promote the improvement of housing conditions for members of the First Nations in Quebec.

> It aims to produce a regional strategy comprising three focus areas: improved skills and competencies, more funds and financing options and greater autonomy among the First Nations in Quebec.

> In May 2016, the federal government embarked on an engagement process for the eventual transfer of housing and infrastructure responsibilities to First Nations. The Department of Indigenous Services Act formalized this intent in 2019[10]. Indeed, a regional strategy in this regard is being developed by the First Nations in Quebec, in collaboration with the Regional Tripartite Housing Committee.

2.2.3 Financial management

As previously mentioned, the financial management of buildings on reserve is shared between the federal government, which finances a significant portion of the construction, maintenance and improvement of the buildings, and the First Nations band councils, who manage this funding. Details of these programs are presented in appendix 3. The following is a summary of the financial responsibility of each body.

Indigenous Services Canada (ISC)[11]

> ISC provides, among other things, a basic capital budget to the communities for the construction, maintenance and improvement of community infrastructure and housing. This financial assistance fully or partially covers the costs for community buildings, for example schools being financed at 100% while administrative offices are financed at 20%. ISC also offers a guarantee for residential projects that require a loan.

> According to regional priorities, ISC finances innovation initiatives for the construction of residences.

Canada Mortgage and Housing Corporation (CMHC)[12]

> The CMHC provides financial assistance for the construction, purchase, renovation or conversion of social housing as part of its Section 95 program as well as for the creation or renovation of affordable housing as part of the National Housing Strategy.

[10] *Department of Indigenous Services Act* (S.C. (2019) c. 29, s. 336).
[11] ISC, 2019.
[12] CMHC, 2019.

Band councils [13]

> Band councils finance the rest of the needs that would not be met by federal funding for construction and renovation, either from their revenues or through loans. Band councils derive their revenues from the collection of rent and, for some, revenues from other sources.

Société d'habitation du Québec (SHQ)[14]

> The SHQ finances social housing for Indigenous people who live off reserve. The SHQ also works with communities that are not under the federal government's constitutional responsibility.

2.2.4 Real estate market conditions

The Standing Senate Committee on Aboriginal Peoples examined the housing situation on First Nations reserves in 2015[15]. The following are some of their findings which were recalled by experts as part of the discussions of the TEQ-First Nations Committee:

> The needs relating to the construction of new housing and renovations are significant on reserves. Some communities lack land for the construction of new units.

> In some communities, the property stock is aging with many buildings to be managed, which complicates priority management for band councils.

> As the real estate market is limited within reserves, investing in energy-efficient renovations is less enticing since this does not increase the value of homes.

> In remote areas, the costs associated with building construction and land development are higher and transporting materials can be complex and hazardous.

> The difficult economic context of remote regions plays against the most isolated communities. Issues related to financing, debt and access to private property are more significant. It is also more difficult to meet renovation and maintenance needs.

> There is a strong correlation between the housing context and the socio-economic realities of the communities. Thus, communities with a more precarious economic situation generally have a higher proportion of community housing than private housing.

[13] Standing Senate Committee on Aboriginal Peoples, 2015a.
[14] SHQ, 2016.
[15] Standing Senate Committee on Aboriginal Peoples, 2015b.

"There is a strong correlation between the housing context and the economic situation of First Nations communities and members."
- Guy Latouche, Consultant on infrastructure for the AFNQL -

2.3 Building stock characterization

Using the data currently available, this section provides a general portrait of the residential and community buildings among the First Nations in Quebec, particularly those on reserve. It paints a portrait of the quantitative data on existing buildings and general findings on building conditions and their needs in terms of construction and renovation.

2.3.1 Portrait of the residential buildings

In 2018, the building stock on the territories of First Nations communities in Quebec consisted of 15,541 residential units[16], of which 43% are private housing and 57% are community housing. Appendix 2 presents the types of housing and ownership regimes in the First Nations communities.

Indigenous Services Canada (ISC) compiles data on the number and types of housing units in 28 First Nations communities[17]. Housing types by community were compiled from the Asset Condition Reporting System (ACRS). This data relates to private and community housing that meets construction standards, with the exception of teachers' residences, and is presented for each of the 28 communities in appendices 2 and 5. It is possible to observe that, on average, there are approximately 348 housing units per community. The number of housing units per community varies widely, from one housing unit for uninhabited communities such as the Malécite de Viger in Cacouna, to 2,111 units for Kahnawake, the community with the largest population (see Appendix 5). In addition, overall, we observe that around 85% of the communities' housing stock is made up of single-family dwellings, while the share of multi-unit dwellings of more than two units is around 15%. The types of home ownership, whether private or community-owned, vary widely across communities, but it can be seen that about 56% of single-family dwellings are private and 44% are community-owned. The share of community housing is however much higher for multi-unit dwellings, varying between 68% and 89%.

[16] Latouche, 2020.

[17] It should be noted that data on the number of housing units per community is not available for the Naskapi and Cree Nation communities which are not funded by ISC, as well as for the communities of Gespeg and Wolf Lake (Hunter's Point), which have no territorial base, and for the community of Akwesasne for which responsibility lies with the province of Ontario.

Facade of a standard community bungalow

Renovation needs

As mentioned in the previous section, community residential buildings in First Nations communities in Quebec have significant needs in terms of renovation. Indeed, several reports have established findings in this regard, including the two reports on housing of the Standing Senate Committee on Aboriginal Peoples dating from 2015[18,19] as well as the report by the Assembly of First Nations Quebec-Labrador (AFNQL) entitled "The Housing Needs of the First Nations of Quebec and Labrador[20], including an update to this report in 2020.

According to these reports, various factors can explain the magnitude of the existing needs. They are more or less present depending on the community, but remote communities are more affected. These factors include the following:

- The poor quality of the construction and the materials used;
- Lack of housing maintenance;
- Non-compliance in past years with building construction standards;
- Lack of human resources to enforce the Building Code on reserves;
- Overcrowding of housing which leads to accelerated deterioration of buildings.

The report published by the AFNQL in 2014 entitled "The Housing Needs of the First Nations of Quebec and Labrador"[21] offers findings on the types of renovation needs related to housing on reserves, as presented in the summary table below. The report updated with 2018 data[22] indicates that in Quebec, 51% of the housing units (7,975 units) need repairs or renovations and that approximately 32% of the housing units (4,932 units) have major renovation needs.

[18] Standing Senate Committee on Aboriginal Peoples, 2015-a.
[19] Standing Senate Committee on Aboriginal Peoples, 2015-b.
[20] Latouche, 2014.
[21] *Ibid.*
[22] Latouche, 2020.

Table 1: Summary of the renovation needs for on-reserve housing in Quebec[23]

Condition	Number of units	Proportion
Adequate	7,346	47%
Obsolete (must be replaced)	220	1%
Repairs required (generally less than $10,000)	1,364	9%
Minor renovations (generally between $10,000 and $40,000)	1,679	11%
Major renovations (generally between $40,000 and $100,000)	4,932	32%
Total	**15,541**	**100%**

In addition, according to the First Nations Regional Health Survey of the FNQLHSSC[24], approximately 16% of adults living in the communities located in urban areas, and less than 50 km from a service centre connected by a road, reside in housing requiring major renovations. This proportion increases to 46% for adults living in rural areas, meaning between 50 and 350 km from a service centre connected by a road.

Needs for new housing

According to the AFNQL's report, the construction of some 10,435 new housing units was necessary in 40[25] First Nations communities in Quebec in 2018. And yet, on average, only 250 new housing units are built per year in the communities.

Federal funding for housing has not always kept pace with growing needs on reserve. The current funding represents a quarter of the investments needed to meet the needs in the communities[26]. That said, the increase in federal investment between 2006 and 2012 slowed the growth in new housing needs for this period.

Waiting lists and delays related to accessing housing in certain reserves can therefore be very long [27]. In addition to the funding needs described above, this phenomenon is explained by:

> The fact that many members now wish to settle within the boundaries of the communities;
> Population growth, which puts pressure on the availability of housing and on the overcrowding rate in the communities [28];
> The need to replace obsolete housing that does not meet standards.

[23] Latouche, 2020.
[24] First Nations of Quebec and Labrador Health and Social Services Commission (FNQLHSSC), 2018.
[25] Akwesasne's data is not available.
[26] Latouche, 2014.
[27] *Ibid.*
[28] *Ibid.*

The overcrowding of housing

> In Canada, the average household size in First Nations communities is 3.9 people (5 people or more in many communities) compared to 2.1 people for the rest of the population. Many households are thus deemed to be overcrowded.

> In 2016, in Quebec, 14% of the members of the First Nations communities lived in overcrowded housing[29].

> Overcrowding and poor housing conditions are risk factors for other health and social problems such as respiratory diseases, cases of influenza and depression, family cohesion, academic success among youth, etc.[30]

In addition, the major need for new housing may explain why, in some cases, communities prefer to use the available funding to build as much housing as possible rather than building better quality housing. It is therefore important to consider that the communities often have other needs that they deem to be priorities in terms of housing that take precedence over implementing certain measures, particularly those aiming to improve building energy efficiency, for example. That being said, solutions do exist to remedy this situation, such as opting for the construction of multi-housing units which reduce costs and thus allow the construction of better-quality housing.

2.3.2 Portrait of the community buildings

According to data provided by Indigenous Services Canada (ISC), there are currently 1,428 community buildings on the territory of the First Nations communities in Quebec, excluding those in the Cree and Naskapi communities.

The data transmitted by ISC details the number of community buildings funded by community through the various ISC programs. In total, in the 28 communities for which information is available[31], 632 community buildings were funded by ISC and there are between 3 and 41 of them in each community. The other buildings funded by other government departments and agencies were not compiled.

[29] Front d'action populaire en réaménagement urbain, 2018.

[30] Standing Senate Committee on Aboriginal Peoples, 2015a.

[31] Data is not available for the Naskapi and Cree Nation communities which are not funded by ISC, or for the communities of Gespeg and Wolf Lake (Hunter's Point) which have no land base, or for the community of Akwesasne for which responsibility lies with the province of Ontario.

Table 2: Number of community buildings funded by ISC per community

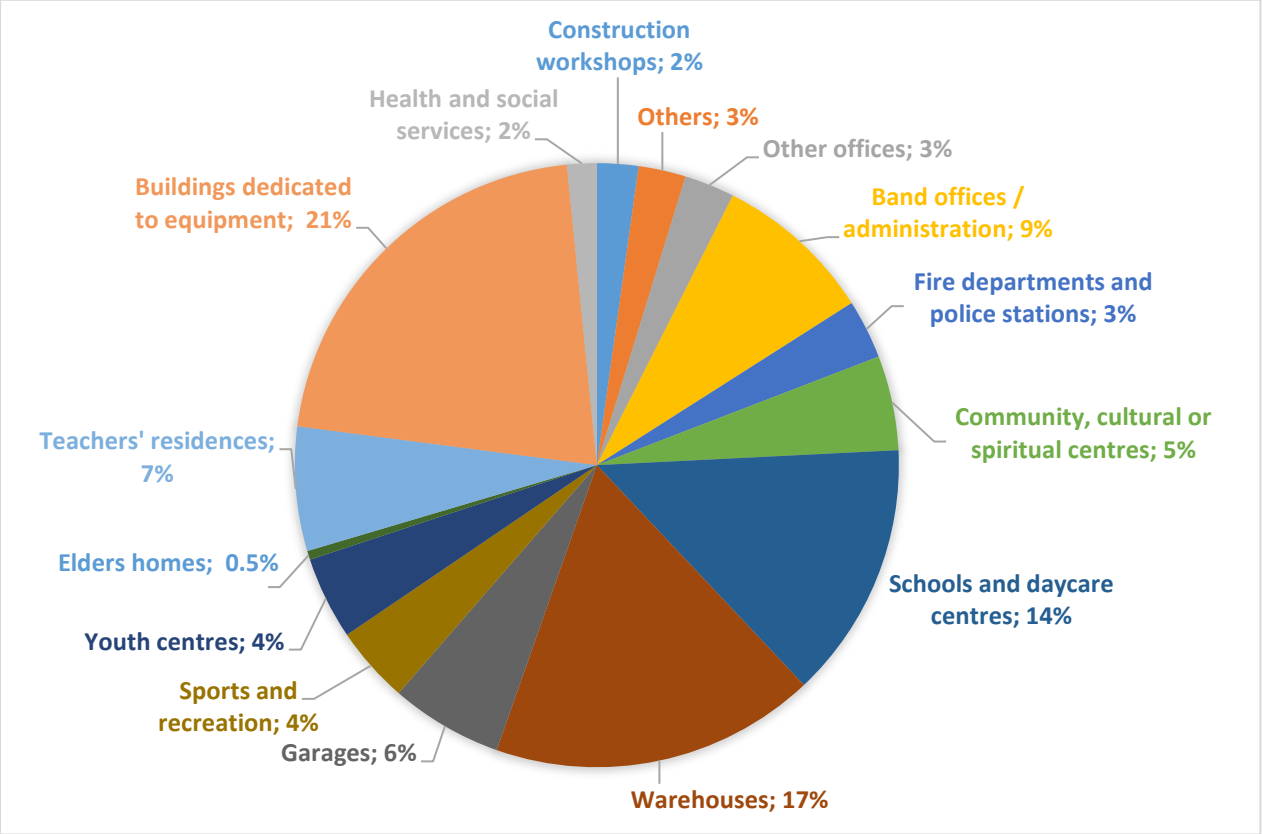
Community	Number of community buildings funded	Community	Number of community buildings funded
Cacouna and Whitworth	3	Nutashkuan	25
Essipit	15	Odanak	15
Gesgapegiag	14	Opitciwan (Obedjiwan)	33
Kahnawà:ke (Kahnawake)	38	Pakua Shipu (Pakuashipi)	41
Kanesatake	15	Pessamit	39
Kebaowek (Eagle Village)	22	Abitibiwinni (Pikogan)	22
Kitcisakik	15	Barriere Lake (Rapid Lake)	14
Kitigan Zibi	22	Timiskaming	23
Lac-Simon	29	Uashat Mak Mani-Utenam	38
Listuguj	20	Unamen Shipu (La Romaine)	28
Manawan	28	Wemotaci	29
Mashteuiatsh	30	Wendake	9
Matimekush-Lac John (Matimekosh)	19	Winneway (Long Point)	17
Ekuanitshit (Mingan)	18	Wôlinak	11
TOTAL	**632**		

In order to find out more about First Nations community buildings, TEQ has classified the buildings funded by ISC according to their type and utility. It should be noted that the classification was carried out based on the names assigned to each building, so errors may have crept into the categorization of the types of buildings.

Graph 1 below shows the distribution of these 632 community buildings according to type. As can be seen, buildings dedicated to equipment (utility buildings) represent the largest share of community buildings, at 21%. This type of building mainly includes water pumping and treatment infrastructures, pressure chambers, but also buildings housing energy production systems or other mechanical equipment.

The second type of community building funded by ISC that is most present in the communities is warehouses at a proportion of 17%. These warehouses are built to store equipment, tools, materials for construction and maintenance, snowmobiles, salt and sand as well as materials for schools and band councils, among other things. 14% of the community buildings funded are schools and daycare centres. The other building types each represent less than 10% of the total community buildings funded by ISC.

Graph 1: Distribution of community buildings funded by ISC according to utility



The data provided by Indigenous Services Canada also provides more information on building conditions. For each building, a remaining service life is estimated and a code from 1 to 9 is assigned to represent the condition of the property (1 being in very poor condition and 9 being in excellent condition). Thus, the averages of the estimated remaining service life and of the code assigned based on property condition were calculated for each type of building. Table 3 presents these averages for the 28 communities combined.

Table 3: Average estimated remaining service life and property condition code by building utility

Type of building financed	Average estimated remaining service life	Average property condition code [Condition of the property from 1 (very poor condition) to 9 (excellent condition)]
Construction workshops	21	6
Others	26	7
Other offices	27	7
Band offices / administration	33	7
Fire departments and police stations	27	6
Community, cultural or spiritual centres	29	6
Schools and daycare centres	30	7
Warehouses	23	6
Garages	29	7
Sports and recreation	38	7
Youth centres	36	7
Elders homes	24	8
Teachers' residences	28	5
Buildings dedicated to equipment	32	7
Health and social services	36	7

As can be seen in the table above, the average service life and the average code assigned based on building condition do not vary considerably between the different types of housing. Building types for which the condition code is lower (5 and 6) include teachers' residences, construction workshops, fire departments and police stations, community, cultural or spiritual centres and warehouses.

The average code by type of building gives an idea of the condition of the community buildings, but it is important to keep in mind that, for each type of building, there are some that are in worse condition and others that are in better condition. The building condition code and the estimated remaining service life are available for each community building as needed. It is also important to specify that building conditions can provide indicators regarding energy efficiency, but just because a building is in very good condition does not necessarily mean that it is energy efficient. Additional information on the energy situation of community buildings would be relevant for a more complete portrait.

This section provides an overview of the distribution of the types of community buildings funded by ISC and their average condition. To complete this overview, it would be beneficial to conduct the same exercise for the community buildings that are not funded by ISC and for the missing communities.

Renovation needs

A community building condition monitoring exercise during which the community buildings in each community are inspected by specialists is conducted every three years by ISC. These inspections are documented in the Asset Condition Reporting System (ACRS) where each repair to be carried out on the buildings and their year of construction are compiled in order to determine priorities for intervention. However, no energy assessments are carried out during these inspections.

2.4 Energy portrait

Developing an energy portrait not only makes it possible to determine the prospects for improving energy consumption, but also to establish an energy situation status that can be used to measure the progress of the energy transition following the implementation of measures.

The overall portrait of the energy consumption of residential, commercial and institutional buildings in Quebec and of the energy sources used were well documented by the TEQ teams during the development of the Master Plan[32]. Thus, for all citizens combined, the residential sector consumed 348 petajoules (PJ) and the commercial and institutional buildings sector, which includes community buildings, consumed 178.9 PJ in 2014, which respectively represents 20.4% and 10.5% of Quebec's total energy consumption[33] [34]. For these two sectors, in 2014, space heating remains the main energy expenditure in the building sector, representing 64.1% of the total energy consumption for residential buildings and 51.6% of the total energy consumption for commercial and institutions buildings[35].

This data remains global for Quebec. It was not possible to find the information needed to paint a comprehensive portrait that is specific to the energy consumption of buildings in the First Nations communities. Indeed, with the exception of data on electricity consumption collected by Hydro-Québec, no other information is currently available on: 1) all of the energy sources used; 2) the level of energy efficiency of the buildings; 3) energy consumption habits; 4) energy consumption in relation to the devices used; and 5) greenhouse gas (GHG) emissions linked to this energy consumption in the communities.

The following section therefore does not constitute an exhaustive energy profile of each community. It reports data and findings on the energy consumption of the First Nations communities at the provincial level. It also presents an overview of the main factors that can influence the energy consumption of the communities, in particular the forms of energy used in buildings.

[32] TEQ, 2018a, 2018b.

[33] *Ibid.*

[34] For the residential sector, the following uses are considered: space heating, use of household appliances, water heating, lighting and air conditioning. For the commercial and institutional buildings sector, the following uses are included: space heating, use of auxiliary equipment, lighting, water heating, use of auxiliary motors, air conditioning and street lighting.

[35] TEQ, 2018a, 2018b.

Energy profile
An energy profile paints an exhaustive portrait of the factors that can influence the energy consumption of communities. It presents the consumption according to activity sectors, uses, etc. With the help of an energy profile, communities can improve their energy performance by targeting the most energy-intensive sectors and developing an action plan.

2.4.1 Energy consumption by form of energy used in the communities

2.4.1.1 Forms of energy used in the communities

Of the 41 First Nations communities located in Quebec, 33 of them are connected to the main Hydro-Québec network (see Appendix 1).

Three communities, Kawawachikamach, Matimekush and Pakua Shipi, are powered by stand-alone hydro-electric systems. These autonomous networks are operated by Hydro-Québec. The communities have back-up diesel generators in the event of breakdowns.

Five communities, Obedjiwan, La Romaine, Whapmagoostui, Kitcisakik and Barriere Lake, are powered with hydrocarbons. The Obedjiwan community is connected to an autonomous Hydro-Québec supply network powered by a diesel-fired power plant and individual oil-fired generators. The situation is the same in the community of La Romaine where the connection to the main hydroelectric network is planned for 2021. As for the Cree community of Whapmagoostui, it is powered by three 1.1-megawatt (MW) diesel generators operated by Hydro-Québec. The other two communities, Kitcisakik and Barriere Lake, are located off the grid, and so heating and lighting rely on oil generators and firewood. Different projects are underway in the communities to connect to the network or to set up micro-power grids.

According to information provided by the Énergir company, only the community of Wendake is powered by natural gas, and only for a few buildings for community or commercial use.

Many households, even if they are connected to the main network, use, in addition to electricity, additional sources of energy for heating purposes such as fireplaces or other installations using wood, propane or other types hydrocarbons. Wood heating is a method of heating that is much appreciated in the communities for cultural reasons.

Thus, we know the different forms of energy used in the communities. However, as mentioned previously, due to the lack of data, it was only possible to paint a portrait of the electricity consumption of buildings.

Overview of two communities supplied with hydrocarbons

Kitcisakik:

> Households use an oil-fired generator for electricity and wood stoves for heating.

> To supply community buildings (school, band council, childcare centre, etc.), a system made up of three high-capacity generators is in operation at all times.

Obedjiwan:

> All housing units and community and institutional buildings are heated with oil and have their own tanks.

> A diesel power plant powers the community.

2.4.1.2 Electrical consumption of the First Nations communities served by Hydro-Québec

This section presents the information available on First Nations electricity consumption, transmitted by Hydro-Québec. To date, this is the only data available on First Nations energy consumption and it may only represent part of the total consumption. Notably, there are no statistics concerning the use of other sources of energy by these communities (e.g., the use of backup generators or firewood), which would make it possible to obtain a more complete portrait of the situation.

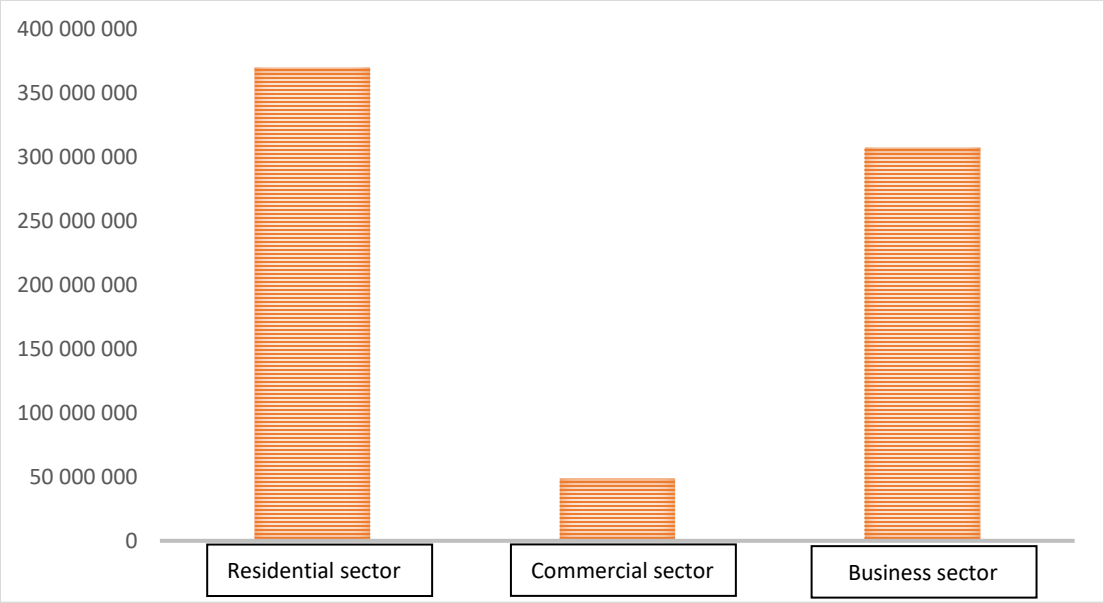
The available data includes the consumption of electricity by residential and community buildings in communities that are integrated into the main network, powered by an autonomous hydroelectric network of Hydro-Québec (Matimekosh Lac-John, Pakuashipi and Kawawachikamach) and powered by thermal power plants or fossil fuel generators owned by Hydro-Québec (Obedjiwan, Whapmagoostui and La Romaine) in 2010 and 2017. This data is presented in the form of statistics by sector as defined by Hydro-Québec. First Nations community-based and private residential buildings are categorized in the residential sector defined by Hydro-Québec, while community buildings are categorized in the commercial and business sectors defined by Hydro-Québec in accordance with their electrical needs. The commercial sector represents the class of buildings with lower electricity consumption than buildings in the business sector. It should be noted that certain business buildings located in communities can also be counted in the commercial and business sectors defined by Hydro-Québec. This data was produced based on the electric energy consumption of Hydro-Québec clients who have a postal code associated with the First Nations communities.

This data remains an estimate which can involve a significant margin of error due to various factors, including the fact that some customers are not identified as belonging to a First Nation in the system or the inaccurate association of postal codes with communities. The consumption reported by Hydro-Québec is the actual data for the year (not adjusted), which includes additions and withdrawals of customers who used energy for only a few months during the year in question.

Overall consumption

Graph 2 shows Hydro-Québec's sales to First Nations in the three sectors defined by Hydro-Québec: residential, commercial and business.

Graph 2: Hydro-Québec's electricity sales to First Nations by sector in kilowatt hours (kWh) in 2017



As can be seen, Hydro-Québec's total sales to First Nations amount to 725,832,398 kWh, which equates to 0.72 TWh. According to the Crown corporation's annual report for 2017[36], sales of Hydro-Québec in the province are 170.7 TWh, excluding exports. Electricity sales to First Nations therefore represent 0.43% of the total sales in Quebec.

It is estimated that 21,196,044 kWh (total consumption of Obedjiwan, La Romaine and Whapmagoostui) is produced from fossil fuels, or 2.92% of the total electricity sales to First Nations. Table 4 presents the total sales of electricity by Hydro-Québec as well as sales to First Nations specifically produced using fossil fuels for the residential, commercial and business sectors.

[36] Hydro-Québec, 2017.

Table 4. Sales of electricity produced using fossil fuels from Hydro-Québec to First Nations by sector in kilowatt-hours (kWh) in 2017

Sector	Sales of electricity produced using fossil fuels to First Nations (kWh)	Total electricity sales to First Nations (kWh)	Proportion of sales of electricity to First Nations produced using fossil fuels
Residential sector	11,237,687	369,605,900	3.04%
Commercial sector	818,838	48,886,415	1.67%
Business sector	9,139,519	307,340,082	2.97%
Total	**21,196,044**	**725,832,397**	**2.92%**

Residential sector consumption

In the First Nations communities, the residential sector includes private and community residential housing [37].

Total consumption

As shown in Table 5, the total consumption in the residential sector associated with the communities supplied by Hydro-Québec in 2017 is 369,605,900 kWh, or 0.37 TWh, which represents 0.56% of the total consumption of electricity for all customers served by Hydro-Québec in the residential sector.

[37] According to Hydro-Québec, a residential client is a client with nothing but rate D contracts, meaning Rate D, Rate DP and Rate DM. These rates are detailed on Hydro-Québec's website. Hydro-Québec, 2019-d: http://www.hydroquebec.com/residential/customer-space/rates/.

Table 5. Evolution of the total consumption of the First Nations served by Hydro-Québec and of the total consumption of Hydro-Québec customers in Quebec in the residential sector in kilowatt hours (kWh) between 2010 and 2017

Consumption data	First Nations communities served by Hydro-Québec	All customers served by Hydro-Québec	Proportion of consumption by First Nations community out of total consumption in Quebec
Residential sector consumption (kWh) in 2010	315,385,183	59,534,000,000	0.53%
Residential sector consumption (kWh) in 2017	369,605,900	66,111,000,000	0.56%
2010-2017 consumption evolution	17.19%	11.05%	---

The overall consumption of all First Nations communities increased by approximately 17% between 2010 and 2017 in the residential sector (see Table 6). Over the same period, the number of places of consumption increased by 8%. Consumption has therefore increased approximately twice as fast as the number of dwellings, which means that dwellings are consuming more electricity on average. The communities of Wôlinak and Wendake, however, are not following this trend and are experiencing greater growth in the number of places of consumption than in the actual amount of consumption. At this stage of the analysis, the causes that explain these differences in level of consumption are unknown, so further research would be necessary. The possible causes can be varied: the deterioration of houses (due to age) which can possibly decrease their energy efficiency, the increase in the number of people per house, changes in consumption behaviour, the acquisition of new appliances, the conversion of fossil fuels to electricity, etc.

The evolution of the electricity consumption among all residential customers served by Hydro-Québec in the province between 2010 and 2017 stands at 11%, which is lower than the evolution of the consumption calculated for the First Nations communities[38].

As for the growth in the number of places of consumption[39] for all Hydro-Québec customers, it is similar, although slightly lower, than that of First Nations communities and amounts to 7%[40].

[38] 2017 annual report of Hydro-Québec, p. 78, and 2010 annual report of Hydro-Québec, p. 99.

[39] It should be noted that, in the residential sector, the hypothesis according to which each dwelling corresponds to a place of consumption was adopted to facilitate the interpretation of the data transmitted by Hydro-Québec.

[40] 2017 annual report of Hydro-Québec, p. 78, and 2010 annual report of Hydro-Québec, p. 99.

Average consumption by place of consumption

Table 6 features data concerning the evolution of the consumption of the First Nations supplied by Hydro-Québec in this same sector between 2010 and 2017. The table in appendix 6 details this data for each community.

Table 6. Evolution of the consumption by place of consumption of the First Nations and all Hydro-Québec customers in Quebec in the residential sector between 2010 and 2017

Data	First Nations communities served by Hydro-Québec	All customers served by Hydro-Québec
Evolution of the number of places of consumption for 2010-2017*	8.15%	7.03%
Consumption by place of consumption in 2017 (kWh)	21,888	16,702
Evolution of average consumption by place of consumption for 2010-2017	8.36%	3.75%

* It should be noted that, in the residential sector, the assumption that each dwelling corresponds to a place of consumption has been adopted to facilitate the interpretation of the data transmitted by Hydro-Québec.

The average consumption by place of consumption, and therefore by housing unit, in 2017 was 21,888 kWh in the First Nations communities (see table 6). The average consumption levels by place of consumption vary from 8,801 kWh to 33,574 kWh between communities. The communities where the average consumption by place of consumption is among the highest (more than 28,000 kWh) in 2017 are Chisasibi, Kawawachikamach, Eastmain, Matimekush and Nutashquan. According to the "Consumption based on the home's specific features" tool on Hydro-Québec's website, an individual home without air conditioning and without a pool or spa consumes on average 22,000 kWh in Quebec[41]. With an air conditioning system and a swimming pool or spa, a house can consume approximately 29,000 kWh.

The average consumption by place of consumption among all of Hydro-Québec's customers in the province, presented in the table above, is around 16,702 kWh, as this also takes into account dwellings in multi-unit buildings that use less energy. The average consumption per home in the First Nations communities is therefore similar to the approximate average consumption of a single house according to Hydro-Québec's tool, even if First Nations housing accommodates on average more people than the average housing in Quebec. It is also worth noting that the average sizes of the houses were not compared due to the lack of data to this effect. Moreover, it would be useful to conduct more in-depth research in order to obtain data on the other sources of energy used in

[41] Hydro-Québec, 2019a.

the residences of the different communities. This could help explain the wide variations between the communities and indicate the proportion of heating by electricity.

The growth in total consumption is partly attributable to population growth. In order to determine the actual evolution of the level of consumption, meaning without the effects of the demographic growth, it is relevant to observe the evolution of the consumption of electricity per unit, which is to say per home. Between 2010 and 2017, the evolution of the average consumption by place of consumption (housing unit) in the First Nations communities was 8%, compared to 4% for all Hydro-Québec customers in the province. It should be noted that demographic growth can also be observed in households, with a higher number of people per home. This manifestation is however inseparable from the evolution of the average consumption by place of consumption. The First Nations communities with the largest increases in consumption by place of consumption are Wemotaci, Waskaganish, Gesgapegiag and Pakuashipi (20% and up).

Residential sector highlights

> The total consumption of the residential sector among First Nations amounted to 369,605,900 kWh, which represents 0.56% of the consumption of all customers served by Hydro-Québec in the province in 2017.

> From 2010 to 2017, the average consumption of a First Nations housing unit increased by 8.36%, which is more than double the increase in the average consumption of housing for all customers served by Hydro-Québec.

> Consumption has increased almost twice as fast as the number of housing units, which means that homes consume more electricity on average.

> In 2017, the average consumption of a First Nations residential place of consumption was 21,888 kWh, which is equivalent to the average consumption of an individual home according to the “Consumption based on the home’s specific features” tool on Hydro-Québec’s website. It should be noted, however, that the number of residents per dwelling is higher than the Quebec average in First Nations communities and that there are large disparities in terms of consumption in these communities.

Consumption in the commercial sector

In the First Nations communities, commercial sector buildings can include small community buildings housing office space, community halls, small schools, small businesses, health care clinics and enterprises[42].

The commercial sector in the First Nations communities experienced overall consumption growth of 21.65% between 2010 and 2017, characterized by high variability among the different communities. It can also be seen that several communities representing a relatively low portion of the total consumption of the communities in 2010 in this sector are experiencing above-average growth. This makes sense, because adding consumption in the commercial sector (for example, due to the construction of a community building) has a greater impact on the evolution of consumption as a percentage of the community if this community does not generally use much energy. Conversely, if a community building adds to a community's already high commercial consumption, the percentage increase will be smaller.

Table 7 below shows the evolution of First Nations electricity consumption in the commercial sector between 2010 and 2017. In Appendix 7, the evolution of electricity consumption for each community is available for this sector.

Table 7. Evolution of electricity consumption in the commercial sector between 2010 and 2017 in the communities served by Hydro-Québec

Data	First Nations communities served by Hydro-Québec
Consumption of the commercial sector in 2010 (kWh)	40,186,261
Consumption of the commercial sector in 2017 (kWh)	48,886,415
Consumption evolution for 2010-2017	21.65%

Although growing overall, the evolution of consumption in the commercial sector between 2010 and 2017 varies widely from one community to another. A decrease in consumption between 2010 and 2017 in one-third of the communities has been observed. The most marked declines in the commercial sector are observed in Pakuashipi, Oujé-Bougoumou, Obedjiwan, Kawawachikamach and Gesgapegiag. There is a correlation between these decreases and a growth in the business sector in these communities, which suggests that several places of consumption have moved to a higher category of consumption rate (commercial rate to business rate) due to an increase in consumption.

[42] According to Hydro-Québec, a commercial customer is a non-residential customer who has at least one Rate G contract (total annual billing for their electricity contracts less than $100,000). The rates are detailed on Hydro-Quebec's website at http://www.hydroquebec.com/business/customer-space/rates/rate-g-general-rate-small-power.html.

In addition to this cause, the decrease in consumption in this sector could be explained in particular by the closure of certain commercial buildings, by changes in their energy supply (conversion, diversification) or by an improvement in energy efficiency.

Conversely, consumption has increased between 2010 and 2017 in 24 communities (two-thirds of the communities), including a relatively strong increase (more than 20%) for fifteen of them. In addition, the communities of Matimekush and Eukuanitshit have even experienced an increase in consumption of more than 100% (their consumption was multiplied by two or more between 2010 and 2017).

In 2017, the communities that consumed the most energy in the commercial sector are Kahnawake, Wendake, Chisasibi, Listuguj and Uashat Mak Mani-Utenam (more than 2,000,000 kWh). It should be noted that they are also among the ten communities with the most residential housing. In summary, the consumption of electricity in this sector depends on several factors, including demography and the economic environment within the communities.

Commercial sector highlights

> The total electricity consumption of the First Nations communities in this sector increased by 21.65% between 2010 and 2017.

> The total consumption of the commercial sector among the First Nations amounts to 48,886,415 kWh.

Business sector consumption

This section presents First Nations consumption data in the business sector. Community buildings such as hospitals and sports complexes with arenas could be classified in the business sector, as could multi-unit buildings and businesses with a significant demand for power.

Table 8 presents the overall evolution of consumption of the communities in the business sector between 2010 and 2017. In Appendix 8, the evolution of the electricity consumption of each community is available for this sector.

Table 8. Evolution of electricity consumption in the business sector between 2010 and 2017 in the communities served by Hydro-Québec

Data	First Nations communities served by Hydro-Québec
Business sector consumption in 2010 (kWh)	232,914,119
Business sector consumption in 2017 (kWh)	307,340,082
Consumption evolution for 2010-2017	32%

Between 2010 and 2017, we can see an overall growth in electricity consumption in the business sector of 32% among the First Nations communities served by Hydro-Québec. Indeed, in 2010, the consumption was 232,914,119 kWh compared to 307,340,082 kWh in 2017.

Consumption increased between 2010 and 2017 in most communities except two: Mashteuiatsh and Whapmagoostui.

In the business sector, the communities where the increase in electricity consumption is most marked with an increase of more than 100% are Wemotaci, Nemaska and Kawawachikamach. While there is a drop in consumption in the commercial sector in two of these three communities, it is possible that a change of rate category has occurred due to an increase in consumption (commercial rate to business rate).

In 2017, the communities that consumed the most energy in this sector are Kahnawake, Chisasibi and Mistissini (more than 30,000,000 kWh). As in the commercial sector, these communities are among the group of ten communities with the most residential housing.

Business sector highlights

> The total consumption of electricity by First Nations communities in this sector increased by 32% between 2010 and 2017.

> The total consumption of the commercial sector among the First Nations amounts to 307,340,082 kWh.

Overall findings

In summary, the information presented above makes it possible to learn more about First Nations electricity consumption in residential and community buildings, which are included in the consumption of the residential, commercial and business sectors defined by Hydro-Québec. This information provides an overview of the situation but has significant limitations. To obtain a more complete overview of the energy situation of the communities, it would be necessary to collect and produce data on the consumption of other sources of energy (for example, the use of backup generators or firewood). This more comprehensive portrait would make it possible to analyze the evolution of consumption by form of energy and the improvement of the energy situation over a given period of time. This would be relevant for determining the measures to be put in place as well as for carrying out and monitoring targeted actions to reduce the energy consumption of buildings and convert polluting energy sources, while promoting the well-being of communities and reducing their energy bills. It is worth noting that Band Councils hold data on the energy consumption of community buildings in their respective communities. This data has so far not been collected and analyzed for all First Nations.

2.4.2 Consumption habits

Energy consumption habits refer to behaviours observed in relation to the use of energy resources. These behaviours, most often subconscious and acquired through imitation or repetition, can be influenced by several factors including geographic and historical contexts, education and perceptions or beliefs in relation to the resource. Since the committee does not have access to in-depth studies on the energy consumption habits of First Nations, it is impossible to say whether these are significantly different from the consumption habits of the rest of Quebec's population.

Additional qualitative data will have to be collected in order to gain an understanding of the energy consumption habits of the communities. There is also a need to gauge the perception and openness of the communities regarding energy efficiency measures and energy transition. This information will make it possible to understand the needs and desires of the communities in relation to their energy transition. They will thus be able to guide the implementation of awareness-raising measures and programs that are consistent with the needs of the communities.

Missing data: Consumption habits

> Behaviours in relation to energy consumption.
> The perceptions of individuals regarding housing and energy.
> The interests and aspirations of communities with regard to energy.
> The impacts of the geographic location of the communities on consumption habits.

2.4.3 Energy efficiency

Energy efficiency is "the efficiency with which energy is used to achieve a level of service or product. Energy efficiency is improved when less energy is used to produce the same level of service[43]". Energy efficiency therefore allows buildings to consume less energy and thereby reduce the costs associated with this consumption.

Overall, in Quebec, energy efficiency has made it possible to limit the growth in energy consumption by 16.9% for residential buildings and by 17.8% for commercial and institutional buildings between 1995 and 2014[44]. There is currently no data available allowing to measure the level of energy efficiency of First Nations buildings. To do this, it would be necessary in particular to know the energy consumption, floor area and number of devices used for typical buildings located in the communities.

[43] TEQ, 2018c, p. 186.
[44] TEQ, 2018a, 2018b.

The improved performance of building construction components to provide better insulation and energy efficiency of windows and electromechanical equipment such as heaters, appliances and lighting are the main factors that contribute to improving energy efficiency in buildings[45]. However, the scope of the needs in terms of renovation and new housing in the communities limits the capacity of Band Councils and individuals to implement energy efficiency measures for their buildings. In addition, although several energy efficiency programs are offered to First Nations by different government authorities and energy distributors, it can be seen from the participation rates in TEQ's programs that First Nations do not necessarily benefit from these programs. These findings are described in this document in the section on programs.

Missing data: energy efficiency

> A lot of the data required to establish the energy efficiency of buildings is missing such as data on waterproofing and insulation, total energy consumption, floor area and number of devices used per residential building.
> The improvement in the energy efficiency of buildings is directly linked to the degree of awareness of residents regarding its benefits. It could be beneficial to showcase projects that have worked well in communities and demonstrate the impacts of, for example, the use of new technologies in energy-efficient construction and renovations and energy-efficient building certification.

2.4.4 Greenhouse gas emissions

Energy transition goes hand in hand with the fight against climate change and the reduction of greenhouse gas (GHG) emissions. In fact, in 2016, 69% of the GHGs in Quebec were emitted by the energy sector, which includes the production and use of energy[46].

In this context, it would be highly relevant to know the amount of GHG emissions associated with the energy consumption of the buildings in First Nations communities. With energy consumption by energy source and GHG emission factors, it is possible to roughly calculate the GHG emissions associated with each energy source to develop an overview of each community. However, since the only available data is on the electricity consumption of the communities, it is not possible to conduct a complete and meaningful assessment. Indeed, considering that hydroelectricity pollutes much less than the combustion of fossil fuels (fuel oil, diesel, natural gas, etc.), an overview of GHG emissions would imply that the communities that consume more electricity are those that emit the most GHGs. However, this may not be the case since communities that use more electricity may perhaps be using less fossil fuel. GHG emissions will therefore not be calculated at this stage of the analysis. In subsequent research, it would be appropriate to detail the energy consumption by community and form of energy to be able to establish a complete overview of energy consumption and GHG emissions.

[45] TEQ, 2018a, 2018b.
[46] Ministère de l'Environnement et de la Lutte contre les changements climatiques, 2018, p. 16.

It is nonetheless possible to indicate that, in a perspective of energy transition and reduction of GHG emissions, it is necessary to foster a reduction in the consumption of fossil fuels, which emit more GHGs, through energy efficiency or conversion.

Missing data: GHG emissions

> Distribution of GHG emissions produced by the communities by form of energy (for community and residential buildings).

2.5 Existing measures and programs

Several measures are offered by various government departments and agencies to improve the conditions of residential and community buildings in the First Nations communities. Financial assistance programs are therefore available, either to support the construction and renovation of buildings in the communities or to specifically promote the energy transition of buildings, in particular with the aim of improving their energy efficiency and reducing their GHG emissions. Some of these programs are intended for First Nations, while others are offered for all of Quebec. Initiatives also include awareness and training measures on buildings.

The following section provides a summary overview of several of these existing measures and programs as well as the issues that are frequently encountered by First Nations in relation to them. Tables detailing the contents of the programs listed below are presented in appendices 3 and 4.

2.5.1 Programs

First Nations building renovation and construction programs

Since the majority of the communities are located on territories under federal jurisdiction, the federal government offers several grants to First Nations aiming to improve the conditions of existing buildings and expand the building stock. The Société d'habitation du Québec also offers financial assistance to community members residing off-reserve.

Indigenous Services Canada (ISC)

> Ministerial Loan Guarantees*
> First Nations Infrastructure Fund*
> Indigenous Homes Innovation Initiative*
> First Nation On-Reserve Housing Program*
> Capital Facilities and Maintenance Program*

* Programs marked with an asterisk are designed specifically for Indigenous people. The others are applicable to the general population.

Canada Mortgage and Housing Corporation (CMHC)

> Insured Loans for On-Reserve First Nation housing*
> On-Reserve Non-Profit Housing Program*
> Residential Rehabilitation Assistance Program*
> Residential Rehabilitation Assistance Program – Conversion (RRAP-C)*

Société d'habitation du Québec (SHQ)

> Rénovation Québec
> RénoRégion

Energy efficiency or GHG emission reduction programs

Several efforts are being made by the provincial and federal governments in Quebec to promote energy savings and reduce the use of hydrocarbons in buildings. They are thus offering programs to improve the energy performance of buildings, offer advisory services to foster energy savings, convert polluting heating systems and encourage innovation in energy efficiency and savings. Some programs are also specific to low-income households and communities using off-grid networks.

Programs specifically intended for residential buildings

Transition énergétique Québec (TEQ)

> Éconologis
> Rénoclimat
> Heating with Green Power
> Novoclimat

Hydro-Québec (HQ)

> Innovative projects
> Energy Efficiency Retrofit Program for Low-Income Households
> Be Energy Wise
> Efficient use of energy in off-grid networks

Ministère de l'Environnement et de la Lutte contre les changements climatiques (MELCC)

> Climat municipalités – Phase 2

Natural Resources Canada (NRCan)

> Multi-sectoral Projects to Drive Demand for Energy Efficiency and Conservation in Canada

Programs specifically intended for community buildings

Transition énergétique Québec (TEQ)

> Technoclimat
> ÉcoPerformance

Hydro-Québec (HQ)

> Efficient use of energy in off-grid networks
> Demand Response
> Efficient Solutions Program
> Technology and Business Demonstration

Awareness and training programs

Awareness programs are offered to the population to encourage them to better consume and save energy. Training programs are also available to develop knowledge and skills in housing management and the construction and renovation of buildings. In addition, Hydro-Québec offers the Customer Space which allows customers to obtain a consumption overview and thus have a better understanding of how they consume energy.

Hydro-Québec (HQ)

> Be Energy Wise Program
> Dare to Compare Program

Cégep Garneau

> Attestation of College Studies (ACS) in Quebec First Nations housing management*

Canada Mortgage and Housing Corporation (CMHC)

> Housing Internship Initiative for First Nation and Inuit Youth*

2.5.2 Participation of First Nations in programs

TEQ offers several programs to encourage energy transition in buildings, particularly with regard to energy efficiency and the conversion from fossil fuels to renewable energies. These programs are intended for the entire population of Quebec, including First Nations. As part of the work of the TEQ-First Nations Committee, TEQ verified whether the First Nations participate as much as the rest of the Quebec population in proportion to their demographic weight.

To do this, TEQ compared the proportion of First Nations participants out of the total participants in its programs with the demographic proportion of the First Nations in Quebec. It is important to specify that the statistics on First Nations participation in TEQ programs have a margin of error. When a participant applies to a TEQ program, with the exception of the Éconologis program, they do not indicate their First Nation status. First Nations participants were therefore identified based on the official postal codes of the communities. For the previously mentioned reason, the statistics only include the residents of reserves, except for the Éconologis program.

* Programs marked with an asterisk are designed specifically for Indigenous people. The others are applicable to the general population.

First Nations represent 1.13% of the Quebec population (92,655 First Nations [47] compared to 8,164,361 people in Quebec in 2016[48]). According to 2015 data from the Secrétariat aux Affaires Autochtones, 62,991 First Nations people are residents of the communities [49], which represents 0.77% of the total population in Quebec. This is the proportion that is used to evaluate the participation of the First Nations in programs, except for the Éconologis program. It would have been more accurate to use the percentage of the number of First Nations households out of the total number of households in Quebec for comparison purposes, but up-to-date data of this kind was unavailable when these statistics were developed. In addition, to conduct an in-depth analysis of First Nations participation in TEQ programs, it would have been relevant to produce statistics on eligibility based on the criteria of the different programs (e.g., for a conversion program, only taking into account the number of community buildings heated with oil or other fossil fuels as a baseline). However, the data available on community buildings does not allow for such a detailed analysis of participation.

Heating with Green Power, Rénoclimat and Novoclimat programs

The participation of First Nations in TEQ's Heating with Green Power, Rénoclimat and Novoclimat programs is detailed in table 9. Descriptions of these programs are provided in Appendix 4.

Table 9. First Nations participation in TEQ programs

Programs	First Nations participants	Total participants	Proportion of First Nations participation / total participation
Heating with Green Power (2013-mid 2019)	25	18,628	0.13%
Rénoclimat (2009-2018)	70	108,792	0.06%
Novoclimat 1.0 (1999 to 2013)	55	24,103	0.23%
Novoclimat 2.0 (2013 to today)	1	1,660	0,06%

As can be seen, First Nations participation rates in the Heating with Green Power and Rénoclimat programs are low. First Nations represent 0.13% and 0.06% of the total participants in the two programs respectively, while First Nations on reserve represent 0.77% of Quebec's population. The First Nations are therefore under-represented.

[47] Statistics Canada, 2016.
[48] Institut de la statistique du Québec, 2018.
[49] SAA, 2015.

Generally-speaking, during the years when total participation in the programs is higher, First Nations participation is also higher.

It is also possible to observe that First Nations in urban communities participate in the programs more than other First Nations. The First Nations communities that participated the most in the Heating with Green Power program are Kahnawake, Wendake, Kanesatake and Kebaowek, and those that participated the most in the Rénoclimat program are Wendake, Mashteuiatsh and Nutashquan.

Regarding the Novoclimat program, it is worth noting that the program was revised in 2013 resulting in a change of certain terms and conditions, which explains why participation statistics were produced for Novoclimat 1.0 and Novoclimat 2.0. The participation rate for version 1.0 in effect from 1999 to 2013 is 0.23%, while this rate is 0.06% for version 2.0 in effect since 2013. This indicates that the First Nations participate 3 to 13 times less (Novoclimat 1.0 or 2.0) in programs in proportion to their population. Moreover, for this program, the number of participants also depends on the number of new homes.

It can be observed that the participation rate of First Nations in version 1.0 of Novoclimat is higher than for version 2.0. This may be due to the fact that the first version of the program allowed “kits”, meaning houses that were prefabricated in a factory having obtained approval and assembled on site, without compulsory inspection after assembly. It was therefore a matter of attestation rather than certification.

The communities that participated the most in this program are Wendake, Kahnawake, Essipit and Timiskaming.

Éconologis program (component 1)

The Éconologis program is the only TEQ program for which a significant participation of First Nations has been observed in proportion to their population. This program consists of offering personalized advisory services intended for low-income households as well as certain light work related to energy efficiency. Table 10 below shows the participation of First Nations in the program between 2008 and 2018. It can be seen that the number of Indigenous households visited represents 5% of the total number of households visited in Quebec for this program, which is beyond the demographic proportion of the First Nations. This significant participation can be explained in particular by the involvement of the First Nations of Quebec and Labrador Sustainable Development Institute (FNQLSDI) in the promotion and delivery of this program from 2014 to 2016 and by the stability of the program deliverer who has worked with First Nations communities for many years.

It is worth noting that some owners were able to participate in the program more than once, because household owners can participate in the program every 5 years if they stay in the same place and every three years if they move. It is also important to specify that this participation data has a narrower margin of error than the data of other programs, since the participants are identified as Indigenous or non-Indigenous when they participate.

Table 10. First Nations participation in the Éconologis program

Participants	Number of households visited (2008-2018)
Indigenous people living on reserves	3,843
Quebec population	81,948
Proportion of Indigenous households visited out of total households	5%

Technoclimat program

The Technoclimat program aims to encourage the development in Quebec of technological innovations in the fields of energy efficiency, renewable energy, bioenergy and GHG reduction by offering financial support to project proponents who wish to demonstrate the potential of such innovation[50]. No First Nation participated in the program.

Écoperformance and Biomasse forestière résiduelle (residual forest biomass) programs

ÉcoPerformance aims to reduce GHG emissions and the energy consumption of enterprises by financing projects or measures related to energy consumption and production, as well as by improving processes. For its part, the residual forest biomass program aims to reduce GHG emissions and the consumption of fossil fuels by financing energy conversion projects to residual forest biomass[51].

In total, since 2008-2009, eight First Nations enterprises, institutions or communities have submitted projects to either the Écoperformance program or the residual forest biomass program. The projects submitted have made it possible to reduce GHGs in an outfitting operation, maple groves, an arena, service stations and buildings belonging to communities.

Overall findings

Although the data remains to be improved, it is possible to note a significant under-representation of First Nations in terms of participation in most of the TEQ programs. The Éconologis program is a departure from the trend with good First Nations participation. As part of the work of the TEQ-First Nations Committee, it will therefore be important to examine the obstacles to participation in TEQ programs, as well as the aspects that have fostered good participation by First Nations in the Éconologis program.

[50] TEQ, 2019b.
[51] TEQ, 2019a.

2.5.3 First Nations issues in relation to programs

No comprehensive analysis seems to have been conducted to date within the government to clarify the specific reasons explaining the low participation rate of First Nations in energy transition programs. However, certain findings can already help to understand the issues of the First Nations in relation to this situation.

A document of recommendations produced by the FNQLSDI[52], which results from discussions between the First Nations and the Commission sur les enjeux énergétiques du Québec, presents findings regarding the participation of First Nations in funding programs. This document provides avenues for reflection to understand the challenges faced by First Nations in relation to programs, in particular those offered by TEQ (formerly the Bureau de l'efficacité et de l'innovation énergétiques).

In this document, communication concerning these programs, eligibility criteria, program structure and the harmony of the programs with the interests and needs of the communities were identified as the main elements to be improved in order to promote community access to the service offer.

It was also noted that the people in the communities are not very familiar with provincial programs, that communication with the communities is not adapted, that program registration and accountability are too complex and that the eligibility criteria, funding structure and the nature of the program incentives are not adapted to the realities of many First Nations (i.e., programs that are inaccessible to band councils, registration deadlines that are too short, funding that is awarded to projects that are too large in relation to the capacities of communities, etc.). Furthermore, other obstacles such as the lack of human resources in the communities limits their ability to apply for programs. As a result, communities sometimes need to hire consultants to help them submit funding applications, which involves significant costs.

Furthermore, as part of the work of the TEQ-First Nations Committee, it was noted during the discussions that harmonization between the programs offered by the various government bodies is not always ensured. Federal and provincial departments and agencies are not always aware of all the programs offered by their counterparts and they are not always coordinating in order to inform the communities, even for programs that could be combined. These findings suggest that First Nations may be missing out on several available programs.

Despite all this preliminary information, the issue of program adaptability should be reviewed in more depth in order to clearly define the issues facing First Nations in relation to government programs in energy transition.

[52] FNQLSDI, 2014-a.

Missing data: Existing measures and programs

> The reasons behind the low participation rate of First Nations in certain programs in Quebec and how to better adapt the programs to the needs and realities of First Nations, where appropriate.
> The characteristics of the programs that have facilitated their application in the communities. The programs that are most and least adapted to the needs and realities of the communities.

2.6 Laws, regulations, codes and strategies

This section presents the laws, regulations, codes and strategies deployed and controlled by the state in relation to First Nations buildings and with regard to energy in buildings.

2.6.1 In Quebec

Minimum energy efficiency requirements for new buildings:

> *Construction Code*
> *Regulation respecting energy conservation in new buildings* (1983)

Government strategies related to building energy transition:

> 2018-2023 Energy Transition, Innovation and Efficiency Master Plan
> 2030 Energy Policy
> 2013-2020 Climate Change Action Plan (CCAP)

2.6.2 At the federal level

Laws governing First Nations land management:

> *Indian Act*
  – 34 sections governing land management
  – Section 89 limits access to private property on reserves
> *First Nations Land Management Act* (FNLMA) in the context of the First Nations Land Management Framework Agreement

Requirements for new buildings:

> *Energy Efficiency Act and Canada's Energy Efficiency Regulations*
> *National Building Code* (2015)
> *National Energy Code for Buildings* (2015)

Government strategies related to buildings:

> National Housing Strategy

- Pan-Canadian Framework on Clean Growth and Climate Change – "Built Environment" chapter (2016)[53]
  - One of its objectives consists of "supporting building codes and energy efficient housing in Indigenous communities."
  - This framework, which is signed by Quebec, will generate work with the various levels of government to develop and adopt, as of 2020, increasingly stringent building codes.
  - Governments will work with Indigenous peoples to move towards more efficient building standards and building retrofit programs that integrate the issue of energy efficiency.

2.6.3 First Nations

- Through the *First Nations Land Management Act* (FNLMA), certain communities in Canada have avoided the provisions of the Indian Act. Some of them now have their own land codes, such as the Abenaki community of Wôlinak. These land codes facilitate access to property and compliance with construction and environmental standards by and for communities.
- Cree Nation Housing Strategy
  - Amendment made in 2019 to the Cree Nation Governance Agreement which "will help create a private home ownership market for Crees on their land."[54]
- Regional Housing and Infrastructure Strategy – being developed as part of the work of the Regional Tripartite Housing Committee [55].

2.7 Examples of First Nations success stories and innovative practices

Many innovative initiatives fostering positive change have been implemented by First Nations in Quebec and elsewhere in Canada to promote the energy transition of residential and community buildings in the communities. These initiatives deserve to be better known and shared in order to facilitate a better understanding of their scope and draw from them to implement energy transition measures that are appropriate for the Indigenous communities. The following section presents some examples of success stories from communities across the country.

[53] Government of Canada, 2016.
[54] Cree Nation Government, 2019.
[55] AFNQL, 2019.

2.7.1 First Nations initiatives in Quebec

Through the research and discussions of the TEQ-First Nations Committee, it has been observed that few communities in Quebec are promoting projects that have worked well in terms of building energy transition. Here are a few examples of inspiring initiatives:

> In Whapmagoostui, the greenhouse and sports centre were converted to biomass heating and cooling with the help of the ecoENERGY program intended for Indigenous and northern communities[56].

> The Mohawk Council of Akwesasne has invested in energy efficient improvements for 54 community equipment items in partnership with Ecosystem[57].

> Inauguration in Val-d'Or of 24 new social housing units that meet Novoclimat certification standards for low-income Indigenous families [58].

> The Kanata Healthy House is an innovative pilot project for the construction of ecological and energy-efficient housing that was carried out in Kahnawake in 2001[59]. The house has the following characteristics: insulation with straw bales; passive solar energy strategy; mixed radiant floor heating; solar water heater; no emission materials.

> A guide on "Energy efficiency and green energy among First Nations"[60] was developed by the FNQLSDI in order to improve the energy efficiency of homes. It is translated into three Indigenous languages.

> A four-day training program on energy efficiency, insulation, health and general renovation was provided by the Legault-Dubois firm in collaboration with Mamit Innuat, Mamuitun and CMHC.

[56] Indigenous and Northern Affairs Canada, 2015.
[57] Mohawk Council of Akwesasne, 2017.
[58] SHQ, 2018.
[59] Government of Canada, 2004.
[60] FNQLSDI, 2014-b.

2.7.2 First Nations initiatives elsewhere in Canada

> The "G'wiigwaamnaaniin"[61] pilot project focused on capacity-building and the construction of homes that meet the First Nations Sustainable Development Standards (FNSDS) was conducted by the Atikameksheng Anishnawbek community in Ontario with its partners. The FNSDS is a management guide for the design and construction of housing by and for First Nations. The FNSDS integrates energy efficient and green technologies, while taking into account the training needs of communities, the natural environment and the cultural specificities of communities in the design of houses.

> In 2009 and 2010, the community of Akwesasne carried out phase 2 of its Sunrise Acres Elderly Complex project, which involved the construction of 20 housing units built from high energy efficiency materials and heated with renewable energies (solar and geothermal). The project was carried out in partnership with the Department of Energy's Office of Indian Energy[62].

> The pan-Canadian non-profit organization Indigenous Clean Energy aims to be a platform to facilitate the transition of Indigenous communities to clean energy. It offers the 20/20 Catalysts Program featuring a six-day training course that supports members of Indigenous communities in developing renewable energy projects through mentorship.

2.7.3 Innovative practices in other Canadian provinces

Several provinces have funded energy efficiency, GHG emission reduction and renewable energy programs that are specifically intended for the Indigenous communities. The following are a few examples:

Alberta

> The Alberta Indigenous Community Energy [63] program offered detailed building energy consumption assessments to estimate potential savings and reductions in GHG emissions if improvements were made to community buildings in the province.

> The Alberta Indigenous Energy Efficiency (Retrofit)[64] program funded energy efficiency improvements for new and existing buildings owned by Band Councils.

[61] AFN, 2014.
[62] Akwesasne Housing Authority, 2018.
[63] Alberta Government, 2018a.
[64] Alberta Government, 2018b.

British Columbia

> Thanks to the First Nations Energy Efficiency Building Policy Program[65], a pilot project was developed between BC Hydro and the province's Ministry of Energy, Mines & Petroleum Resources to ensure that energy efficiency standards are met for housing in the First Nations communities. The program aimed to update building policies, improve understanding of energy efficiency measures and their costs and benefits, and explore innovative financing mechanisms.

> Managed by the Fraser Basin Council, the First Nations Home EnergySave Program[66] supports Indigenous organizations to reduce energy use, share success stories, build local capacity and foster the community's economic development. Among other things, the program offers training to better build homes or renovate them to make them more energy efficient.

Ontario

> The Indigenous Community Energy Plan[67] program offered by Independent Electricity System Operator (IESO) supports First Nations communities to develop and maintain an energy plan. This program particularly aims to improve energy efficiency, reduce the energy consumption of buildings, help communities to consider the opportunities for implementing renewable energies and improve awareness and knowledge transfer among community members in this regard.

> The Community Energy Champion[68] program offered by IESO provides funding to First Nations communities to hire a designated energy champion for the community to help plan, implement and assess energy priorities.

[65] British Columbia Government, 2019.
[66] Fraser Basin Council, 2019.
[67] IESO, 2018.
[68] IESO, 2019.

3 FINDINGS

The analysis of the information in this document and the discussions held in the context of the TEQ-First Nations Committee in collaboration with experts from First Nations and from provincial and federal government departments and agencies made it possible to establish findings on the state of the energy situation of residential and community buildings of the First Nations in Quebec. Although this document does not offer exhaustive information and the absence of certain data prevents the establishment of a real community energy portrait, this diagnosis highlights overall findings experienced by the First Nations. As each community is different, certain findings apply more to some than to others.

Table 11 presents the findings that make it possible to draw a portrait of the energy situation related to the residential and community buildings of the First Nations in Quebec. The findings were classified using the SWOT analysis method to distinguish strengths, weaknesses, opportunities and threats. Strengths and weaknesses are generally internal to communities. As for the opportunities and threats, they are external factors related to the environment surrounding the First Nations building sector, whether at the political, ecological, economic, socio-cultural, technological or legal levels. The elements of the table are divided between the focus areas presented below:

- Governance and socio-economic context;
- Financing and service offer;
- State of the building stock and potential for energy efficiency and reduction of GHG emissions;
- Awareness, training and capacity-building;
- Available data.

Table 11: Findings related to Strengths, Weaknesses, Opportunities and Threats (SWOT)

Strengths	Weaknesses	Opportunities	Threats
Governance and socio-economic context			
> Band Council housing departments are often well established in the communities > The building issue is a priority for the Band Councils	> Building management does not always prioritize energy efficiency issues > Lack of human resources to take care of building management in the communities > Limited real estate market > Limited access to private property > Difficulties related to borrowing from banking institutions > Socioeconomic differences and housing shortages: quantity can sometimes take precedence over the quality of new housing	> Development of construction standards by and for First Nations (FN) in other provinces (e.g., standards for sustainable development of the FN in Ontario) > Existence of partnerships between communities, Crown corporations and different levels of government for energy efficiency projects (e.g., British Columbia) > Land tenure systems developed by several First Nations in Canada facilitating access to property and compliance with construction and environmental standards > In Quebec and Canada, desire to strengthen the application of stricter energy efficiency standards in the construction of buildings	> Relational challenges between FNs and government authorities for other energy-related subjects > More difficult socio-economic context for certain communities, especially those in remote regions: few sources of external income for Councils > Transporting materials is complex and very expensive for remote communities resulting in increased construction costs
Financing and service offer			
> Band Council housing departments are often well established in the communities > Housing issue dealt with at the AFNQL level, in consultation with governmental partners; many meetings organized on this issue	> Dependence of communities on federal funding due to lack of revenue sources for certain Band Councils to finance housing renovations and construction > Lack of awareness of some programs	> Better penetration of programs in communities that have a resource person with expertise > Reflection on the development of the TEQ service offer (new government body created to support and coordinate the	> Little participation by FNs in several financing programs for energy transition > Existing federal and provincial programs are not adapted to the needs and ambitions of the communities

Strengths	Weaknesses	Opportunities	Threats
	> Low participation rate in programs > Insufficient human resources and external support to apply to programs and monitor energy consumption and progress in terms of energy efficiency > Difficulty obtaining financing for renovations since the houses cannot be used as loan collateral > High turnover rate in the housing sectors > Not enough qualified contractors in the communities	energy transition and promote energy efficiency) > Significant diversity in terms of energy efficiency and renovation service offer (Rénorégion, Novoclimat, Rénoclimat, etc.) > Partnerships between communities, Crown corporations and governments for energy efficiency projects (e.g., BC) > Economic development through training and the implementation of energy efficiency measures > AFNQL meetings on housing: possible channel to publicize the service offer and discuss funding	> Eligibility criteria, funding structures and the nature of the incentives sometimes seem unsuited to the realities of FNs > Lack of streamlining and cohesion between the funding programs of the different levels of government > Communication of programs that seems inadequate to inform the communities > Socioeconomic context and different realities (e.g., remote regions, not accessible by road, peri-urban, etc.) among the communities, so certain measures cannot be uniform and adapted to all > Financial support that does not keep up with the growing needs in renovation and construction > Lots of documents or tests before participants can be eligible for the programs > Costs related to improving the energy situations of buildings
State of the building stock and potential for energy efficiency and reduction of GHG emissions			
> The majority of communities use a renewable energy source since they are connected to the Hydro-Québec network > Qualified human resources in construction for certain communities	> Other priority needs in the communities before energy efficiency > Major renovation needs > Significant need for new units, particularly in terms of community residential buildings	> FN communities conducive to the development of energy measures contributing to the achievement of government targets in energy efficiency and reduced use of petroleum products	> Low cost of electricity for communities connected to the Hydro-Québec network, making energy efficiency interventions less profitable for owners

Strengths	Weaknesses	Opportunities	Threats
> Existence of a technical resource group (ISC, Mamit Innuat, Mamuitun, Conseil de la Nation Atikamekw) > Willingness of FNs to protect their territory, the environment being a priority	> Due to the major need for new housing units, the communities choose to build more buildings rather than build fewer buildings that are more energy-efficient > Poor quality of construction and housing materials for some community residential buildings > Some councils are required to manage a large and aging building stock > Non-compliance with national building construction standards in the past, among other things due to the lack of qualified human resources > Accelerated deterioration of buildings due to overcrowding, difficult access to property, non-compliance with building standards and financing that does not keep up with the growing funding needs > Some communities are still relying on hydrocarbons and their energy consumption is increasing with the demographic growth > Autonomous networks: have to use fuel oil, high cost of modifying systems, health or environmental risks > Lack of qualified human resources in construction for certain communities	> Renovation needs representing opportunities for energy-efficient renovations > Possibility of substantial energy savings through energy-efficient renovations > Needs for new units representing opportunities for the construction of energy efficient and ecological buildings > Many technological improvements available on the market > Community building inspections carried out in particular to ensure compliance with construction standards for new buildings (ACRS report) > Upward fluctuation in fuel costs > Reduction of environmental impacts > Strengthening of the application of energy-efficient norms and standards > Several FN-specific programs to promote energy saving, energy efficiency and the development of renewable energies are offered in several provinces > Standards developed by and for FNs in other provinces > Significant diversity in the energy efficiency and renovation service offer	> Lack of land available in certain communities for new construction > High cost of servicing land > Vulnerability of housing to climate change > Transport of materials is very expensive for remote communities, particularly those that are difficult to access by road and those that are not accessible at certain times of the year > No aggregation of information on programs offered in energy efficiency > Variation in the use of technologies (e.g., heating systems, lighting, materials, etc.); some are too complex to apply and others do not receive the required maintenance > Depletion of money available for programs > Some communities are not connected to the hydroelectric grid, which makes it difficult to convert their energy source to a renewable energy source (this is an opportunity to focus more on energy efficiency measures in these communities)

Strengths	Weaknesses	Opportunities	Threats
		(Rénorégion, Novoclimat, Rénoclimat, etc.) > Several research projects between universities and communities, such as CURA-Tetauan and “Habiter au nord du 49e parallel”, were conducted so that Innu and Inuit living environments can be more sustainable and culturally adapted to the communities	
Awareness, training and capacity-building			
> Young population > Inspirational and innovative projects in energy efficiency in several communities that can be used as examples > Great willingness of FNs to innovate > Strong sensitivity to climate change issues > Awareness programs (e.g., Éconologis) already delivered in several communities > Community of practice: There is a community of practice on the Internet for First Nations housing managers > Communication by community radio stations works well > Ability of FNs to recreate success stories	> Insufficient awareness on the maintenance of housing and energy consumption habits > Little in the way of sharing between communities of inspiring projects > Lack of a broader community of practice on energy transition issues > Lack of awareness of the benefits of energy efficiency > Insufficient human resources and expertise within the communities > Not all communities have a champion to set an example and raise awareness among those around them > Less tangible socio-economic benefits of energy efficient work on reserve (bills paid by tenants)	> Training available for an attestation of college studies in housing management for Quebec FNs offered at Cégep Garneau (by FNs, for FNs) > Training available in energy-efficient construction to develop expertise in communities > Awareness programs offered by government departments and agencies > Climate change is becoming increasingly important in terms of social concerns and government decisions, and there is a desire to reduce GHG emissions and improve energy efficiency (2030 Energy Policy, Pan-Canadian Framework, etc.) > Opportunity to develop the capacities of young people in the communities	> History of a difficult relationship with certain government departments and agencies: potential obstacle to raising awareness > Need for more training and awareness programs > Other priority needs in the communities taking precedence over energy efficiency > Misunderstanding of people’s energy habits and vision > Tools to raise community awareness are poorly adapted, for example, they are not always translated into Indigenous languages (10), which creates a language barrier > Conflict between environmental reality and desires > Insufficient funding

Strengths	Weaknesses	Opportunities	Threats
	> Efforts are not always concerted between the different communities > Lack of resources for rigorous monitoring of consumption and progress in terms of energy efficiency > The high turnover of staff, including technical professionals and housing managers, hinders the development of local capacities	> ISC and CMHC: development of Indigenous potential and capacities at all levels > Opportunity to make a connection with energy in all the AFNQL's strategies (report on housing needs, tripartite table, etc.).	> Limits to awareness given the different geographic contexts of FNs (e.g., to acquire more energy efficient materials) > Balance to be struck between the level of training, the specializations required and the volume of work for each specialization (if several people are trained in a specific field, there may be insufficient work in the same community to occupy them all year round). On the other hand, there are many construction jobs available in the communities and there are certain needs for additional training (e.g., in energy efficiency). > FNs are overwhelmed with surveys, which has an influence on the number of responses.
Available data			
> Inventory of certain available residential buildings including energy efficiency and renovation costs (e.g., Mamit Innuat)	> Lack of a recent inventory of innovative regional initiatives > Lack of compilation of data on the consumption of different energy sources in the communities and their proportion in the energy balance of a community (electricity, biomass, diesel, etc.) > Lack of data on the consumption habits of FNs	> Data on the consumption of electricity in certain reserves > Access to comprehensive inspection data on the renovation needs of community buildings (ACRS) > Needs for new housing units are well-documented (Report of the AFNQL on housing needs) > Development of housing training by the Groupe ressources techniques	> Knowledge of residential parks is limited, with sometimes divergences in the sources, and lack of compilation of data specific to Indigenous people > The ACRS data does not highlight information regarding energy in buildings (energy efficiency, consumption, etc.)

Strengths	Weaknesses	Opportunities	Threats
		> FNQLSDI data regarding the vulnerability of communities to climate change	

4 ISSUES

The analysis of the findings presented previously made it possible to define the issues of the First Nations with regard to the energy transition of their residential and community buildings. Based on these issues, the TEQ-First Nations Committee identified those that are priorities and which it will have to address in the development of the first action plan on energy transition, innovation and efficiency that is specific to First Nations in order to implement consistent and promising measures. Without setting aside the other issues, this prioritization allows the measures to be properly focused on current issues whose windows of opportunity for action are realistic for the coming years.

4.1 Priority issues related to residential and community buildings

Governance and socio-economic context

1. Diversity of First Nations needs according to the socio-economic context:
   - > Diversity between communities depending on the socio-economic and geographic context: urban and remote communities, connected and not connected to the Hydro-Québec network, etc.
   - > Disparities with the rest of Quebec society

This is a cross-cutting issue that will have to be taken into account in the development of all measures.

Funding and service offer

2. Adaptation of the service offer to the specific needs of the First Nations:
   - > Adaptation of the requirements and participation criteria
   - > Upstream participation and take-over by the First Nations
   - > Flexibility and definition of the needs
3. Funding assured for a sustainable energy transition
4. Linkages between the levels of government and government agencies for the service offer

Awareness, training and capacity-building

5. Awareness of the energy transition for different First Nations audiences (community members and young people, band councils, technical staff):
   - > Highlighting of the advantages and benefits of energy efficiency
   - > Changes in behaviour
   - > Development of leadership, of a champion
   - > Exemplariness of band councils
6. Development of energy transition expertise and capacity in the communities

Energy efficiency potential in the communities is recognized as an implicit issue in the implementation of promising measures aiming to ensure the energy transition of residential and community buildings for First Nations.

4.2 Other issues to consider

Governance and socio-economic context

> Consistency in the governance of the energy transition in the residential sector (at both the government and band council levels)
> Integration of the energy transition into building management (by the band councils at the strategic and technical levels)
> Improvement of community well-being
> Cultural and linguistic specificities
> Basic needs that are sometimes not met (renovation, construction, energy efficiency)

Funding and service offer

> First Nations participation in the programs offered for energy transition (communication and human resources issues)

State of the building stock and potential for energy efficiency and reduction of GHG emissions

> Control of regulatory requirements for the construction and renovation of buildings
> Introduction of simple and uncomplicated means to improve energy efficiency
> Maintaining the gains achieved by implementing programs and measures focused on energy efficiency and reducing GHG emissions within communities
> Adaptation of community buildings with a view to energy transition and improving living conditions
> Limitation of energy growth

Available data

> Availability and monitoring of energy data for First Nations buildings

Implementation of the action plan

> Sustainability of the measures to be implemented
> Obtaining social acceptability for the measures to be implemented
> Take-over of the energy transition by the communities

LIST OF REFERENCES

Indigenous and Northern Affairs Canada. 2015. “Previously selected projects by ecoENERGY for Aboriginal and Northern Communities Program: Year 5: 2015-2016”, https://www.aadnc-aandc.gc.ca/eng/1334855478224/1334856305920

Indigenous and Northern Affairs Canada. 2013. “Land Management”, https://www.aadnc-aandc.gc.ca/eng/1100100034737/1100100034738

Akwesasne Housing Authority. 2018. “Combining Affordable Housing with Energy Efficiency & Solar Power”, https://www.energy.gov/sites/prod/files/2018/03/f49/retha-akwesasne.pdf

Alberta Government. 2018-a. “Alberta Indigenous Community Energy Program guidelines”, (Publications), https://open.alberta.ca/publications/aicep-guidelines

Alberta Government. 2018-b. “Alberta Indigenous Energy Efficiency (Retrofit) Program guidelines”, (Publications), https://open.alberta.ca/publications/aieerp-guidelines

AFN (Assembly of First Nations). 2014. “Atikameksheng Anishnawbek, Assembly of First Nations and The Holmes Group Celebrate Completion of the “G'WIIGWAAMNAANIIN” Project […]”, https://www.afn.ca/atikameksheng-anishnawbek-assembly-of-first-nations-and-the-holmes-gro/

AFNQL (Assembly of First Nations Quebec-Labrador). 2019. “File: Regional Tripartite Committee on Housing”, [Online] https://apnql.com/en/regional-tripartite-housing-committee/

British-Columbia Government. 2019. “First Nations Energy Efficiency Building Policy Program”, https://www2.gov.bc.ca/gov/content/industry/electricity-alternative-energy/community-energy-solutions/first-nations-energy-efficiency-building-policy-program

Standing Senate Committee on Aboriginal Peoples. 2015-a. “Housing on First Nations Reserves: Challenges and Successes”, Senate, 41st Parliament, 2nd session

Standing Senate Committee on Aboriginal Peoples. 2015-b. “On-Reserve Housing and Infrastructure: Recommendations for Change”, Senate, 41st Parliament, 2nd session

FNQLHSSC (First Nations of Quebec and Labrador Health and Social Services Commission). 2018. “Quebec First Nations Regional Health Survey – 2015: Housing”. Wendake: FNQLHSSC

Cree Nation Government. 2019. “Canada and Cree Nation of Eeyou Istchee join efforts to support Cree Housing Strategy”, https://www.cngov.ca/canada-and-cree-nation-of-eeyou-istchee-join-efforts-to-support-cree-nation-housing-strategy/

Fraser Basin Council. 2019. “First Nations Home EnergySave”, https://www.fraserbasin.bc.ca/First_Nations_Home_EnergySave.html

Front d’action populaire en réaménagement urbain. 2018. “Logement et pauvreté au Québec : Dossier noir”, 7th edition, http://www.frapru.qc.ca/wp-content/uploads/2018/06/Dossier-Noir-2018.pdf

Government of Canada. 2016. “Pan-Canadian Framework on Clean Growth and Climate Change: Canada’s plan for climate change”, Environment and Climate Change Canada.

Government of Canada. 2004. “Sharing the Story: Aboriginal and Northern Energy Experiences”, (Publications of the Government of Canada), http://publications.gc.ca/Collection/R2-259-2003F.pdf

Hydro-Québec. 2019-a. “Consumption based on the home’s specific features”, Tool to calculate consumption, http://www.hydroquebec.com/residential/customer-space/electricity-use/tools/electricity-use.html

Hydro-Québec. 2019-b. “Estimate the electricity cost of a home”, *Customer space*. https://session.hydroquebec.com/portail/web/clientele/estimation-consommation

Hydro-Québec. 2019-c. “Rates for business customers”, *Customer space,* http://www.hydroquebec.com/business/customer-space/rates/

Hydro-Québec. 2019-d. “Rate DM, *Customer space,* http://www.hydroquebec.com/residential/customer-space/rates/rate-dm.html

Hydro-Québec. 2019-e. “Rate G”, *Customer space,* http://www.hydroquebec.com/business/customer-space/rates/rate-g-general-rate-small-power.html

Hydro-Québec. 2019-f. “Rates for residential customers (domestic rates)”, Customer space*,* http://www.hydroquebec.com/residential/customer-space/rates/

Hydro-Québec. 2017. “Annual Report 2017”, *Official publications*, http://www.hydroquebec.com/data/documents-donnees/pdf/annual-report-2017.pdf

Hydro-Québec. 2010. “Annual Report 2010”, *Official publications*, http://www.energybc.ca/cache/largehydro/largehydro5/www.hydroquebec.com/publications/en/annual_report/pdf/rapport-annuel-2010.pdf

FNQLSDI (First Nations of Quebec and Labrador Sustainable Development Institute). 2014-a. “Viser l’amélioration globale de l’efficacité énergétique et l’implantation d’énergies vertes chez les Premières Nations”, recommendations document presented to the Bureau de l’efficacité et de l’innovation énergétiques

FNQLSDI (First Nations of Quebec and Labrador Sustainable Development Institute). 2014-b. “Energy Efficiency and Green Energy among First Nations”, http://iddpnql.ca/wp-content/uploads/2017/03/livret-efficacite-energetique-final.pdf (French only)

IESO (Independent Electricity System Operator). 2019. « Community Energy Champion (CEC) Program: Program guidelines », http://www.ieso.ca/Get-Involved/Funding-Programs/Community-Energy-Champion-Program/CEC-Overview

IESO (Independent Electricity System Operator). 2018. “Indigenous Community Energy Plan (ICEP) Program : Program guidelines”, http://www.ieso.ca/Get-Involved/Funding-Programs/Indigenous-Community-Energy-Plan-Program/Program-Documents-and-Resources.

L’Institut de la statistique du Québec. 2018. “Évolution de la population totale et de la population dans les ménages privées et les familles de recensement, Québec, 1951-2016”, *Statistiques et publications*, http://www.stat.gouv.qc.ca/statistiques/population-demographie/familles-menages/tableau_01.htm

Latouche, Guy (for the Assembly of First Nations Quebec-Labrador). 2020. “Housing needs of First Nations in Quebec and Labrador”, update of the 2014 report with 2018 data, unpublished document.

Latouche, Guy (for the Assembly of First Nations Quebec-Labrador). 2014. “Housing needs of First Nations in Quebec and Labrador”, Gaston St-Pierre et associés inc.

Indian Act (RSC (1985), c. I-5)

Loi sur le ministère des Services aux Autochtones (L.C. (2019), ch. 29, art. 336).

Ministère de l’Environnement et de la Lutte contre les changements climatiques. 2018. “Inventaire québécois des émissions de gaz à effet de serre en 2016 et leur évolution depuis 1990”, http://www.environnement.gouv.qc.ca/changements/ges/2016/inventaire1990-2016.pdf

Mohawk Council of Akwesasne. 2017. “Renewable Energy: Reducing GHG Emissions” (presentation, Discussion form with the Indigenous communities, December 5, 2017)

SAA (Secrétariat aux Affaires autochtones). 2017. “Carte des communautés autochtones du Québec”, http://www.autochtones.gouv.qc.ca/nations/cartes/carte-8x11.pdf

SAA (Secrétariat aux affaires autochtones). 2015. “Statistiques des populations autochtones du Québec 2015”, *Profil des nations*, http://www.saa.gouv.qc.ca/nations/population.htm

ISC (Indigenous Services Canada). 2019. “First Nation Community Infrastructure”, https://www.sac-isc.gc.ca/eng/1100100010567/1521125219538

CMHC (Canada Mortgage and Housing Corporation). 2019. “First Nations Development Funding”, https://www.cmhc-schl.gc.ca/fr/developing-and-renovating/funding-opportunities/funding-first-nations-development

SHQ (Société d’habitation du Québec). 2018. “Inauguration de 24 nouveaux logements sociaux pour familles autochtones à faible revenu à Val-d’Or”, http://www.habitation.gouv.qc.ca/medias/communiques_de_presse/communique_de_presse/article/inauguration_de_24_nouveaux_logements_sociaux_pour_familles_autochtones_a_faible_revenu_a_val_dor.html

SHQ (Société d’habitation du Québec). 2016. “Améliorer les conditions d’habitation des peuples autochtones”. http://www.habitation.gouv.qc.ca/fiches_de_projet/fiches_informatives/ameliorer_les_conditions_dhabitation_des_peuples_autochtones.html

Statistics Canada. 2017. “The housing conditions of Aboriginal people in Canada”, https://www12.statcan.gc.ca/census-recensement/2016/as-sa/98-200-x/2016021/98-200-x2016021-eng.cfm

Statistics Canada. 2017. “Focus on Geography Series”, 2016 Census. Statistics Canada Catalogue no. 98-404-X2016001. Ottawa, Ontario. Data Products, 2016 Census

Statistics Canada. 2016-a. “Focus on Geography Series”, 2016 Census : Aboriginal Peoples – Province of Quebec”, https://www12.statcan.gc.ca/census-recensement/2016/as-sa/fogs-spg/Facts-pr-eng.cfm?LANG=Eng&GK=PR&GC=24&TOPIC=9

Statistics Canada. 2016-b. “Aboriginal peoples in Canada: Key results from the 2016 Census”, https://www150.statcan.gc.ca/n1/daily-quotidien/171025/dq171025a-eng.htm?indid=14430-2&indgeo=0

TEQ (Transition énergétique Québec). 2019a. “Business”, https://transitionenergetique.gouv.qc.ca/en/business

TEQ (Transition énergétique Québec). 2019b. “Innovation”, https://transitionenergetique.gouv.qc.ca/en/innovation

TEQ (Transition énergétique Québec). 2019c. “Residential”, https://transitionenergetique.gouv.qc.ca/en/residential

TEQ (Transition énergétique Québec). 2019d. Statistics on program participation (internal data).

TEQ (Transition énergétique Québec). 2018-a. “Fiche diagnostic/enjeux: bâtiment commercial et institutionnel”, http://transitionenergetique.gouv.qc.ca/fileadmin/medias/pdf/consultation/Fiche-diagnostic-Consultation-TEQ-BCI

TEQ (Transition énergétique Québec). 2018-b. “Fiche diagnostic/enjeux : bâtiment résidentiel”, https://transitionenergetique.gouv.qc.ca/fileadmin/medias/pdf/consultation/Fiche-diagnostic-Consultation-TEQ-batiment-residentiel.pdf

TEQ (Transition énergétique Québec). 2018-c. “Conjuguer nos forces pour un avenir énergétique durable : Plan directeur en transition, innovation et efficacité énergétique”, https://transitionenergetique.gouv.qc.ca/fileadmin/medias/pdf/plan-directeur/TEQ_PlanDirecteur_web.pdf

APPENDIX 1

Some information about the population of the First Nations communities

Nation	Community	Population[69]			Administrative region where the community is located	Connected to the Hydro-Québec network
		Resident	Non-resident	Total		
Abenaki, Abenaqui)	Odanak	302	2,206	2,508	Centre du Québec, St. Lawrence south shore	Yes
	Wôlinak	108	360	468	Centre du Québec, St. Lawrence south shore	Yes
Algonquin	Wolf Lake (Hunter's Point)	0	235	235	Abitibi-Témiscamingue	Yes
	Kebaowek (Eagle Village)	293	711	1,004	Abitibi-Témiscamingue	Yes
	Kitcisakik	381	123	504	Abitibi-Témiscamingue	Off grid, generators
	Kitigan Zibi Anishinabeg	1,606	1,684	3,290	Outaouais	Yes
	Barriere Lake (Rapid Lake)	593	200	793	Outaouais	Off grid, generators
	Lac-Simon	1,870	270	2,140	Abitibi-Témiscamingue	Yes
	Abitibiwinni (Pikogan)	582	493	1,075	Abitibi-Témiscamingue	Yes
	Timiskaming	639	1,552	2,191	Abitibi-Témiscamingue	Yes
	Winneway (Long Point)	478	410	888	Abitibi-Témiscamingue	Yes
Atikamekw (Attikamek)	Manawan	2,497	458	2,955	Lanaudière	Yes
	Opitciwan (Obedjiwan)	2,431	591	3,022	Haute-Mauricie	Autonomous network, diesel power plant
	Wemotaci	1,474	495	1,969	Haute-Mauricie	Yes
Cree[70]	Chisasibi	4,493	67	4,560	Nord du Québec, banks of James Bay	Yes
	Eastmain	*	*	798	Nord du Québec, banks of James Bay	Yes
	Mistissini	3,688	124	3,812	Nord du Québec, inland	Yes
	Nemiscau (Nemaska)	784	59	843	Nord du Québec, inland	Yes
	Oujé-Bougoumou	811	79	890	Nord du Québec, inland	Yes

[69] Latouche, 2020.

[70] The update of the AFNQL report with 2018 data indicates that there are 18,055 residents of the Cree Nation and 2,572 non-residents, for a total of 20,627. As the data presented here for each Cree community is not available in the AFNQL report, this data comes from the Secrétariat aux affaires autochtones and from 2015.

Nation	Community	Population[69]			Administrative region where the community is located	Connected to the Hydro-Québec network
		Resident	Non-resident	Total		
	Waskaganish	2,382	452	2,834	Nord du Québec, banks of James Bay	Yes
	Waswanipi	1,866	424	2,290	Nord du Québec, inland	Yes
	Wemindji	1,471	56	1,527	Nord du Québec, banks of James Bay	Yes
	Whapmagoostui	*	*	981	Nord du Québec, banks of Hudson Bay	Autonomous network, three diesel generators operated by Hydro-Québec
Huron-Wendat	Wendake	1,496	2,556	4,052	Capitale-Nationale	Yes
Innu (Montagnais)	Pessamit	2,833	1,153	3,986	Côte-Nord	Yes
	Essipit	212	543	755	Côte-Nord	Yes
	Unamen Shipu (La Romaine)	1,122	72	1,194	Côte-Nord	Autonomous network, diesel thermal power station, connection planned for 2021
	Pekuakamiulnuatsh (Mashteuiatsh)	2,070	4,643	6,713	Lac-Saint-Jean	Yes
	Matimekush–Lac John (Matimekosh-Lac John)	828	176	1,004	Côte-Nord, close to Schefferville	Autonomous hydroelectric network
	Ekuanitshit (Mingan)	600	46	646	Côte-Nord	Yes
	Nutashquan	1,046	110	1,156	Côte-Nord	Yes
	Pakua Shipu (Pakuashipi)	356	26	382	Côte-Nord	Autonomous hydroelectric network
	Uashat Mak Mani-Utenam	3,537	1,129	4,666	Côte-Nord	Yes
Malecite	Cacouna and Whitworth	0	912	912	Bas-Saint-Laurent, near Rivière-du-Loup and Cacouna	Yes
Mi'gmaq (Micmac)	Gespeg	0	820	820	Gaspésie	Yes
	Gesgapegiag	691	844	1,535	Gaspésie	Yes
	Listuguj	2,075	1,982	4,057	Gaspésie	Yes
Kanien'kehá:ka (Mohawk)	Kahnawà:ke (Kanawake)	7,924	3,075	10,999	Montérégie	Yes
	Kanesatake	1,380	1,180	2,560	Montérégie	Yes
	Akwesasne (QC)	*	*	*	Laurentides	Yes
Naskapi	Kawawachikamach	920	493	1,413	Nord du Québec, near Schefferville	Autonomous hydroelectric network

* Data not available

APPENDIX 2

Proportions of housing types and property regimes in the First Nations communities [71]

Communities	Properties	Share of single-family housing	Share of townhouse and semi-detached housing units	Share of duplex, triplex and quadruplex housing units	Share of multiple housing of 6 units or more
Abenaki (Abenaqui)					
Odanak	Private	82%	0%	9%	0%
	Community	1%	2%	6%	0%
Wôlinak	Private	84%	0%	0%	0%
	Community	0%	2%	4%	10%
Algonquin					
Wolf Lake (Hunter's Point)	Private	-	-	-	-
	Community	-	-	-	-
Kebaowek (Eagle Village)	Private	64%	3%	0%	0%
	Community	1%	24%	0%	8%
Kitcisakik	Private	57%	0%	0%	0%
	Community	43%	0%	0%	0%
Kitigan Zibi	Private	94%	0%	0%	0%
	Community	6%	0%	0%	0%
Barriere Lake (Rapid Lake)	Private	0%	0%	0%	0%
	Community	93%	0%	0%	7%
Lac-Simon	Private	0%	0%	0%	0%
	Community	96%	1%	2%	0%
Abitibiwinni (Pikogan)	Private	0%	0%	0%	0%
	Community	86%	10%	0%	0%

[71] All data presented is from Indigenous Services Canada via the Asset Condition Reporting System (ACRS) dating from 2018. Data could not be collected for the communities of the Cree Nation, the Naskapi Nation and the Maliseet Nation as well as for other communities such as Wolf Lake, Gespeg and Akwesasne.

Communities	Properties	Share of single-family housing	Share of townhouse and semi-detached housing units	Share of duplex, triplex and quadruplex housing units	Share of multiple housing of 6 units or more
Timiskaming	Private	61%	0%	0%	0%
	Community	26%	0%	12%	0%
Winneway (Long Point)	Private	0%	2%	0%	0%
	Community	0%	98%	0%	0%
Atikamekw (Attikamek)					
Manawan	Private	2%	0%	0%	0%
	Community	67%	10%	3%	19%
Opitciwan (Obedjiwan)	Private	6%	0%	0%	0%
	Community	62%	9%	7%	10%
Wemotaci	Private	1%	0%	0%	0%
	Community	48%	12%	20%	20%
Huron-Wendat					
Wendake	Private	75%	0%	16%	2%
	Community	1%	0%	0%	5%
Innu (Montagnais)					
Pessamit	Private	4%	0%	0%	0%
	Community	88%	0%	7%	1%
Essipit	Private	64%	2%	0%	0%
	Community	5%	2%	6%	21%
Unamen Shipu (La Romaine)	Private	0%	0%	0%	0%
	Community	86%	5%	0%	0%
Pekuakamiulnuatsh (Mashteuiatsh)	Private	71%	6%	5%	0%
	Community	1%	0%	10%	5%
Matimekush–Lac John (Matimekosh-Lac John)	Private	0%	0%	0%	0%
	Community	63%	21%	6%	3%
Ekuanitshit (Mingan)	Private	6%	0%	0%	0%
	Community	63%	12%	9%	11%

Communities	Properties	Share of single-family housing	Share of townhouse and semi-detached housing units	Share of duplex, triplex and quadruplex housing units	Share of multiple housing of 6 units or more
Nutashquan (Natashquan)	Private	1%	0%	0%	0%
	Community	84%	7%	7%	0%
Pakua Shipu (Pakuashipi)	Private	0%	0%	0%	0%
	Community	66%	15%	5%	0%
Uashat Mak Mani-Utenam (Uashat-Maliotenam)	Private	29%	0%	0%	0%
	Community	63%	0%	6%	2%
Mi'gmaq (Micmac)					
Gespeg	Private	-	-	-	-
	Community	-	-	-	-
Gesgapegiag	Private	46%	0%	0%	0%
	Community	38%	0%	14%	2%
Listuguj	Private	64%	0%	0%	0%
	Community	26%	0%	10%	0%
Kanien'kehá:ka (Mohawk)					
Kahnawà:ke (Kahnawake)	Private	94%	0%	2%	1%
	Community	1%	1%	0%	0%
Kanesatake	Private	100%	0%	0%	0%
	Community	0%	0%	0%	0%
Akwesasne (QC)	Private	-	-	-	-
	Community	-	-	-	-
TOTAL		**85%**	**4%**	**7%**	**4%**
% of the community share by type of housing for all communities		44%	88%	68%	89%
% of the private share by type of housing for all communities		56%	12%	32%	11%

N. B.: The data presented remain approximations and may present certain errors which stem, among other things, from the way in which the data was compiled in the communities.

APPENDIX 3

Building construction and renovation programs

PROGRAM	DESCRIPTION
Provincial level	
SHQ	
Rénovation Québec	Support for municipalities to improve housing in residential areas that have deteriorated (renovation, construction, adaptation).
RénoRégion	Support for low-income owners and tenants living in rural areas to carry out work to correct major deficiencies in their homes.
Federal level	
ISC	
Ministerial Loan Guarantees*	Loans for the construction, purchase or renovation of housing on reserve. Ministerial loan guarantees provide the loan guarantee required by lenders who finance on-reserve housing loans.
First Nations Infrastructure Fund*	Helps First Nations communities modernize and develop their public infrastructure to improve their quality of life and their environment.
Indigenous Homes Innovation Initiative*	Funding of projects led by indigenous peoples to design and build more efficient, sustainable and culturally inspired living spaces intended for communities. Focuses on models that can be replicated in other communities to reduce overcrowding, improve the quality of buildings and address housing shortages.
First Nations Housing*	Helps provide more and better housing in the communities. Provides funds to build or renovate housing, or to pay for maintenance, insurance, debt service, or planning and managing a housing portfolio.
Capital Facilities and Maintenance Program*	Aims to support First Nations community infrastructure on reserve. Objectives: optimize the life cycle of goods; reduce health and safety risks; ensure that assets meet applicable codes and standards and that they are managed in a cost-effective and efficient manner.
CMHC	
Insured Loans for On-Reserve First Nation Housing*	Helps First Nations people living on reserves to obtain funding for housing projects, either to buy, build or renovate a single house or a rental apartment building.
On-Reserve Non-Profit Housing Program*	Financial assistance to build affordable rental housing on reserve. Provides grants and loans to build, purchase and restore housing and to manage non-profit housing.
Residential Rehabilitation Assistance Program*	Assistance offered to First Nations to pay for major repairs to non-compliant housing, either for homes lacking essential facilities or requiring major repairs for safety reasons.
Residential Rehabilitation Assistance Program – Conversion (RRAP-C)*	Assistance to convert non-residential buildings into autonomous and affordable housing.

* Programs marked with an asterisk are designed specifically for Indigenous people. The others are applicable to the general population.

APPENDIX 4

Energy efficiency and GHG emission reduction programs

Residential buildings – Advisory services and grants

PROGRAM	DESCRIPTION
Provincial level	
TEQ	
Éconologis	Advisory services intended for low-income households. Offers personalized advice and light work related to energy efficiency. May include installation of electronic thermostats and refrigerator replacements.
Rénoclimat	Advisory services to guide renovations to improve energy performance in homes. Financial assistance for insulation, waterproofing, replacement of doors and windows and the installation or replacement of mechanical systems to reduce energy consumption.
Heating with Green Power	Subsidies to replace fossil fuel heating and water heating systems with systems powered by electricity or other renewable sources of energy. Only offered to homes connected to the Hydro-Québec network or to a municipal or cooperative network.
Novoclimat	Financial assistance for the buyer and contractor of a Novoclimat certified superior energy performance home. Financial assistance for the developers of Novoclimat certified small and large multi-unit buildings.
Hydro-Québec	
Innovative projects	Financial assistance for developers and builders to encourage them to carry out projects that optimize the energy consumption of buildings through the use of high-performance technologies and the installation of innovative electromechanical systems.
Energy retrofit for low-income households	Reductions for community housing energy bills through subsidies for the implementation of energy saving measures (thermostats, lighting appliances, laundry appliances) and the integration of other measures during renovations (thermal envelope, electromechanical system).
Efficient use of energy in autonomous networks	Subsidy aiming to limit the demand for electricity at the thermal power plant and encourage customers who have electricity to convert to fuel oil and propane.
MELCC	
Climat municipalités – Phase 2	Financial assistance to test and disseminate technical or social solutions that will help reduce communities' GHG emissions or increase their resilience to climate change. It also focuses on capacity-building.
Federal level	
RNCan	
Multi-sectoral Projects to Drive Demand for Energy Efficiency and Conservation in Canada	Call for projects testing innovative multi-sectoral approaches to help homeowners make a home more energy efficient, help foster the purchase of highly energy efficient homes and stimulate the adoption of new ways to save energy. Allows for reducing GHG emissions.

Community buildings – Grants

PROGRAM	DESCRIPTION
Provincial level	
TEQ	
Technoclimat	Support for technological innovation in energy efficiency, renewable energy, bioenergy or reduction of GHG emissions or to test technology that is not on the Quebec market or barely present.
ÉcoPerformance	Supports companies, institutions and municipalities that consume fossil fuels or use processes that generate fugitive GHG emissions in order to analyze and implement energy efficiency and conversion projects.
Hydro-Québec	
Efficient use of energy in autonomous networks	Subsidy to limit the demand for electricity at the thermal power plant and encourage customers who have electricity to convert to fuel oil and propane.
Power demand management	Subsidy to encourage customers in the commercial and institutional markets as well as small and medium-sized industrial enterprises to reduce the demand for power from their buildings during the winter peak periods of Hydro-Québec. In return, Hydro-Québec pays these customers financial support proportional to the amount of reduced power during these periods. Not available to autonomous networks.
Effective solutions	Financial support to implement predefined energy efficiency measures as part of the simplified offer.
Technological and commercial demonstration	Subsidy to validate the technical or commercial applicability of innovative electrical energy saving measures or power demand optimization. Demonstration projects related to energy efficiency and power demand management carried out in Quebec are eligible. Self-production projects are ineligible.

Awareness and information programs

PROGRAM	DESCRIPTION
Provincial level	
Hydro-Québec	
Be Energy Wise	Website offering advice to help understand consumer consumption, choose the best energy-efficient products, and take steps to reduce electricity bills. Promotes the adoption of environmentally friendly behaviours and habits.
Dare to Compare	Website offering the possibility of completing a questionnaire on electricity consumption habits. The results of the questionnaire then allow you to compare yourself with others and receive advice and tips to make the home more efficient.
Cégep Garneau (Quebec)	
Techniques en gestion de l'habitation pour les Premières Nations au Québec *	Training to acquire knowledge and develop practical skills to manage housing projects, activities and programs to meet the needs of First Nations. Allows for understanding the fundamental elements of construction and renovation.

Federal level	
CMHC	
Housing Internship Initiative for First Nations and Inuit Youth *	Helps First Nations businesses and organizations create housing internships for young people interested in housing maintenance, construction, renovation and advisory services.

* Programs marked with an asterisk are designed specifically for Indigenous people. The others are applicable to the general population.

APPENDIX 5

Number of housing units in 28 First Nations communities in 2016

Communities	Housing units	Communities	Housing units
Cacouna	1	Ekuanitshit	149
Essipit	118	Nutashkuan	211
Gesgapegiag	257	Opitciwan	352
Kahnawà:ke	2 111	Odanak	220
Kanesatake	459	Pakua Shipu	68
Kebaowek	126	Pessamit	752
Kitcisakik	0	Pikogan	153
Kitigan Zibi	521	Timiskaming	200
Lac-Simon	319	Uashat Mak Mani-Utenam	942
Barriere Lake	74	Unamen Shipu	242
Listuguj	793	Wemotaci	253
Manawan	351	Wendake	696
Mashteuiatsh	707	Winneway	89
Matimekush-Lac John	188	Wôlinak	94

Source: Indigenous Services Canada

APPENDIX 6

Evolution of the electricity consumption between 2010 and 2017 for First Nations communities supplied by Hydro-Québec in the residential sector

Community	2010-2017 consumption evolution	Evolution in the number of places of consumption for 2010-2017	Consumption by place of consumption in 2017 (kWh)	Evolution of consumption by place of consumption 2010-2017
Akwesasne	15%	10%	17,736	4%
Chisasibi	19%	11%	33,574	7%
Eastmain	15%	2%	31,451	13%
Ekuanitshit (Mingan)	40%	24%	20,838	13%
Essipit	21%	14%	19,326	7%
Gesgapegiag	27%	0%	23,805	27%
Kahnawà:ke (Kahnawake)	10%	8%	21,261	2%
Kanesatake	22%	17%	21,933	4%
Kawawachikamach	56%	33%	33,448	18%
Kebaowek (Eagle Village)	29%	17%	17,722	10%
Kitigan Zibi	16%	7%	18,259	8%
Listuguj	36%	15%	22,229	18%
Manawan	14%	10%	23,121	4%
Mashteuiatsh	21%	10%	19,662	10%
Matimekush (Matimekosh)	60%	43%	29,244	11%
Mistissini	17%	6%	25,159	11%
Nutashquan (Natashquan)	17%	0%	28,643	17%
Nemaska	12%	-1%	27,322	13%
Odanak	10%	-5%	20,374	16%
Opitciwan (Obedjiwan)	17%	6%	10,547	11%
Oujé-Bougoumou	27%	16%	10,098	10%
Pakua Shipu (Pakuashipi)	9%	-9%	25,769	20%
Pessamit	9%	6%	21,265	3%
Abitibiwinni (Pikogan)	18%	4%	20,704	13%
Timiskaming	8%	4%	20,243	3%
Uashat Mak Mani-Utenam	23%	16%	22,295	6%
Unamen Shipu (La Romaine)	15%	9%	25,694	6%
Waskaganish	38%	8%	23,949	28%
Waswanipi	13%	1%	25,623	12%
Wemotaci	77%	2%	17,404	74%
Wendake	17%	21%	19,308	-3%

Whapmagoostui	49%	29%	8,801	16%
Winneway (Long point)	70%	69%	16,778	0%
Wôlinak	-1%	11%	16,919	-11%
Others	10%	-4%	22,352	14%
N/A	7%	6%	18,512	1%
Evolution of the overall consumption of First Nations / Average consumption by place of consumption kWh)	17%	8%	21,888	8%

Source: Hydro-Québec

1. **N/A or other:** The source data does not identify the community of the account manager.

2. **Missing communities:** Some communities are missing from the data. This can be explained by three causes. First, the Maliseet community has an official territory (Cacouna-Whitworth) on which no one lives. As for the Gespeg community, it has no official territory. For the other communities that have official reserves with no consumption in one or more sectors, this can be caused by a problem related to matching with the right community, a change in consumption category over time (e.g., from commercial consumption to business), or an absence of a First Nations identifier in the system for this community. These causes in particular make it so that there is a significant margin of error.

APPENDIX 7

Evolution of the electricity consumption between 2010 and 2017 for First Nations communities supplied by Hydro-Québec in the commercial sector

Community	2010-2017 consumption evolution	Community	2010-2017 consumption evolution
Akwesasne	-24%	Opitciwan (Obedjiwan)	-34%
Chisasibi	-29%	Oujé-Bougoumou	-57%
Eastmain	70%	Pakua Shipi (Pakuashipi)	-100%
Ekuanitshit (Mingan)	119%	Pessamit	-8%
Gesgapegiag	-33%	Abitibiwinni (Pikogan)	11%
Kahnawà:ke (Kahnawake)	20%	Timiskaming	-6%
Kanesatake	71%	Uashat and Mani-Utenam	96%
Kawawachikamach	-34%	Unamen Shipu (La Romaine)	5%
Kebaowek (Eagle Village)	5%	Waskaganish	65%
Kitigan Zibi	13%	Waswanipi	-13%
Listuguj	36%	Wemotaci	-19%
Manawan	31%	Wendake	14%
Mashteuiatsh	-29%	Whapmagoostui	0%
Matimekush (Matimekosh)	114%	Winneway (Long Point)	65%
Mistissini	40%	Wôlinak	90%
Nemaska	26%	Others	31%
Nutashquan (Natashquan)	15%	N/A	115%
Odanak	-12%	Evolution of overall consumption by First Nations	22%

Source: Hydro-Québec

1. N/A or other: The source data does not identify the community of the account manager.

2. Missing communities: Some communities are missing from the data. This can be explained by three causes. First, the Maliseet community has an official territory (Cacouna-Whitworth) on which no one lives. As for the Gespeg community, it has no official territory. For the other communities that have official reserves with no consumption in one or more sectors, this can be caused by a problem related to matching with the right community, a change in consumption category over time (e.g., from commercial consumption to business), or an absence of a First Nations identifier in the system for this community. These causes in particular make it so that there is a significant margin of error.

APPENDIX 8

Evolution of the electricity consumption between 2010 and 2017 for First Nations communities supplied by Hydro-Québec in the business sector

Community	2010-2017 consumption evolution	Community	2010-2017 consumption evolution
Akwesasne	1%	Opitciwan (Obedjiwan)	7%
Chisasibi	40%	Oujé-Bougoumou	30%
Eastmain	76%	Pakua Shipu (Pakuashipi)	32%
Ekuanitshit (Mingan)	52%	Pessamit	23%
Essipit	24%	Abitibiwinni (Pikogan)	13%
Gesgapegiag	16%	Timiskaming	58%
Kahnawà:ke (Kahnawake)	3%	Uashat and Mani-Utenam	36%
Kawawachikamach	106%	Unamen Shipu (La Romaine)	6%
Kebaowek (Eagle Village)	7%	Waskaganish	44%
Kitigan Zibi	20%	Waswanipi	54%
Listuguj	29%	Wemindji	77%
Manawan	48%	Wemotaci	113%
Mashteuiatsh	-12%	Wendake	28%
Matimekush (Matimekosh)	72%	Whapmagoostui	-8%
Mistissini	28%	Winneway (Long point)	53%
Nutashquan (Natashquan)	35%	Wôlinak	32%
Nemaska	157%	Others	25%
Odanak	44%	N/A	39%
		Evolution of overall consumption by First Nations	32%

Source: Hydro-Québec

1. **N/A or other:** The source data does not identify the community of the account manager.

2. **Missing communities:** Some communities are missing from the data. This can be explained by three causes. First, the Maliseet community has an official territory (Cacouna-Whitworth) on which no one lives. As for the Gespeg community, it has no official territory. For the other communities that have official reserves with no consumption in one or more sectors, this can be caused by a problem related to matching with the right community, a change in consumption category over time (e.g., from commercial consumption to business), or an absence of a First Nations identifier in the system for this community. These causes in particular make it so that there is a significant margin of error.

APPENDIX 9

Summary of the missing data[72]

	Missing data
General portrait	General > Number of new constructions per year or per construction wave.
Portrait of infrastructures	Residential and community buildings > Inventory of the work to be carried out on housing relating to energy efficiency and data on energy efficiency.
Energy consumption profile	> Consumption according to use (proportion of the total consumption allocated to heating water, premises, lighting, equipment).
Energy source	> Proportion of consumption from energy sources other than electricity (fuel oil, natural gas, biomass, etc.) and the number of dwellings and community buildings whose energy comes from these sources.
Energy efficiency	> Lots of data is missing in order to establish the energy efficiency of buildings, for example: waterproofing and insulation, total energy consumption, floor area, number of devices used per residential building.
Consumption habits	> Behaviours in relation to energy consumption. > Individuals' perceptions of housing and energy. > The interests and aspirations of communities with regard to energy. > The impact of the geographic location of communities on consumption habits. > The definition of an energy efficient home in different communities. For example: What are the cost-benefits? What does this mean for a community in a specific area?
GHG emissions	> Distribution of GHG emissions produced by communities by form of energy (for community and residential sectors).
Measures and programs	> The reasons behind the low participation rate of First Nations in certain programs in Quebec and how to better adapt the programs to the needs and realities of First Nations, if necessary. > The characteristics of the programs that have facilitated their application in the communities. > The programs that are most and least adapted to the needs and realities of the communities.

[72] The TEQ and the TEQ-First Nations Committee do not undertake to fill all the data gaps or conduct the necessary studies to collect the missing data.