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Joining forces for a sustainable energy future

2018-2023 energy transition, innovation and efficiency master plan

Objectives and roadmaps

Québec

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The future starts here

Message from the President and CEO

In accordance with the *Act respecting Transition énergétique Québec*, I am pleased to submit the 2018—2023 Energy Transition, Innovation and Efficiency Master Plan entitled *Joining forces for a sustainable energy future*.

Public policies serve an undeniable role and purpose—to make society a better place and to help it advance by plotting a course. And so it was with great pride that I accepted the mandate entrusted to me by the government to execute the energy transition to which Québec is committed, a transition that will generate economic prosperity and collective wealth.

The Master Plan is a framework for a vast project that will guide us through the energy transition, which is already impacting us all, to a low-carbon future. It won't be an easy road. It will require of every individual, organization, and business unflagging effort and changes in behaviour, perhaps even a rethinking of the way we live. But, at the same time, it seeks to address the expectations of Quebecers, who aspire to an environmentally responsible society, one in which their quality of life will be improved.

The culmination of combined efforts by government departments and agencies, energy distributors, and the TEQ team, the plan strives to rally all Quebecers and reflect the expectations and desires of the actors and partners for whom it was designed. We received a host of innovative ideas and constructive suggestions during the process, and we sincerely hope the Master Plan will provide plenty of food for thought as well as inspiration to take action.

With a view to transparency, Transition énergétique Québec will produce an annual report on the plan's progress, successes, and challenges, allowing Quebecers to see for themselves how it is being implemented and to contribute to its improvement.

I would like to thank the members of the board of directors for their support and extend my special thanks to the members of the Stakeholders Table for the willingness and openness they showed in accompanying and guiding us through the Master Plan preparation process. The team at Transition énergétique Québec is committed to continuing on that same path.

Johanne Gélinas

President and CEO
Transition énergétique Québec

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Introduction

Transition énergétique Québec (TEQ) is a public corporation created in 2017 under the *Act respecting Transition énergétique Québec* to ensure Québec's transition to a low-carbon, energy-efficient future. It is also tasked to ensure a global and integrated governance with coordinating the initiatives to be rolled out in the coming years to meet this goal. One of the means set out in the Act to provide this governance is the drafting of an energy transition, innovation, and energy efficiency master plan for Québec.

This first plan, which covers the period from 2018 to 2023, was prepared by Transition énergétique Québec (TEQ) in cooperation with the various stakeholders and drew on recognized best practices to meet the government's expectations. In drafting the document, TEQ conducted a careful examination of the issues faced by those societies already in the midst of the energy transition as well as an in-depth analysis of the situation in Québec.

In Order in Council 537-2017 adopted on June 7, 2017, the government stipulates that TEQ shall continue to move forward in its master plan with the priorities set out in Québec's 2030 Energy Policy (QEP 2030) by considering energy efficiency as the primary energy focus and by facilitating the consumption of clean energy by all users. It also states that the master plan must make it possible to meet the targets in the energy policy and in its related action plan.

The provisions of the order in council explicitly set out a number of additional objectives that TEQ had to keep in mind when drafting its master plan:

- Increase access to clean energy for households, businesses, municipalities, and institutions
- Reduce the energy consumption of households, businesses, municipalities, and institutions, especially Québec's public institutions
- Enhance technological innovations in energy efficiency and in renewable energy production and consumption
- Support the decarbonization of the transport of people and goods, notably through the use of electric vehicles or those that consume low-carbon fuel

Lastly, the government stipulated that, by the end of the 2018-2023 period, two targets must have been met:

- Québec's average energy efficiency must have improved by 1% annually.
- Total consumption of petroleum products must have decreased by at least 5% compared to 2013.

The master plan meets the requirements set out in *the Act respecting Transition énergétique Québec*. It includes an overview of Québec's energy situation, the policy directions to which TEQ adheres, a description of the sector-based or theme-based measures and programs selected, the names of the organizations in charge of these measures and programs, as well as a description of their anticipated impacts. Other elements of the plan include a timeline, a list of innovation priorities, budget estimates, and financial contributions by energy distributors to implement the plan. In addition, the plan explains exactly how it will enable Québec to meet its 2030 targets.

The master plan was prepared in close cooperation with government departments and agencies as well as energy distributors so as to optimize the selected measures and programs. Considerable effort went into soliciting the participation of Quebecers and interested parties, ensuring the incorporation of various public policies, and supporting the work of the Stakeholders' Table.

Not only is the plan in keeping with the priorities set out in Québec's 2030 Energy Policy and with the energy targets Québec hopes to meet by 2030, it also contains measures that could be included in the second and third master plans, as well as initiatives that will need to be developed in the coming years in order to prepare them. Lastly, the master plan stresses that the government must set the example in its own practices.

Five pillars of the Energy Transition, Innovation and Efficiency Master Plan:

1

It is based on the socioeconomic, energy and environmental situation in Québec

The plan factors in Québec's huge renewable energy potential and energy-intensive industries. Its aims are not only to improve the quality of life of Québec's citizens and strengthen the protection of the environment, but also to foster optimal socioeconomic development.

2

It lays the foundations for the energy transition

The government plots the course and determines the destination for each sector. Its master plan sets the pace with appropriate measures that will enable Québec to achieve its energy targets.

3

It is progressive and prospective

During the 2018-2023 period, subsequent master plans will be prepared and innovative solutions will be developed to achieve the next targets.

4

It is irreversible

In 2023, for the first time ever, more than half of Québec's energy needs will be met by renewable energy sources. This is a point of no return in Québec's energy transition that should allow us to gradually eliminate oil from our energy balance by 2050.

5

It encourages consensus and draws on combined strengths

This plan is the product of cooperation between Transition énergétique Québec, government departments and agencies, and energy distributors, but was also subject to an extensive public consultation, and requires the active participation of all actors involved in the energy transition.

The energy transition refers to the gradual abandonment of fossil fuel energy in favour of various forms of renewable energy. It also refers to changes in behaviour in the interest of eliminating excess energy consumption and waste and creating a culture of energy efficiency.

Québec's energy transition vision

Québec will constantly strive to achieve greater energy efficiency, promote the use of renewable energy sources, optimize energy innovation efforts, prioritize public awareness and education, and ensure the government acts in an exemplary manner by becoming a pioneer in environmentally friendly initiatives. It intends to achieve this with the support of its citizens and the help of its many private sector and institutional partners.

By pursuing its energy transition with ingenuity and responsible behaviour, Québec will reach its goal of meeting the vast majority of its needs with renewable energy in 2030 and be able to provide green energy solutions to other regions of the world that seek them. In doing so, it will also meet the objectives of decarbonizing its economy.

General guidelines for action until 2030

General guidelines

TEQ's planning process is underpinned by six strategic priorities deemed essential to the success of Québec's energy transition.

1 / Recognize energy efficiency as a priority energy source

2 / Reduce Québec's dependence on oil products

3 / Provide strong support for innovation in the energy sector

4 / Develop the full potential of renewable energies

5 / Strengthen the governance and accountability of the government

6 / Support economic development

Roadmaps for the transition through 2023

1/ Objectives and measures of sector-based themes

2/ The First Nations

3/ Objectives and measures of cross-sectoral themes

4/ Exemplarity of the government

This chapter sets out the objectives and measures contained in the 2018–2023 master plan, by sector of activity. It takes the form of a series of roadmaps that describe the progressive application of key measures and milestones put in place to meet the targets set out in the 2030 Vision. Although the emphasis is on the first master plan, each roadmap also includes milestones for the second and third plans.

Each roadmap also features a list of measures selected for that particular area of activity. Appendix VI lists all the measures as well as the organizations in charge and the anticipated impacts.

We opted for this approach in order to:

- Highlight the specific features of each sector and their contribution to the 2030 Energy Policy targets
- Maintain focus on the state of the energy transition in 2030, by sector, as envisioned by the government
- Provide an overview of the coordinated efforts made by government departments and agencies, and energy distributors to meet the 2030 Energy Policy targets and objectives
- Facilitate the planning, organization, and monitoring of work to be done in the coming years
- Allow people to make the objectives of the master plan their own and to take part in implementing them

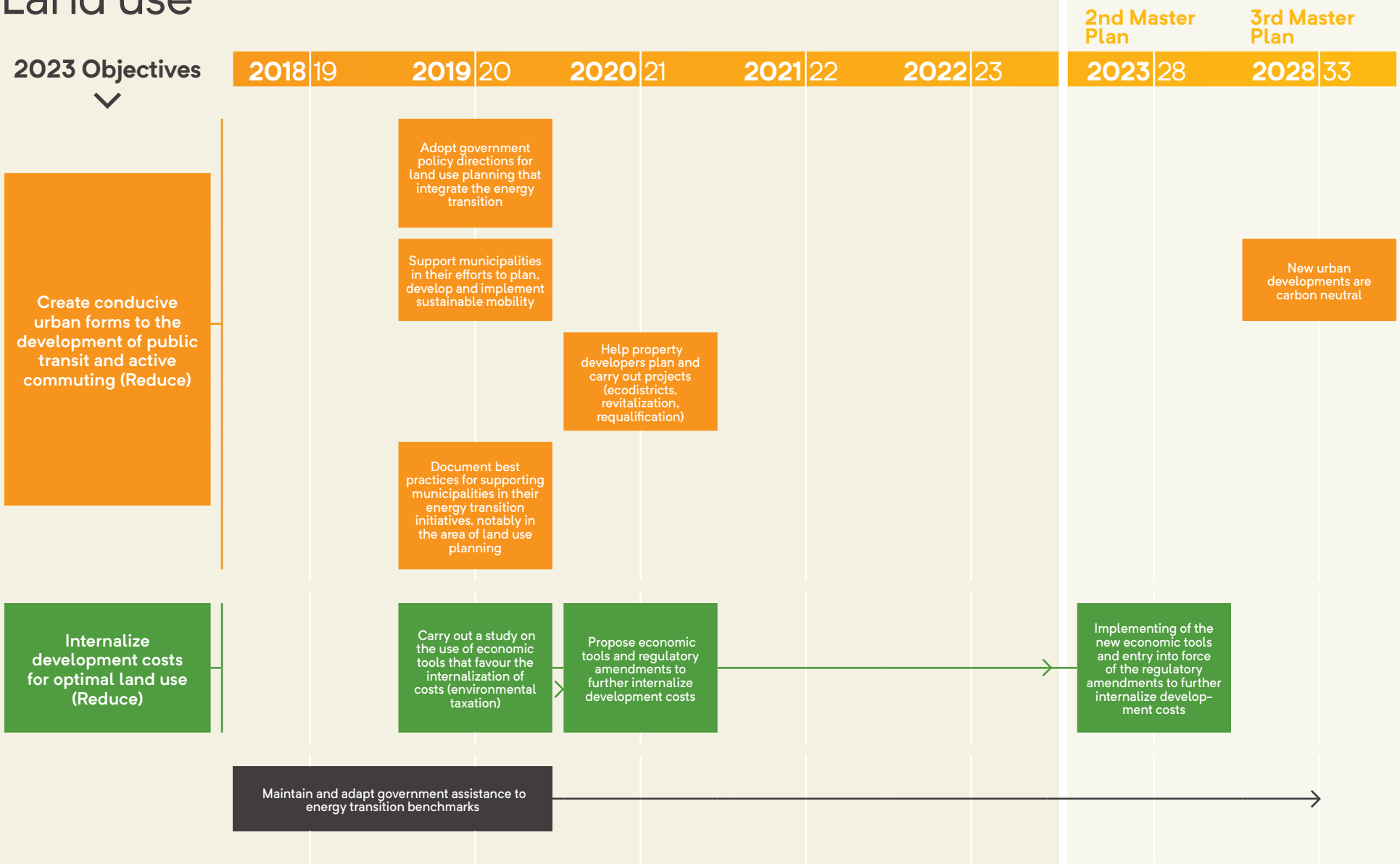
The roadmaps are presented in the following order:

- First is “Land Use,” given its key contribution to the energy transition over the long term
- Next are “Road Transport” and “Industry” because of their importance in Québec’s energy balance and the amount of GHG emissions they produce
- These are followed by “Residential, Commercial, and Institutional Buildings” and “Off-grid power systems,” owing to the fact their transition will require a number of shared actions
- After that is “Bioenergy,” the cornerstone of a progressive transition toward renewable energy sources by the abovementioned sectors
- Then comes “Innovation,” whose priorities are directly linked to the challenges faced by the different sectors
- Next are the main cross-sectoral themes, i.e., “Funding of the energy transition,” “Knowledge acquisition,” “Awareness raising, Promotion, and Education,” and “Range of programs and services,” which are all key to the success of the master plan
- This is followed by “Exemplarity of the government,” which speaks to the crucial role the government has to play in getting Quebecers on board and providing them with the tools they need to build a low-carbon economy
- Last are measures concerning “The First Nations,” who are in a particularly unique situation

2030 Vision
for Land Use

For an integrated approach to land use and transport: Municipalities and metropolitan communities will use the leverage available to them to consolidate and densify living environments and will be accountable for the energy costs associated with their choices.

Roadmap
Land use



Summary Table
Land use measures

Objective 1: Create conducive urban forms to the development of public transit and active commuting (Reduce)

Adopt government policy directions for land use planning that integrate the energy transition	The government will adopt new policy directions for land use planning that deal with the sustainable development of living environments, including measures promoting sustainable mobility so as to reduce the need for motorized trips and distances to be travelled.
Support municipalities in their efforts to plan, develop and implement sustainable mobility	Improve municipal land use planning from an energy transition viewpoint: > Provide assistance to municipalities to undertake integrated transportation planning on their territory (integrated sustainable mobility plans). > Provide financial assistance to municipalities for the sustainable development of living environments.
Help property developers plan and carry out projects (ecodistricts, revitalization, requalification)	Provide financial assistance to property developers to encourage them to develop sustainable projects (ecodistricts, revitalization, requalification) that generate energy, environmental and social benefits
Document best practices for supporting municipalities in their energy transition initiatives, notably in the area of land use planning	In collaboration with local stakeholders, propose actions and measures aimed at the development of living environments that incorporate the various principles of the energy transition.

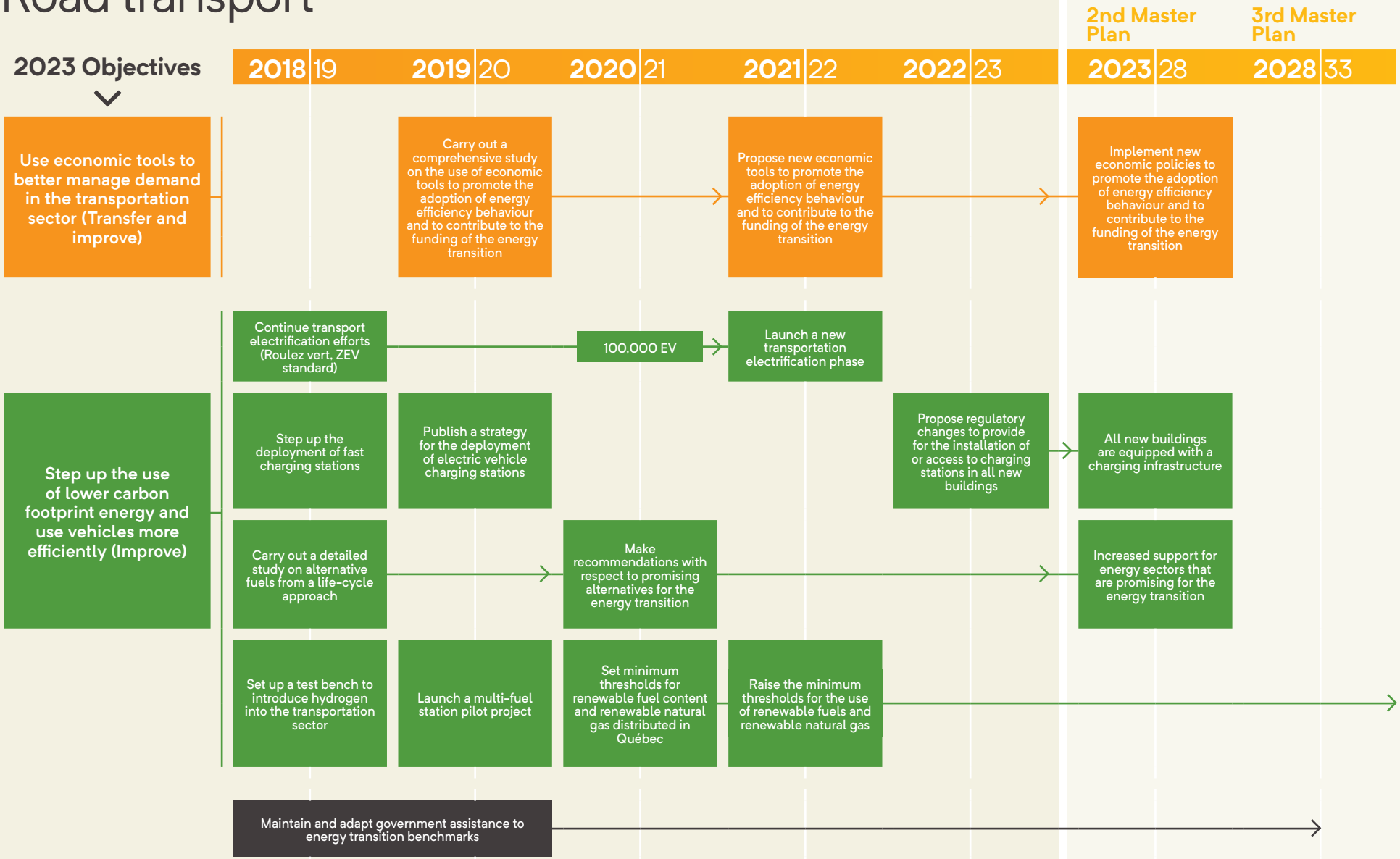
Objective 2: Internalize development costs for optimal land use (Reduce)

Carry out a study on the use of economic tools that favour the internalization of costs (environmental taxation) and propose new tools to achieve this objective	Carry out a detailed study on the various principles of environmental taxation that have an impact on the location of companies and houses in order to promote, over the longer term, a user-pay or polluter-pay approach. In collaboration with municipal representatives, propose new tools to achieve these objectives.

2030 Vision
for Road Transport

Other governments will look to Québec for inspiration regarding innovative ideas in road transport.

Roadmap
Road transport



Summary Table
Road transport measures

Objective 1: Use economic tools to better manage demand in the transportation sector (Transfer and improve)

Carry out a comprehensive study on the use of economic tools to promote the adoption of energy efficiency behaviour and to contribute to the funding of the energy transition	Carry out a detailed study on various economic tools that could be used to promote a user-pay or polluter-pay approach in order to improve the management of transportation demand. The relevant tools will be assessed in depth in the Québec context, notably pay-per-kilometre insurance, road pricing or road user charges (city tolls) and parking cash-out. New tools could be proposed.

Objective 2: Step up the use of lower carbon footprint energy and use vehicles more efficiently (Improve)

Continue transport electrification efforts then begin a new phase	Implement the next step of the commitment of the Government of Québec to transport electrification by examining the market landscape, changes in the behaviour of consumers and the arrival of new, more affordable electric vehicles. > Maintain the Roulez électrique component of the Roulez vert program, which offers financial assistance for the acquisition of a new electric vehicle and for the acquisition and installation of a 240 V home charging station. > Continue to implement the Regulation respecting the application of the *Act to increase the number of zero-emission motor vehicles in Québec* (ZEV standard) *in order to reduce greenhouse gas and other pollutant emissions*.
Publish a strategy for the deployment of electric vehicle charging stations	Determine the priorities and areas of intervention with respect to the charging of electric vehicles with a view to adopting a strategic approach that responds to all needs and takes technological and market developments into account. This strategy will ensure consistency between current and future measures.
Step up the deployment of fast charging stations	Step up the installation of fast charging stations over the next five years.
Deploy charging stations at curbsides and in the parking lots of multi-unit residential buildings	Offer financial assistance to encourage the installation of charging stations in the parking lots of multi-unit residential buildings and new office buildings as well as at curbside locations, and work on new charging solutions for electric vehicles.

Objective 2: Step up the use of lower carbon footprint energy and use vehicles more efficiently (Improve) / cont'd

Maintain the Branché au travail component of the Roulez vert program	Maintain the Branché au travail component of the Roulez vert program, which offers financial assistance for the acquisition and installation of a charging station in the workplace for employee and company vehicles.
Propose regulatory changes to provide for the installation of or access to charging stations in all new buildings	Evaluate the possibility of using a regulatory approach to make it mandatory to install charging stations in the parking lots of new buildings. If desirable, propose amendments, notably to the *Québec Construction Code and Safety Code*. The issue of the right of condominiums to possess charging stations will also be examined.
Launch a pilot project to install charging infrastructures in vehicle fleet parking lots	Carry out pilot projects to test charging infrastructures in electric vehicle fleet parking lots in order to assess potential technical and operational issues before proceeding with large-scale implementation (needs of users, impact on the power grid, etc.).
Carry out a detailed study on alternative fuels from a life-cycle approach and make recommendations with respect to promising alternatives for the energy transition	Carry out a study on potential reductions in GHG emissions from the use of alternative fuels (compressed or liquid natural gas, propane, hydrogen, electricity and biofuels) compared to conventional fuels, gasoline and diesel fuel, taking into account the types of engine and environmental and economic aspects based on their life-cycle. In light of the results, propose modifications to current measures or propose new measures, as warranted.
Set up a test bench to introduce hydrogen into the transportation sector	Carry out a pilot project to introduce hydrogen-fueled vehicles and develop the conditions required to test this technology: > Mandate the Bureau de normalisation du Québec to develop a regulatory and normative framework to ensure public safety during the construction of hydrogen production, storage and distribution units. > Establish an advisory committee to coordinate the initiatives of the main stakeholders and determine the desired type of development over the short-, medium- and long-terms. > Carry out a feasibility study to set the stage for the development of a clean hydrogen production sector and to position Québec in this market. Other projects could emerge following this first pilot project.
Launch a multi-fuel station pilot project	Carry out a pilot project to give drivers access to a variety of fuels (gasoline, biofuels, natural gas, propane, electricity, hydrogen) at outlets that will be initially set up in locations with a very strong potential for use, and then throughout Québec.
Set minimum thresholds for renewable fuel content and renewable natural gas distributed in Québec	Regulate the minimum renewable content of diesel fuel, gasoline and natural gas. Rapidly increase the minimum compulsory content and repeat on a regular basis.

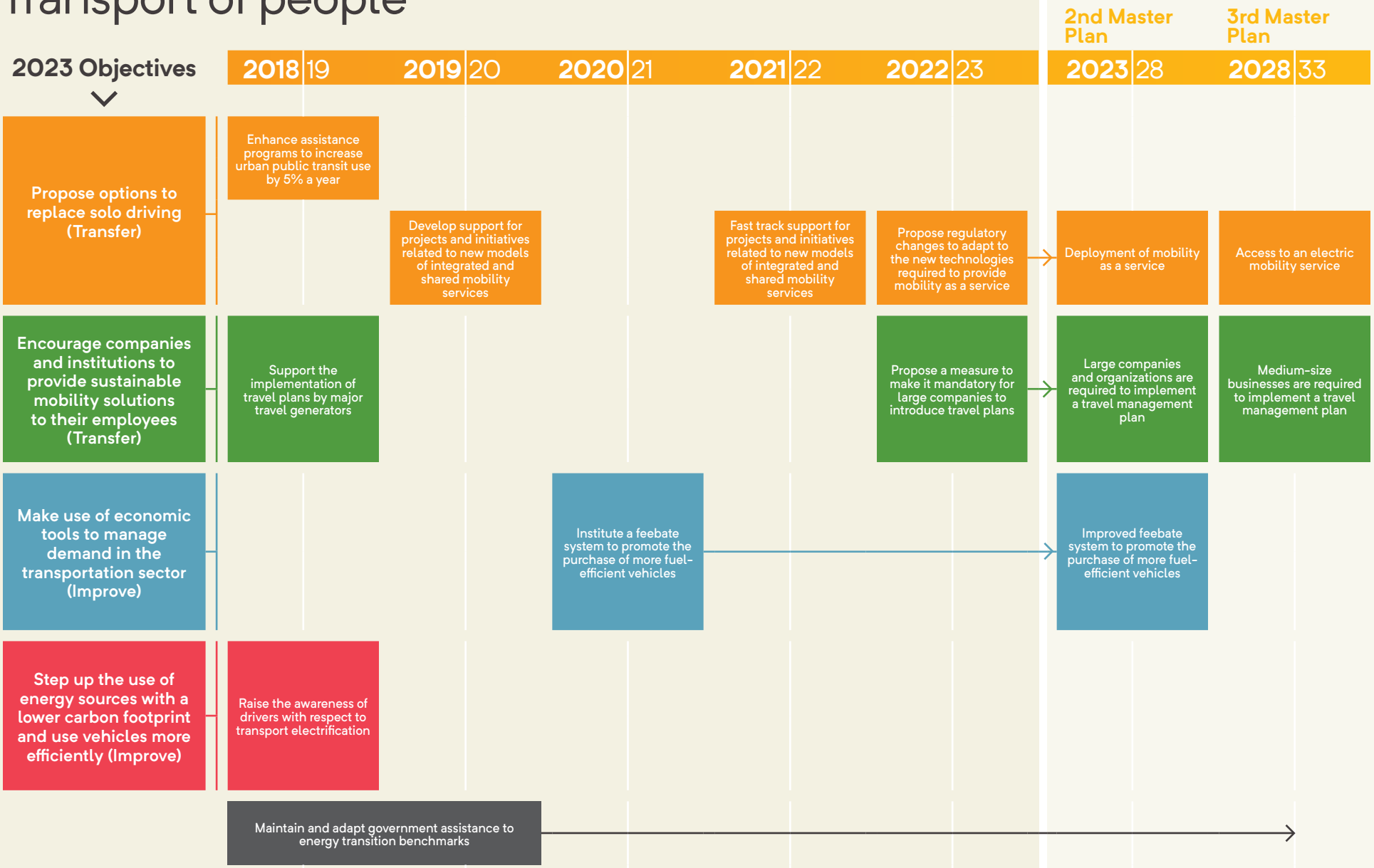
/reduce /transfer /improve

Photo: Autobus Lion Inc.

2030 Vision
for the Transport of People

By 2030, Québec will have rallied all stakeholders to apply innovative solutions to modernize and reduce the carbon footprint of their systems to transport people. This will not only help improve Quebecers' quality of life, it will also go a long way to meeting Québec's GHG emissions reduction targets.

Roadmap
Transport of people



Summary Table
Measures for the transport of people

Objective 1: Propose options to replace solo driving (Transfer)

Enhance assistance programs to increase urban public transit use by 5% a year

Encourage and promote the use of public transit services throughout Québec by various initiatives, notably with the:

- *Programme d'aide au transport collectif des personnes et aux immobilisations en transport en commun — PAGTCP (Government assistance program for the public transport of people and to public transit immobilizations)*
- *Programme d'aide au développement du transport collectif — PADTC (Government assistance program for the development of public transit)*

Develop, then fast track support for projects and initiatives related to new models of integrated and shared mobility services

Support the creation and use of new models of integrated and shared mobility services in order to foster the growth of the "mobility as a service" concept as an alternative to traditional modes of transport using the following approaches, for example:

- Set up programs to support the implementation of integrated systems by offering financial assistance to transport organizing authorities, public transit corporations, municipalities and MRCs to provide assistance and support for the introduction of mobility systems as a service. Tours of the regions will also be required to present the concept of mobility as a service to mobility stakeholders.
- Provide support for shared mobility pilot projects that advocate the use of under-used regional resources by facilitating their use by means of sharing platforms and by encouraging citizens to use these mobility services.
- Provide support for the establishment of on-demand transport in municipal regional county municipalities (MRCs) with planning activities (studies) and the implementation of the service (reservation platform).

Propose regulatory changes to adapt to the new technologies required to provide mobility as a service

Evaluate the regulatory changes required to remove the barriers to the implementation of new public transit and integrated mobility approaches, for example to test self-driving cars.

Objective 2: Encourage companies and institutions to provide sustainable mobility solutions to their employees (Transfer)

Support the implementation of travel plans by major travel generators

- Provide financial assistance for the implementation of travel plans by companies to enable them to develop and implement concrete sustainable development measures (active and collective transportation, shuttles, carpooling, etc.).
- Support pilot projects to promote carpooling in companies in order to provide employees in a single company or group of companies with an alternative to single-person car trips.
- Support travel management centres that provide services to employers, promoters and municipal decision makers so that they can develop travel plans aimed at reducing single-person car trips for both business travel and commuting from home to work.

Propose a measure to make it mandatory for large companies to introduce travel plans

Evaluate the possibility of making it mandatory for large companies and organizations to put in place a travel management plan and propose regulatory changes, as warranted.

Objective 3: Make use of economic tools to manage demand in the transportation sector (Improve)

Institute a feebate system to promote the purchase of more fuel-efficient vehicles

Put in place an incentive system to encourage the purchase of fuel-efficient vehicles and discourage the purchase of fuel-hungry vehicles. When they purchase a vehicle, certain buyers could thus receive a rebate while others would be charged a fee. In the beginning, the proposed system will impact a limited number of buyers, but it could be progressively adapted to expand its scope.

Objective 4: Step up the use of energy sources with a lower carbon footprint and use vehicles more efficiently (Improve)

Raise the awareness of drivers with respect to transport electrification

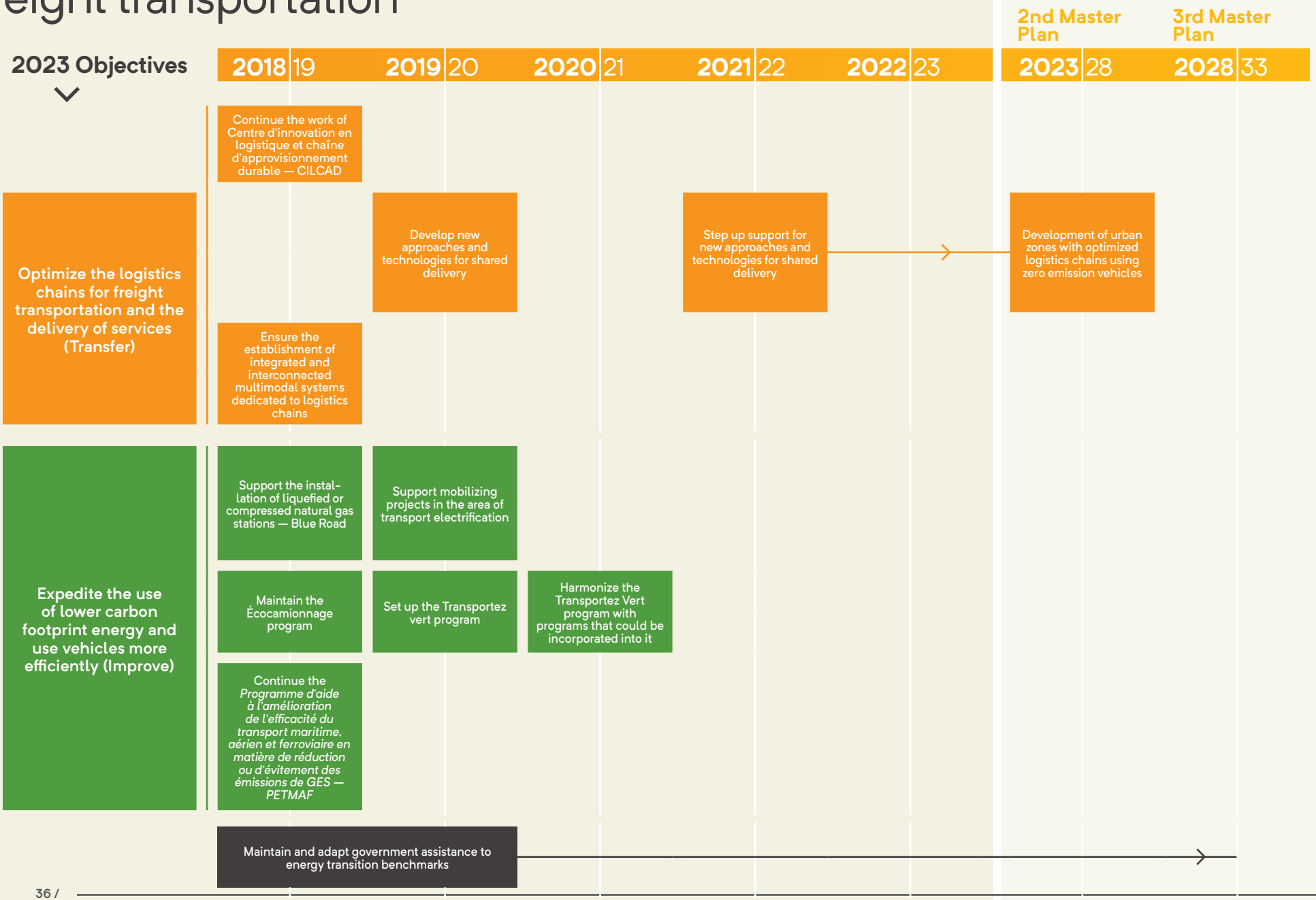
Promote the advantages of electric vehicles by eliminating certain barriers and dispelling certain myths.

- Launch a campaign to educate and raise the awareness of the public with respect to electric vehicles.
- Launch an electric vehicle education/promotion campaign that brings together all concerned stakeholders so that they can work together to increase intentions to purchase and acquire electric vehicles.

2030 Vision
for the Freight transportation

By 2030, technologies that reduce GHG emissions will be in widespread use in the industry, energy use will have been optimized, and the carbon footprint of the freight transportation sector will have been considerably reduced.

Roadmap
Freight transportation



Summary Table
Measures for freight transportation

Objective 1: Optimize the logistics chains for freight transportation and the delivery of services (Transfer)

Continue the work of Centre d'innovation en logistique et chaîne d'approvisionnement durable — CILCAD (centre for innovation in logistics and sustainable supply chains)	>	Maintain support for CILCAD whose mandate is to stimulate and support innovation in the fields of logistics and sustainable supply chains involving stakeholders from the industrial, governmental and scientific sectors in order to reduce GHG emissions from road transport and the handling of goods.
Develop new approaches and technologies for shared delivery and provide support	>	Support the adoption of best practices to foster greater collaboration between supply chain actors and encourage the use of new technologies. > Collaborative shared and electric delivery projects aimed at supporting innovative and new business models. For example, such projects could focus on: > Establishing organized networks based on collaboration among supply chain actors to ensure last-kilometre final delivery in urban settings and the optimization of loading > Developing operating and governance models for logistics platforms > Developing interoperable intelligent transport systems for supply chain actors
Ensure the establishment of integrated and interconnected multimodal systems dedicated to logistics chains	>	Maintain the *Programme visant la réduction ou l'évitement des émissions de GES par le développement du transport intermodal — PREGTI (program aimed at the reduction or avoidance of GHG emissions through the development of intermodal transport)*, which provides financial assistance for the implementation of intermodal projects and the promotion of rail and maritime services.

Objective 2: Expedite the use of lower carbon footprint energy and use vehicles more efficiently (Improve)

Support mobilizing projects in the area of transport electrification	>	Launch calls for projects aimed at for-profit private sector companies so that they can combine their strengths to successfully design innovative products or processes in collaboration with universities, public research centres and SMEs.
Support the installation of liquefied or compressed natural gas stations — *Blue Road*	>	Provide financial assistance to build liquefied or compressed natural gas distribution infrastructures in order to facilitate the refueling of trucks that use this fuel and, as such, expedite the development of such infrastructures.
Set up the Transportez vert program and harmonize it with programs that could be incorporated into it	>	Put in place an integrated program for business customers active in the road freight transportation and in the intercity and school transport sectors (light and heavy vehicles). This measure does not apply to urban public transit. These programs should be harmonized as much as possible with the Transportez vert program. Several components will be developed: > Support for the management of energy, logistics, vehicles and technologies as well as charging and refueling, driving and maintenance via the provision of financial assistance aimed at determining the energy consumption of and GHG emissions by vehicles fleets and the issuing of recommendations on the measures to be implemented. > Financial assistance for the acquisition or certification of vehicles and technologies that reduce the GHG emissions of business customers active in the transport of persons (intercity and school) or the transport of goods and that are not covered by the Écocamionnage program. > Financial assistance for projects to improve logistics for business customers active in the transport of persons (intercity and school) or freight transportation and that are not covered by the Écocamionnage program. > Financial assistance for eco-driving aimed at providing training and awareness raising activities for drivers of light and heavy vehicles.
Continue the *Programme d'aide à l'amélioration de l'efficacité du transport maritime, aérien et ferroviaire en matière de réduction ou d'évitement des émissions de GES — PETMAF* (financial assistance program to improve the efficiency of maritime, air and rail transport by reducing or avoiding GHG emissions)	>	Encourage energy efficiency investments and provide financial assistance to spur the use of fuels that emit fewer GHGs in the maritime, air and rail sectors.

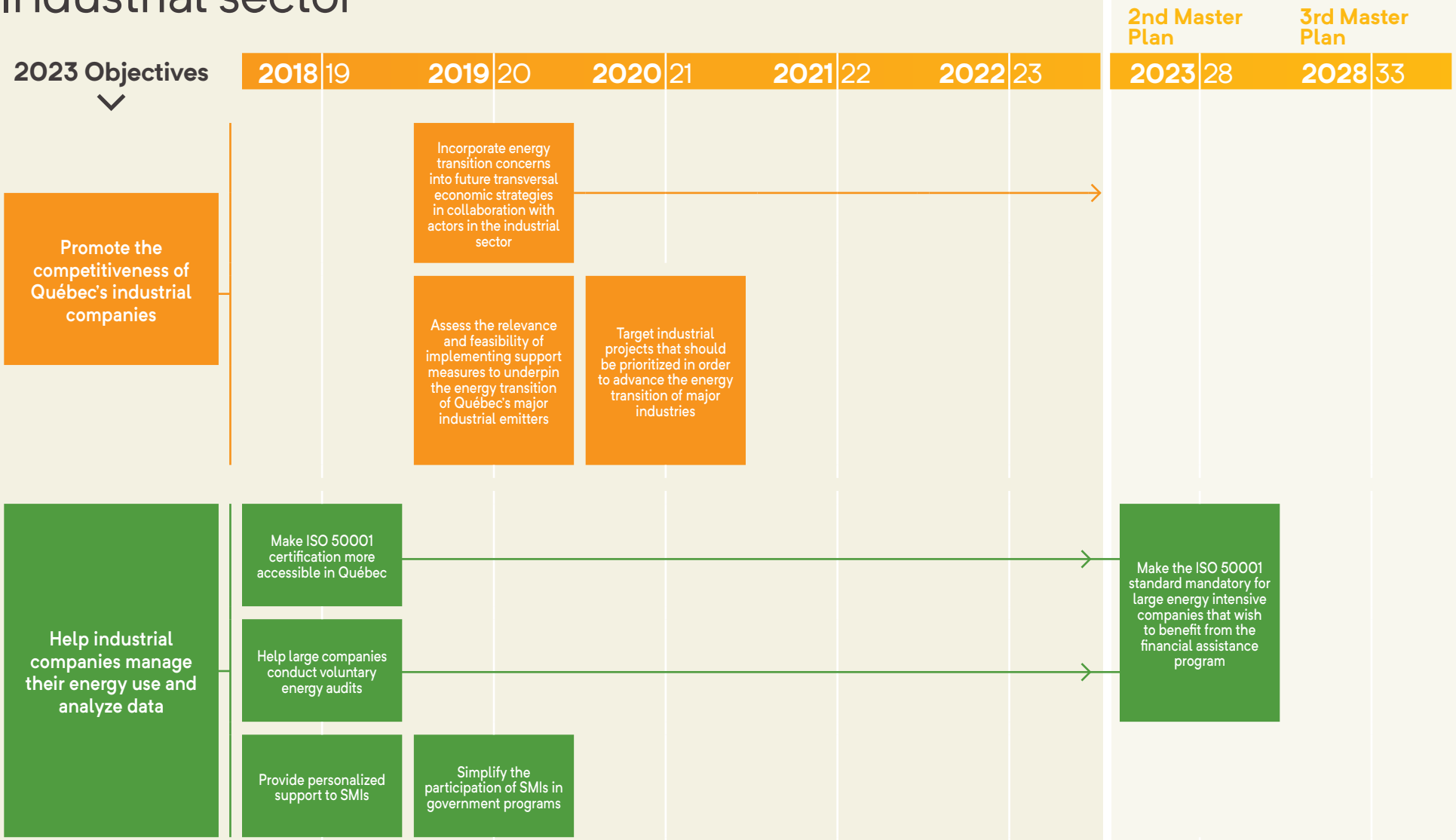
A new
"Transportez vert"

program that includes financial assis-tance to provide coaching, support and training for businesses.

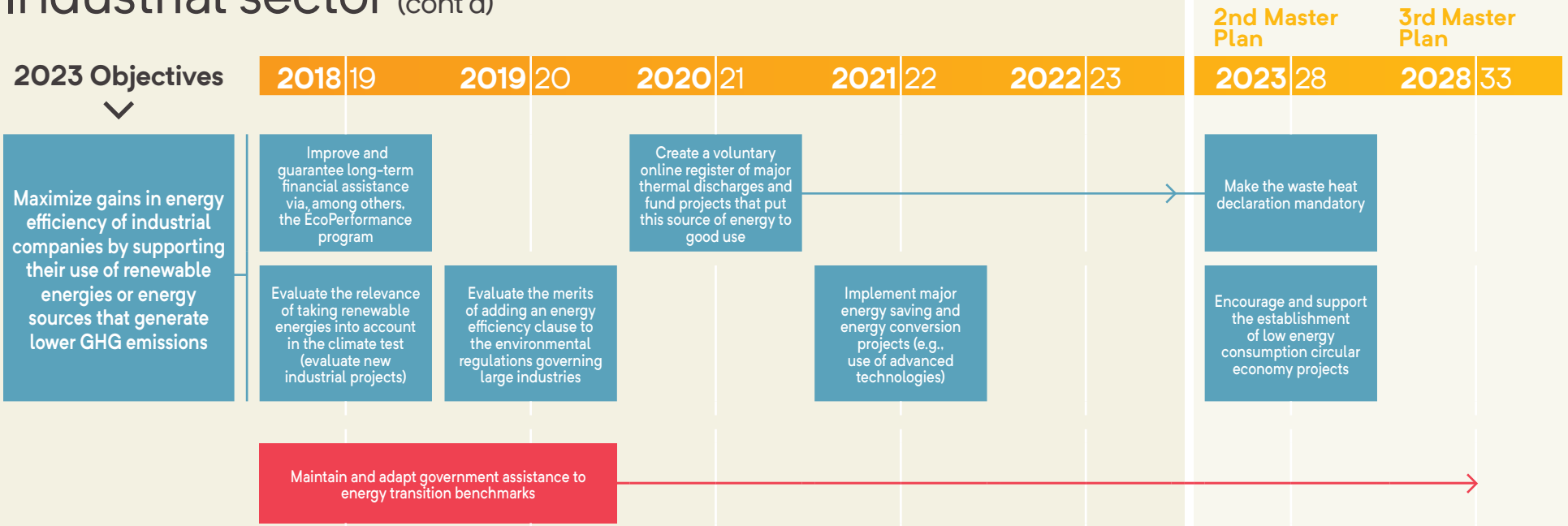
2030 Vision
for Industry

By 2030, Québec's industrial companies will have a thorough understanding of energy efficiency and energy productivity, with an eye to protecting the environment. They will have increasingly turned to renewable energy sources and bioenergy.

Roadmap
Industrial sector



Roadmap
Industrial sector (cont'd)



Summary Table
Measures for the industrial sector

Objective 1: Promote the competitiveness of Québec's industrial companies

Incorporate energy transition concerns into future transversal economic strategies in collaboration with actors in the industrial sector	Incorporate energy transition concerns into transversal economic strategies that will be launched in the coming years to support the energy transition of Québec's industrial sector.
Assess the relevance and feasibility of implementing support measures to underpin the energy transition of Québec's major industrial emitters	Review existing measures and put new measures in place, as warranted, to improve energy management, reduce GHG emissions and improve the competitiveness of major industrial emitters.
Innovate in order to reduce the cost of the energy transition in the industrial sector	Target industrial projects that should be prioritized in order to advance the energy transition of major industries. This exercise will be done in the wake of the work to develop the strategy mentioned above.
Ensure the supply of renewable energy or low emission fuels to major industrial projects	Plan for sufficient supplies of all forms of energy required by industrial companies, notably electricity, various types of bioenergy and natural gas to meet the specific needs of large industrial projects.
Facilitate the use of locally produced renewable energy by off-grid industrial companies	Provide financial assistance to off-grid companies that wish to partially or totally convert their fossil fuel–based systems into renewable energy systems.

Objective 2: Help industrial companies manage their energy use and analyze data

Make ISO 50001 certification more accessible in Québec	Introduce the ISO 50001 certification program in Québec and provide financial assistance to companies that want to be ISO 50001–certified.
Simplify the participation of SMIs in government programs	Facilitate the access of small companies, such as agricultural companies, to Government of Québec financial assistance programs. Tailor the ÉcoPerformance program to their reality by creating preapproved financial assistance calculation models, for example.

Objective 2: Help industrial companies manage their energy use and analyze data (cont'd)

Provide personalized support to SMIs	Maintain and improve the support provided to small and medium-sized companies with the help of Association québécoise pour la maîtrise de l'énergie – AQME (Québec association for the management of energy), for one. For example, perform analyses and provide advice tailored to the situation of each company, and provide energy management training.
Support the development and use of specialized diagnostic tools	Help industrial companies acquire and use specialized tools such as multivariate analyses (data mining) and process integration. Support the development of new diagnostic tools.
Help industrial companies manage demand peaks	Help companies manage their energy use and deploy technologies that make it possible to automate more processes (intelligent manufacturing). Provide financial assistance to reduce power demand during winter demand peaks.

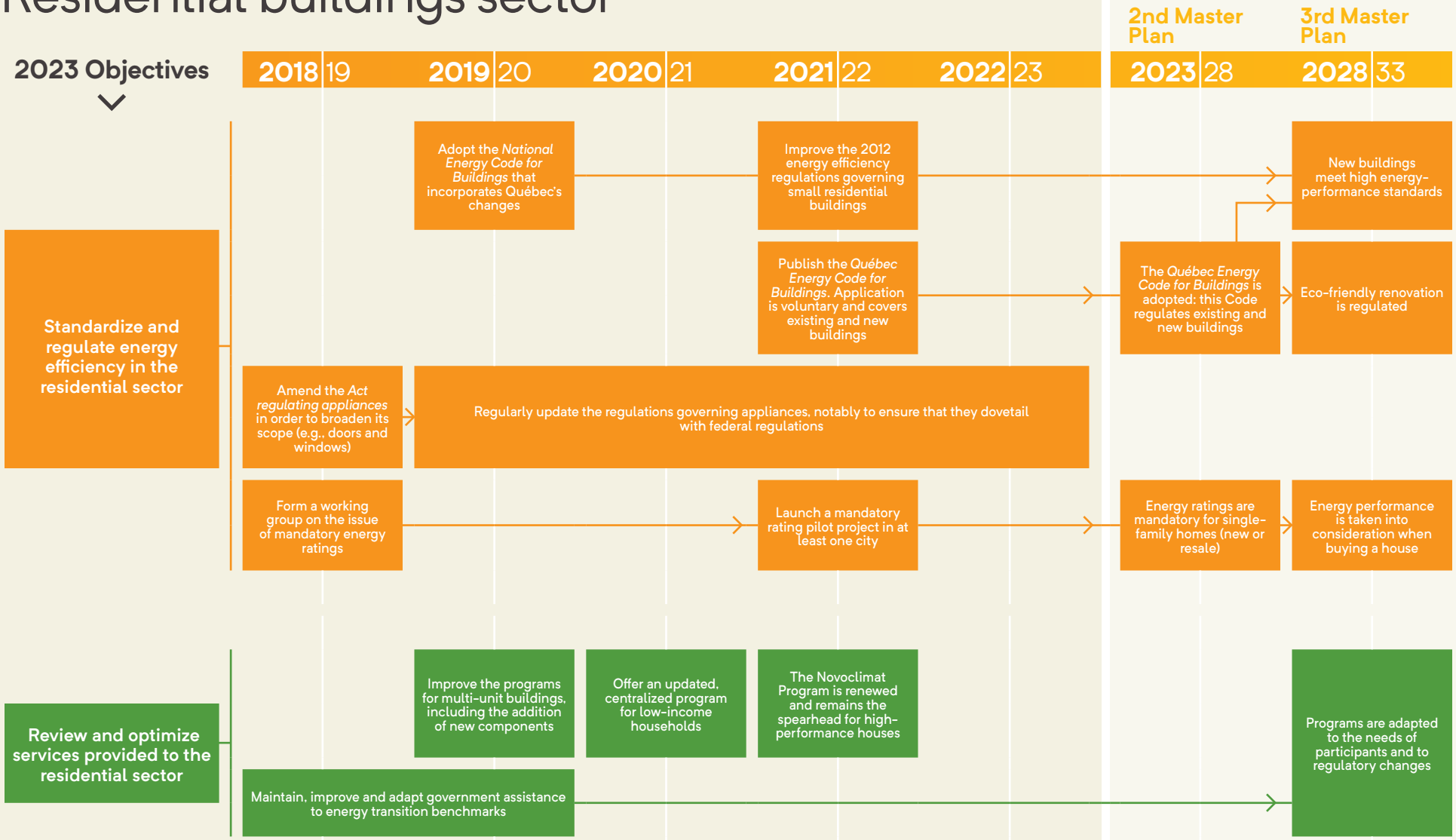
Objective 3: Maximize gains in energy efficiency of industrial companies by supporting their use of renewable energies or energy sources that generate lower GHG emissions

Improve and guarantee long-term financial assistance via, among others, the ÉcoPerformance program	Maintain existing financial assistance programs. Review current services so that industrial companies can optimize their energy efficiency gains, regardless of the type of energy they use.
Implement major energy saving and energy conversion projects	Fund more costly energy saving and fossil fuel reduction projects. Analyze projects that could be funded. Support the implementation of selected projects.
Create a voluntary on-line register of major thermal discharges and fund projects that put this source of energy to good use	Create an on-line register of thermal discharges and fund pilot projects of heat networks that make good use of thermal discharges.
Evaluate the relevance of taking renewable energies into account in the climate test	Determine whether the ways of using renewable energies by new industries in the climate test would be relevant.
Evaluate the merits of adding an energy efficiency clause to the environmental regulations governing large industries	Evaluate the merits and feasibility of adding an energy efficiency component to the *Programme de réduction des rejets industriels — PRRI* (industrial waste management program), which is a tool to control the release of pollutants and residues by large industries in Québec.

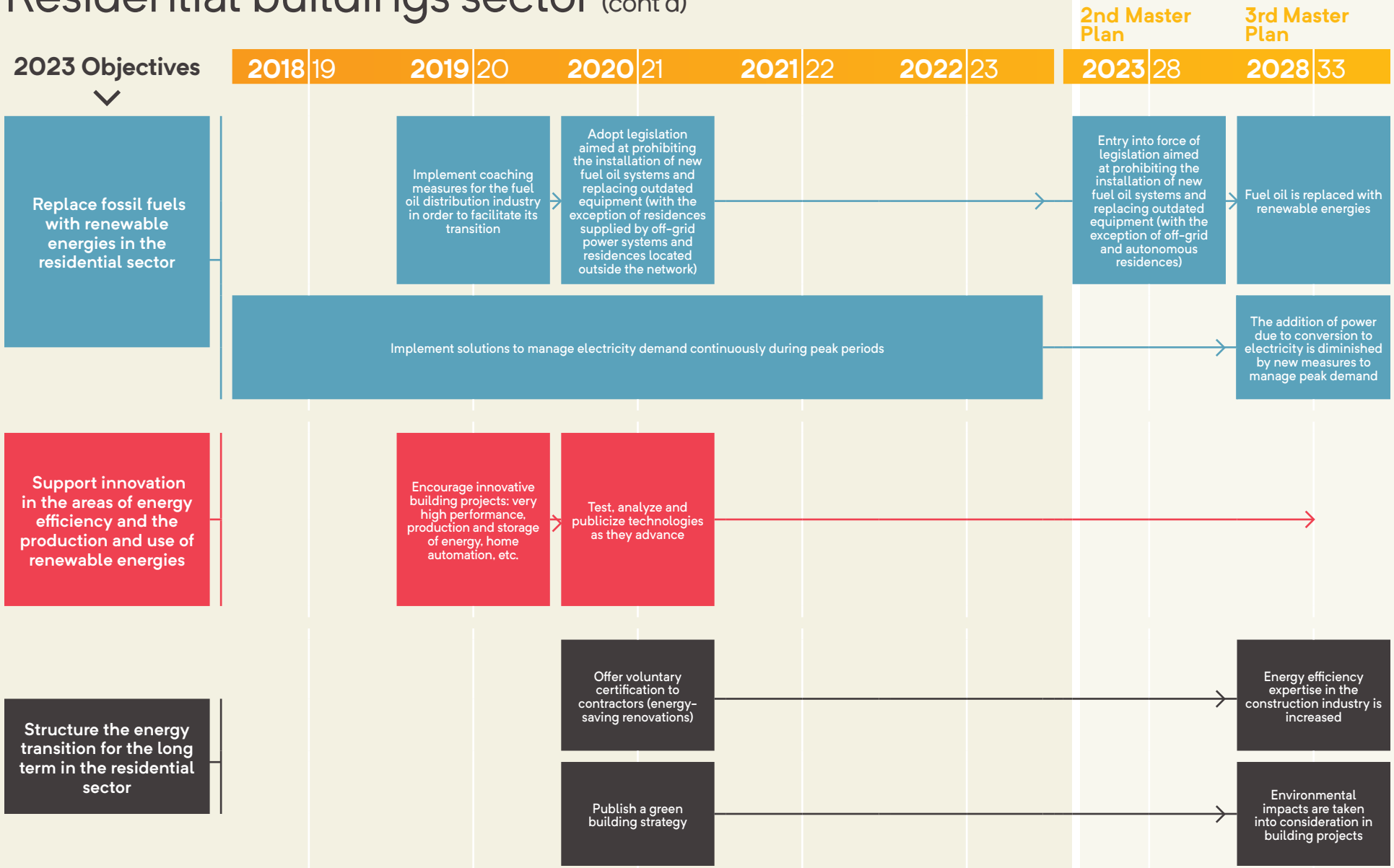
2030 Vision
for the Residential Sector

By 2030, the residential sector will be supplied by renewable energy sources for virtually all of its energy needs. In addition, improving the energy performance of homes will have become part of an energy efficiency culture that is ingrained in the market.

Roadmap
Residential buildings sector



Roadmap
Residential buildings sector (cont'd)



Summary Table
Measures for the residential buildings sector

Objective 1: Standardize and regulate energy efficiency in the residential sector

Review energy efficiency regulatory measures governing buildings	Boost the minimal energy efficiency requirements for new residential buildings. The first phase will involve large new residential buildings with the adoption of the 2015 *National Energy Code for Buildings — Canada*, including changes proposed by Québec. The second phase will deal with new small residential buildings, for which the last version of the regulation dates from 2012.
Publish a voluntary standard—the *Québec Energy Code for Buildings*—that would apply to existing and new buildings	Publish a voluntary reference standard for the energy performance of buildings adapted to Québec's energy context and update so it always exceeds the minimum standards set out in the regulations. The standard will apply to the design, construction, commissioning, operation and renovating of all types of buildings.
Review regulatory measures that apply to the energy efficiency of appliances	Amend the *Act respecting the energy efficiency of electrical or hydrocarbon-fuelled appliances* to extend its application to new building appliances, equipment and components (windows, for example). Regularly update the energy efficiency requirements for electrical and hydrocarbon-fuelled appliances by ensuring that they comply with federal regulations and extend its scope to other categories of appliances and components with an energy efficiency or GHG reduction potential in Québec.
Implement the early stages of a compulsory energy efficiency rating system for new buildings and upon the resale of single-family homes	Form a working group. Carry out an energy rating pilot project. Make the necessary legislative and regulatory changes. Develop an appropriate rating tool.

Objective 2: Review and optimize services provided to the residential sector

Improve renovation and green building financial assistance programs

Conduct a review of existing programs taking into account regulatory requirements governing energy efficiency, residential buildings and appliances. Evaluate measures such as increasing financial assistance, improving program marketing and providing additional financial assistance for high performance projects.

Improve programs for low-income households and simplify their delivery.

Update the Novoclimat program.

Continue the Rénoclimat program and the Rénovert tax credit.

Promote energy efficiency investments in multi-unit residential buildings

Increase the number of programs and add new components. This will include, among others, improved marketing and personalized support for customers

Objective 3: Replace fossil fuels with renewable energies in the residential sector

Coordinate the transition from fossil fuels to renewable energies in the residential sector

Prohibit the installation of new oil heating systems (space and water heating) and the replacement of obsolete equipment in homes during the second Master Plan (2023-2028). Particularities must be taken into account: residences hooked up to autonomous networks, off-grid residences, outfitters, etc.

Prepare the market by adopting the legislation in 2020.

Collaborate with stakeholders to put in place adaptation measures to facilitate the transition in the heating oil industry.

Continue and improve the support provided by the Chauffez vert program for the residential sector to convert fossil fuel systems.

Implement new measures to manage peak power demands.

Draw up an action plan to convert systems and appliances that run on fossil fuels other than fuel oil to renewables energies.

Objective 4: Support innovation in the areas of energy efficiency and the production and use of renewable energies

Encourage demonstration projects involving innovation in the areas of energy efficiency and the production and use of renewable energies or energies with a low environmental impact

Support demonstration projects involving very high energy performance and low environmental impact technology for the construction and renovation of smart and solar houses, the storage of heat network energy (use of thermal discharges), etc.

Raise awareness of these projects through publications and talks.

Objective 5: Structure the energy transition for the long term in the residential sector

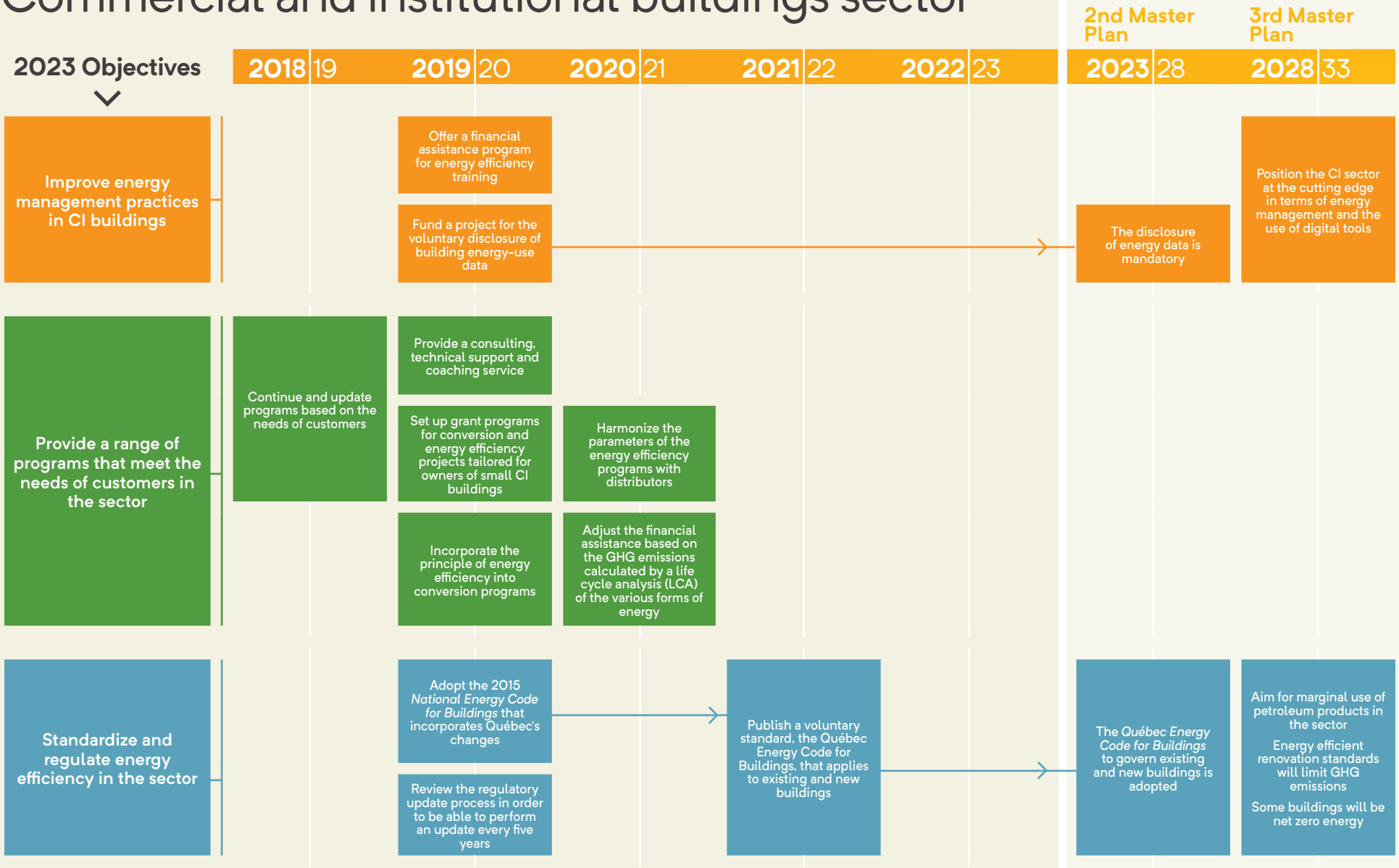
Analyze and remove barriers that hamper the development of energy efficiency and the onsite production of renewable energies	Continue the analysis of regulatory and normative barriers that hamper the development of energy efficiency and the onsite production of renewable energies and recommend, as warranted, modifications to the organizations concerned (e.g., certain restrictions in the solar orientation of houses). Pay special attention to market barriers to the energy efficiency of apartment buildings by taking the specific needs of low-income households into account. Explore solutions to facilitate the energy transition of rental apartments such as rent setting criteria with Régie du logement.
Offer voluntary certification to eco-friendly renovation contractors	Develop and disseminate eco-friendly renovation training. Put in place a certification process. This certification would enable contractors to stand out from the competition and would provide customers with a certain quality assurance.
Publish a green building strategy	Publish a green building strategy that takes into account, among other things, the environmental impact of buildings from their design to their demolition, their impact on the health and well-being of people and the economic benefits generated by optimized building design.
Develop a market transformation plan for the main building components and provide support for flagship technologies	Determine the real energy efficiency of the various components of buildings (windows, walls, roofs, mechanical systems, etc.). Draw up a list of flagship technologies. Plan the actions required to develop these technologies more quickly.
Compare the impacts of the various renewable energy sectors in order to make the best choices for the residential sector	Study and compare the entire lifecycle, from the extraction of raw materials to the end-of-life handling of renewable energy sources for Québec's residential sector in order to determine the role that could be played by the various alternative energy sources (hydroelectricity, solar energy, on-site wind energy, energy storage, biomass, renewable natural gas, heat networks, etc.).
Equip Québec with the building energy modelling tools required to improve practices in the construction market	Ensure the availability of modelling tools for modern buildings that are adapted to the Québec context (hydroelectricity, climate, etc.) as well as new technologies for estimating the energy use of buildings.

/standardize /support /structure

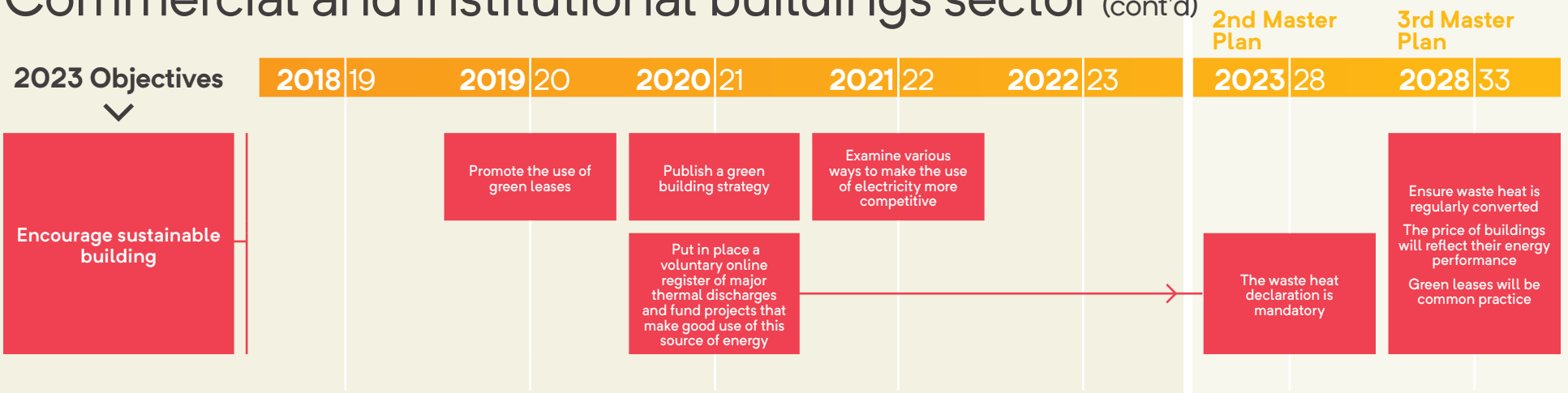
2030 Vision
for Commercial and Institutional Buildings

By 2030, petroleum products will only be used in commercial and institutional buildings in rare circumstances. Renewable energy sources will make up 70% of the sector's energy portfolio. Large existing buildings will be subject to rigorous energy management, while new buildings will be highly energy efficient.

Roadmap
Commercial and institutional buildings sector



Roadmap
Commercial and institutional buildings sector (cont'd)



Summary Table
Measures for the commercial and institutional buildings sector

Objective 1: Improve energy management practices in CI buildings

Offer a financial assistance program for energy efficiency training	Reimburse part of the registration fees for certain courses related to energy efficiency.
Encourage continuous commissioning	Modify the *Remise au point des systèmes mécaniques des bâtiments — RCx* (recommissioning of building mechanical systems) component of the ÉcoPerformance program by extending the current two-year continuous monitoring period to include continuous commissioning projects.
Showcase the role of energy managers	Conduct a study of the situation and possible options to encourage the market to appreciate the role of energy managers.
Fund a project for the voluntary disclosure of building energy-use data	Fund and actively participate in organizing the *Défi-Énergie en immobilier* (Building Energy Challenge) in order to promote energy efficiency and encourage the disclosure of energy-use data.

Objective 2: Roll out programs that meet the needs of customers in the sector

Set up grant programs for conversion and energy efficiency projects tailored for owners of small CI buildings	Simplify the financial assistance application process to facilitate access by small companies. Assistance programs for the purchase of preapproved equipment and calculation models could be part of the solution.
Provide a consulting, technical support and coaching service	Provide professionals with a coaching service to help them choose the right program. Provide promoters with consulting and coaching services to help them plan and develop their own energy transition projects.
Incorporate the principle of energy efficiency into conversion programs	Modify the ÉcoPerformance program to ensure that conversion projects are an opportunity for improving energy efficiency.
Adjust the financial assistance based on the GHG emissions calculated by a life cycle analysis (LCA) of the various forms of energy	Mandate a firm of independent experts in LCA to analyze the life cycles of various forms of energy and review the grid of GHG emission factors of the ÉcoPerformance program based on the results of the analysis.
Incorporate exclusivity clauses into the *Étude de faisabilité* (feasibility study) and *Remise au point* (recommissioning) components of the ÉcoPerformance program	In order to simplify applications, it will no longer be permitted to cumulate the financial assistance received under the *Étude de faisabilité* and *Remise au point* components. The assistance will be reviewed so as to not disadvantage the applicants.

Objective 2: Provide a range of programs that meet the needs of customers in the sector (cont'd)

Harmonize the parameters of the energy efficiency programs with distributors	Harmonize the parameters of the energy efficiency programs with distributors in order to simplify the applications.
Continue and update programs based on the needs of customers	Maintain and improve the assistance programs based on the needs of customers and Québec's progress in the energy transition.

Objective 3: Standardize and regulate energy efficiency in the sector

Review the regulatory update process in order to be able to perform an update every five years	The current regulatory update processes are long and complex. They will be reviewed in order to tighten the requirements every five years.
Adopt the *2015 National Energy Code for Buildings* that incorporates Québec's changes	The regulatory project will be incorporated into the *Québec Construction Code* in order to ensure an acceptable level of energy efficiency in all new CI buildings.
Help industry actors apply the regulatory measures	Develop tools, training and interpretation guides to enable construction professionals and managers to understand and comply with the regulatory measures.
Evaluate the effectiveness of the regulatory measures	Carry out impact assessments to evaluate the effectiveness of the regulatory measures.
Publish a voluntary standard, the *Québec Energy Code for Buildings*, that applies to existing and new buildings	Publish a voluntary reference standard for the energy performance of buildings adapted to Québec's energy context and update it so that it always exceeds the minimum standards set out in the regulations. The standard will apply to the design, construction, commissioning, operation and renovation of all types of buildings.

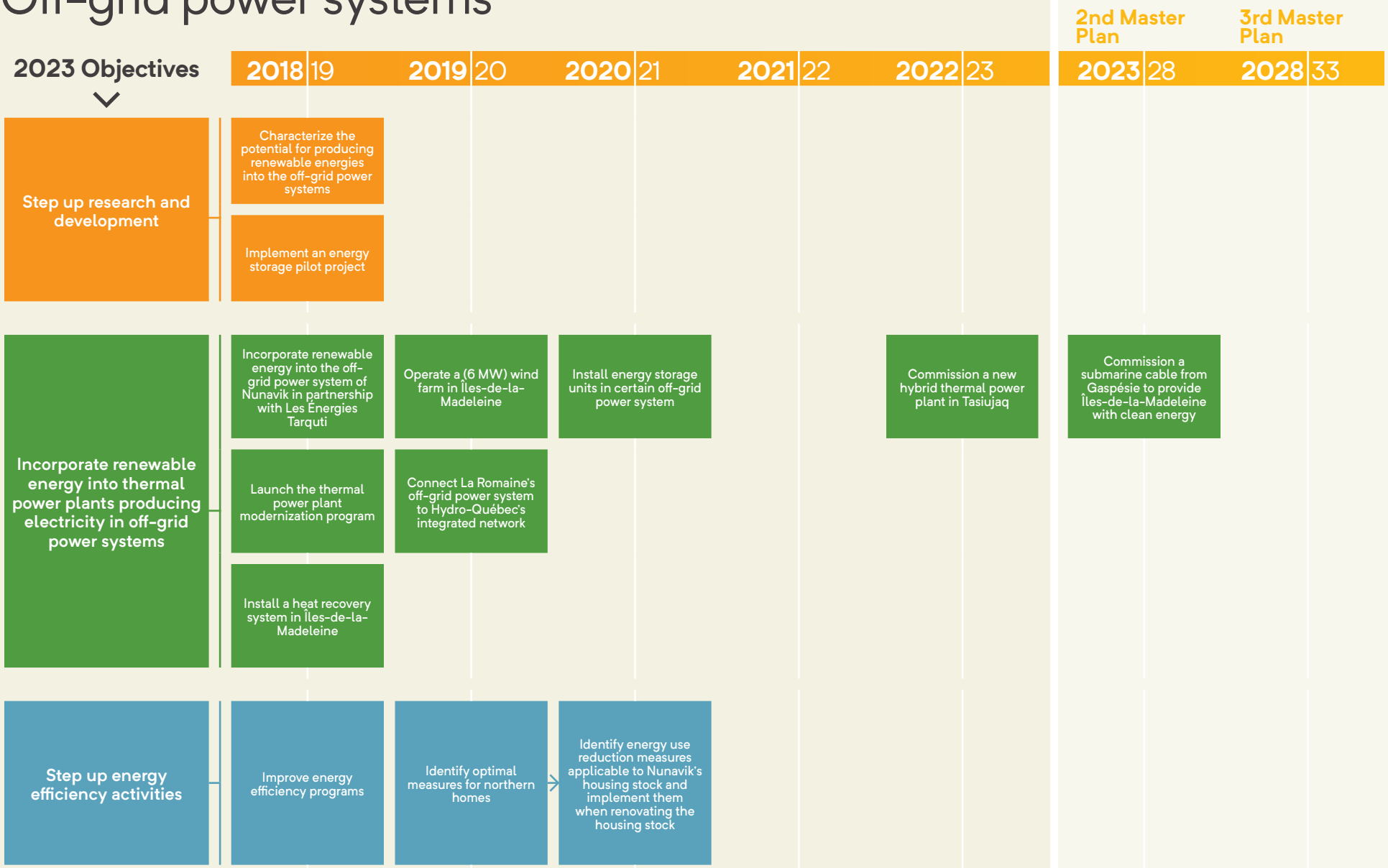
Objective 4: Encourage sustainable building

Put in place a voluntary on-line register of major thermal discharges and fund projects that make good use of this source of energy	Create an on-line register of thermal discharges and fund heat network pilot projects that put thermal discharges to good use.
Promote the use of green leases	Ensure the availability and dissemination of green lease models.
Publish a sustainable building strategy	Give Québec a vision for sustainable buildings and policies that promote green construction and renovation. Define the criteria and indicators of green buildings and learn from the best practices that are in use in Canada and elsewhere in the world.
Examine various ways to make the use of electricity more competitive	Evaluate various options that could make the use of electricity more advantageous than fossil fuels for CI buildings.

2030 Vision
for Off-grid Power Systems

By 2030, the consumption of petroleum products in off-grid power systems will be significantly reduced, notably through energy efficiency improvements to buildings and the use of renewable energy sources. To achieve this, local and Indigenous communities as well as the private sector will have adopted an integrated approach.

Roadmap
Off-grid power systems



Summary Table
Measures for off-grid power systems

Objective 1: Step up research and development

Characterize the potential for producing renewable energies	>	Carry out a study on wind and sunshine meteorological data to determine the potential for using these renewable energies in Nunavik.
Implement an energy storage pilot project	>	Implement a pilot project on using battery to the energy storage in a power plant as well as a pilot project in installing 20 kW solar power system.

Objective 2: Incorporate renewable energy into thermal power plants producing electricity in off-grid power systems

Modernize thermal power plants	>	Improve equipment performance and retrofit automated systems: > Install a heat recovery system in Îles-de-la-Madeleine > Operate a wind farm in Îles-de-la-Madeleine > Connect La Romaine's off-grid power system to Hydro-Québec's integrated network > Install energy storage units in certain off-grid power system > Commission a new hybrid thermal power plant in Tasiujaq
Evaluate and test various scenarios for supplying energy via off-grid power system	>	Incorporate renewable energy into the off-grid power system of Nunavik in partnership with Les Énergies Tarquti. Financially support renewable energy in off-grid power system.

Objective 3: Step up energy efficiency activities

Improve the energy efficiency of northern buildings	Finish the assessment of the energy performance of dwellings in Nunavik. Identify energy use reduction measures applicable to Nunavik's housing stock and implement them when renovating the housing stock. Propose and support actions to improve the energy efficiency of northern buildings.
Improve programs promoting the efficient use of energy	Maintain financial assistance programs for improving the energy efficiency of commercial buildings in Nunavik. Launch a program for residential and commercial customers in La Romaine, Schefferville and Anticosti. Continue awareness campaigns regarding peak loads periods in winter and the efficient use of electricity among people who get their energy from off-grid power system. These campaigns are specifically tailored to each community. Improve the program on the use of heating systems in dwellings; provide support for the maintenance of oil- and propane-fuelled heating systems, troubleshooting and repairs in case of breakage and provide financial assistance for the conversion to oil or propane.

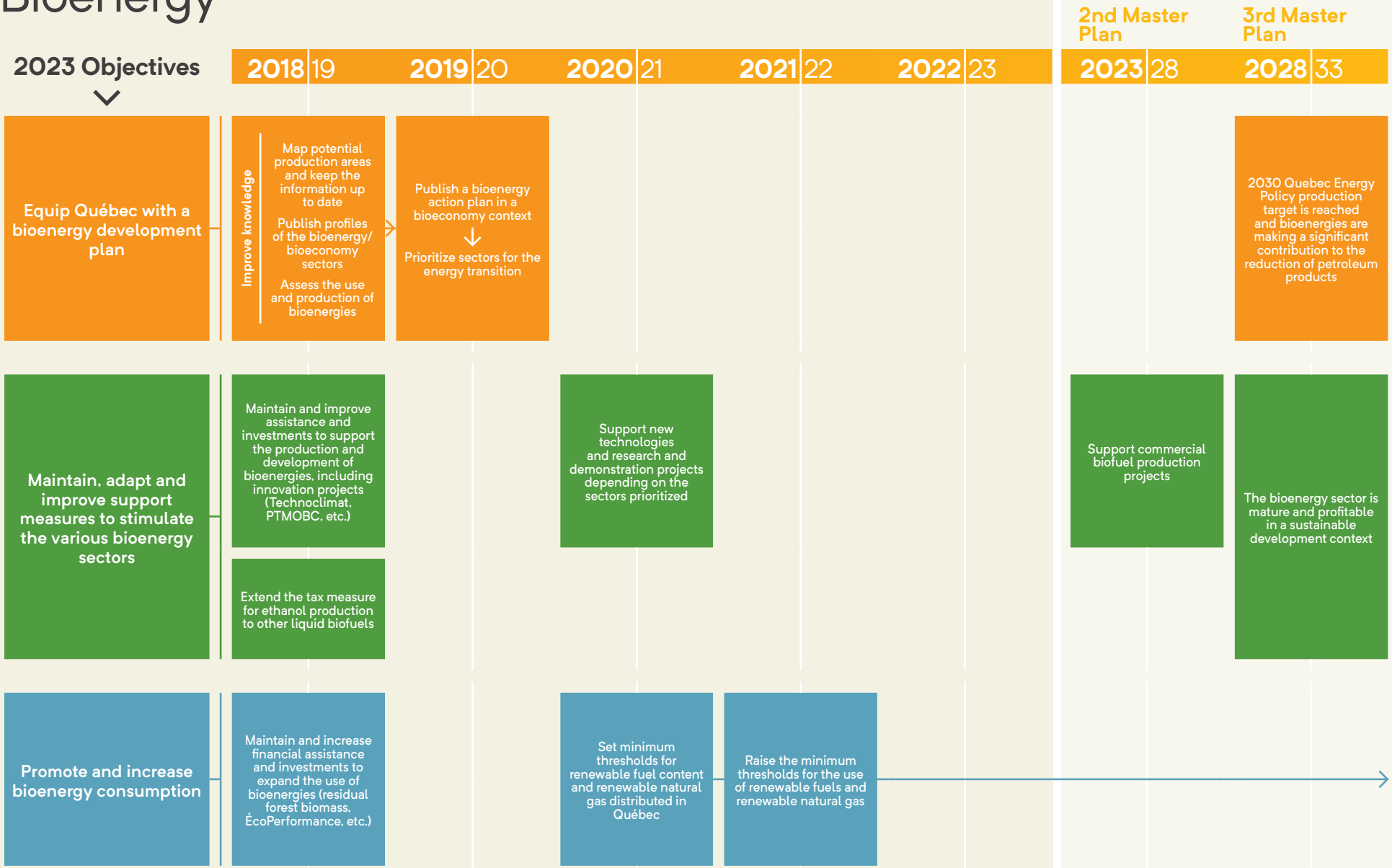
/step up

/incorporate

2030 Vision
for Bioenergy

By 2030, Québec will have increased its bioenergy production by 50% compared to 2013. It will also have laid the necessary economic groundwork to produce and use bioenergy in the context of a strong bioeconomy in which regional spinoffs are maximized.

Roadmap
Bioenergy



Summary Table
Measures for the development of bioenergy

Objective 1: Equip Québec with a bioenergy development plan

Establish Québec's position on the use and production of bioenergies	>	Create an interministerial working group with a mandate to propose a government vision on the bioenergy sector development.
Publish a bioenergy action plan in a bioeconomy context	>	Create a committee composed of representatives from relevant government departments and agencies and certain stakeholders in the bioenergy sector. This committee will take its cue from the government's position and will be mandated to draw up an action plan to develop bioenergies and to advise the government on public policies related to bioenergies.
Improve knowledge about the various bioenergy sectors	>	More accurately assess the use and production of bioenergies in Québec. Map potential production areas and keep the information up to date. Publish a profile of each bioenergy sector.

Objective 2: Maintain, adapt and improve support measures to stimulate the various bioenergy sectors

Maintain and improve assistance and investments to support the production and development of bioenergies	>	Support innovative projects for the production and use of bioenergies. Maintain the refundable tax credit for ethanol and biodiesel produced and delivered in Québec. Introduce a refundable tax credit for the production of pyrolytic oil.
Develop economic and financial tools to support the bioenergy sectors development	>	Identify and assess the effectiveness of existing financial tools (credits for the purchase of biofuels and others). Study the incentives used in neighbouring provinces and states. Develop new tools and adapt existing tools, where appropriate.

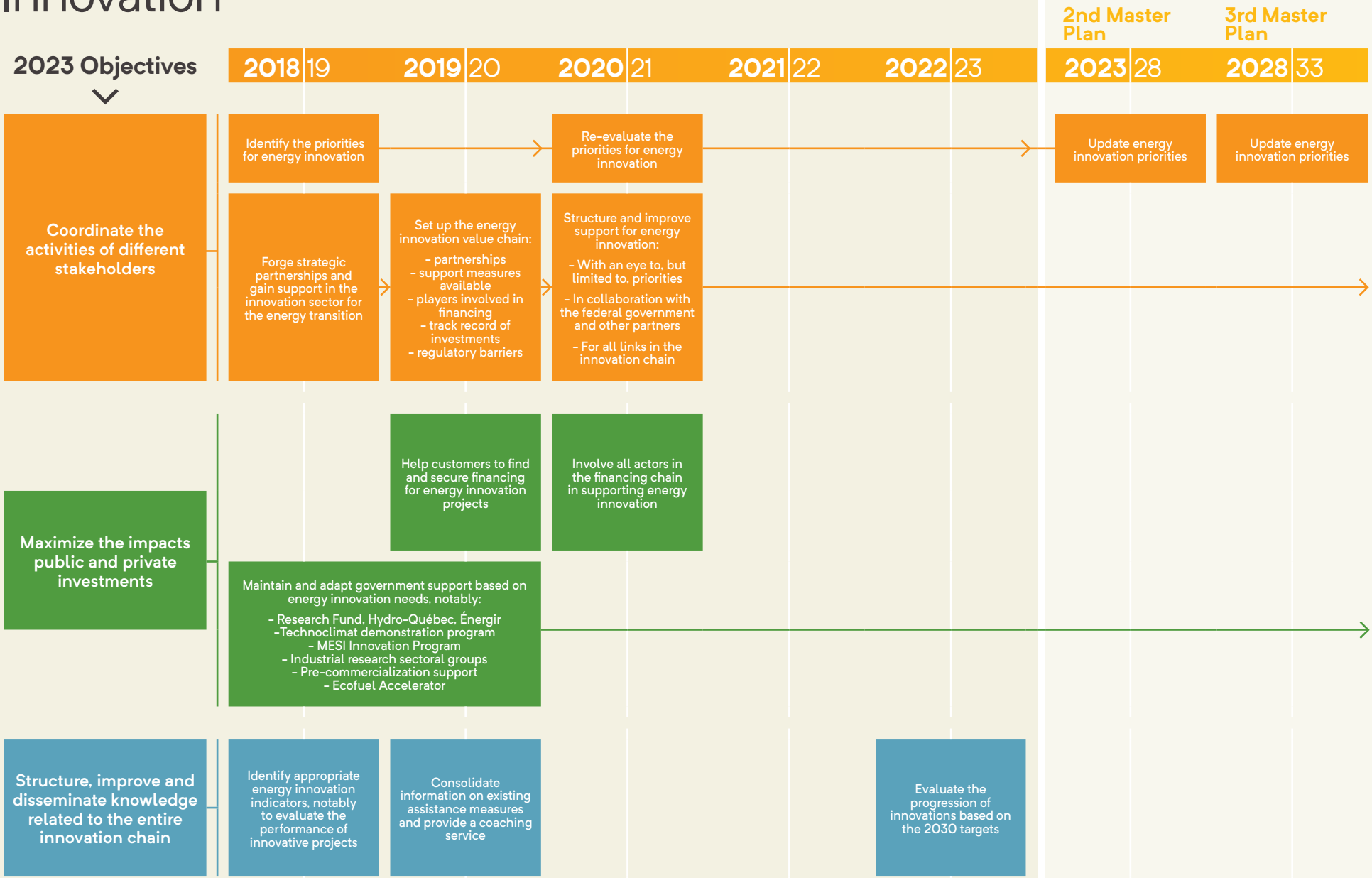
Objective 3: Promote and increase bioenergy consumption

Set minimum content thresholds for renewable natural gas and fuels distributed in Québec	>	Regulate the minimum renewable content for diesel fuel, gasoline and natural gas. Increase the mandatory minimum content in the short term and then increase on a regular basis.
Assess the feasibility of using bioenergies in off-grid power system	>	Consider bioenergies on the same footing as any other type of renewable energy when upgrading public off-grid power system.
Maintain and increase financial assistance and investments to expand the use of bioenergies	>	Support the conversion of fossil-fuelled appliances by offering financial and technical assistance to customers to promote the use of appliances that run completely or partially on bioenergy (heating systems, vehicles).

2030 Vision
for Energy Innovation

By 2030, the entire energy innovation chain will be supported, resulting in a broader array of products, processes, services, and approaches for consumers, who will make greater use of them. These new offerings will transform Québec's energy model as it continues to move forward with its energy transition.

Roadmap
Innovation



Summary Table
Measures to promote innovation

Objective 1: Coordinate the activities of different stakeholders

Identify the priorities for energy innovation	Three lists of priorities have been compiled based on the main stages of the innovation chain: R&D, demonstration and commercialization. The prioritization exercise must be dynamic and scalable. It will be updated on a regular basis.
Forge strategic partnerships and gain support in the innovation sector for the energy transition	Interest the various actors working on energy innovation in the issue of the energy transition. Forge partnerships with various organizations in order to combine their forces and effectively respond to the needs of innovating companies.
Set up the energy innovation value chain	Carry out a diagnosis of energy innovation. Several aspects of innovation will be studied in this analysis, including current and potential partnerships, the various support measures available (financial assistance, coaching, etc.), the players involved in financing the innovation chain, the track record of investments in energy innovation projects and regulatory barriers.
Structure and improve support for energy innovation	Once the value chain has been set up, structure and improve support for energy innovation based on the priorities and by maximizing assistance from the federal government (existing programs, open innovation challenges, demonstration platforms, networking, etc.).
Ensure greater regulatory openness to energy innovation projects	Hold discussions with all levels of government to ensure that their legislation and regulations are consistent with energy innovation projects.

Objective 2: Maximize the impacts of public and private investments

Maintain and adapt government support based on energy innovation needs	Maintain and improve energy innovation funding with the help of programs and measures supported by Government of Québec departments and agencies.
Simplify participation in the various financial assistance measures aimed at innovation in the energy transition	Identify complementary assistance measures and develop mechanisms to facilitate access to these measures by innovating companies (common administrative mechanism, joint analysis of applications, etc.).

Objective 2: Maximize the impacts of public and private investments (cont'd)

Help customers to find and secure financing for energy innovation projects	Facilitate the search for company financing through organizations that finance the various stages of innovation projects.
Involve all actors in the financing chain in supporting energy innovation	Consult the various financing organizations when evaluating projects and provide support to those with the most potential.

Objective 3: Structure, improve and disseminate knowledge related to the entire innovation chain

Consolidate information on existing assistance measures and provide a coaching service	As a complement to the Entreprises Québec portal, design and set up a reference tool on existing assistance measures as well as a coaching service for the various links of the innovation chain.
Consolidate information on innovation and energy innovation projects	Create a portal that consolidates relevant information on the projects and innovations that are working their way through the innovation chain, including a catalogue of innovations that have been commercialized and that have found their way onto the market.
Publicize energy innovation projects	Publicize success stories by spotlighting demonstration projects that are underway as well as projects that are being implemented by governments, which are often early adopters of innovations. Implement initiatives that enable citizens to discover, for example, innovative buildings and vehicles.
Identify appropriate energy innovation indicators	Identify the most appropriate and most representative indicators of the energy innovation process based on the main links of the innovation chain in order to facilitate project evaluation and monitoring and assess the success of these projects.
Enhance and disseminate energy innovation information	Identify data requirements, then compile and share the data, on Données Québec for example, the government's open data portal.

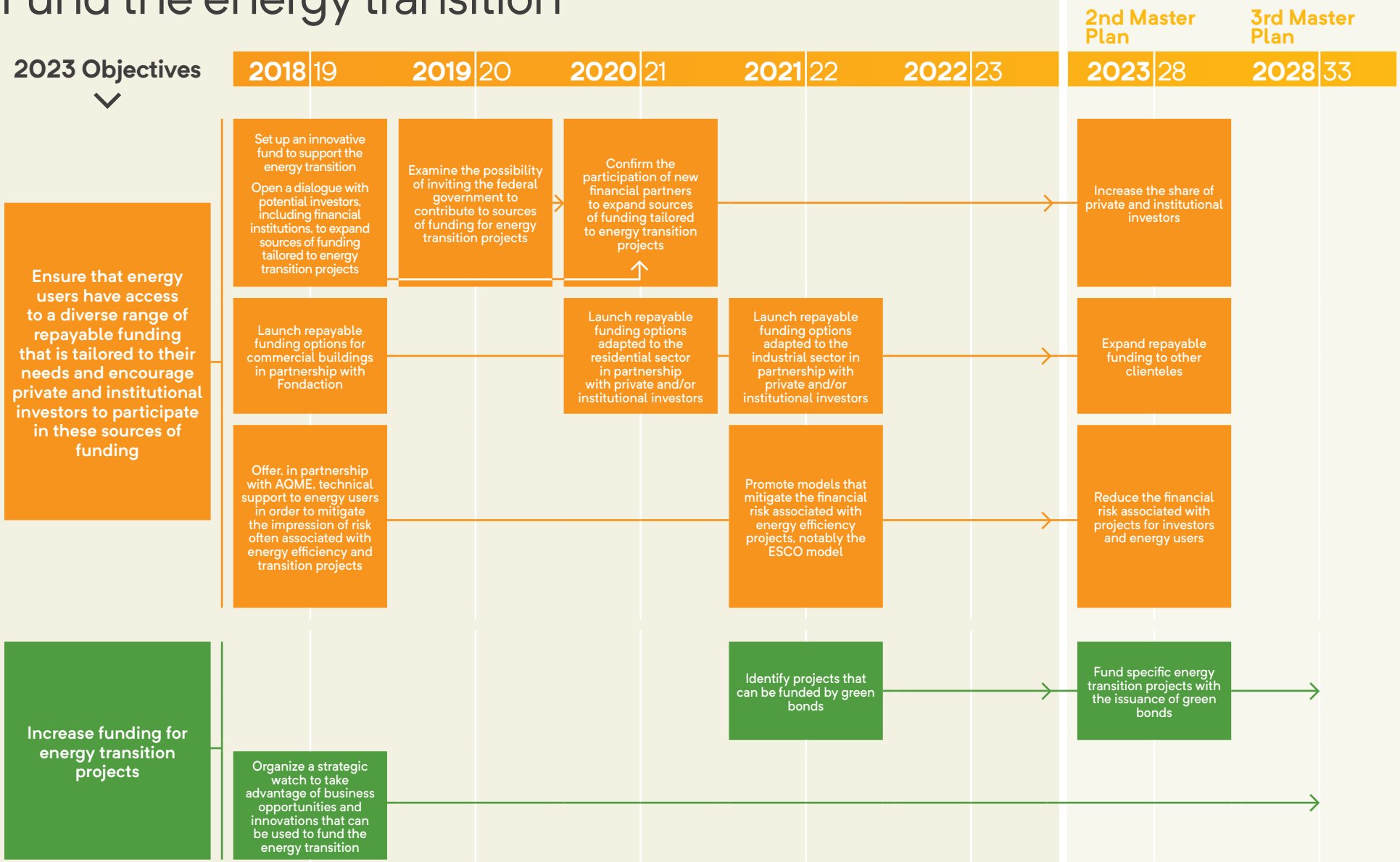
/maximize /structure /improve

Photo: Rackam

2030 Vision
for Energy Transition Funding

By 2030, Québec will have optimized the financial resources earmarked for the energy transition, diversified its funding sources and mechanisms, and enhanced the contribution of private and institutional capital in order to speed up the energy transition while helping spur the economy.

Roadmap
Fund the energy transition



Summary Table
Measures to fund the energy transition

Objective 1: Ensure that energy users have access to a diverse range of repayable funding that is tailored to their needs and encourage private and institutional investors to participate in these sources of funding

Set up an innovative fund to support the energy transition	Set up an operational and financial structure to launch repayable financial assistance to facilitate and step up the implementation of energy efficiency measures for buildings in the commercial sector.
Open a dialogue with potential investors, including financial institutions, to expand sources of funding tailored to energy transition projects	Open a dialogue with potential investors, including financial institutions, to expand sources of funding tailored to energy transition projects. Examine the possibility of inviting the federal government to contribute to sources of funding for energy transition projects. Confirm the participation of new financial partners offering new sources of repayable funding tailored to the needs of different clienteles to help make the energy transition.
Launch repayable funding options tailored to different clienteles	Design and propose new repayable funding options tailored to different clienteles.
Offer, in partnership with AQME, technical support to energy users in order to mitigate the impression of risk often associated with energy efficiency and transition projects **Promote models that mitigate the financial risk associated with energy efficiency projects, notably the ESCO model**	In addition to repayable funding options for owners of commercial buildings, provide technical support to mitigate the impression of risk associated with these projects. Promote models that decrease the financial risk for investors and energy users, notably the energy service company (ESCO) model.

Objective 2: Increase funding for energy transition projects

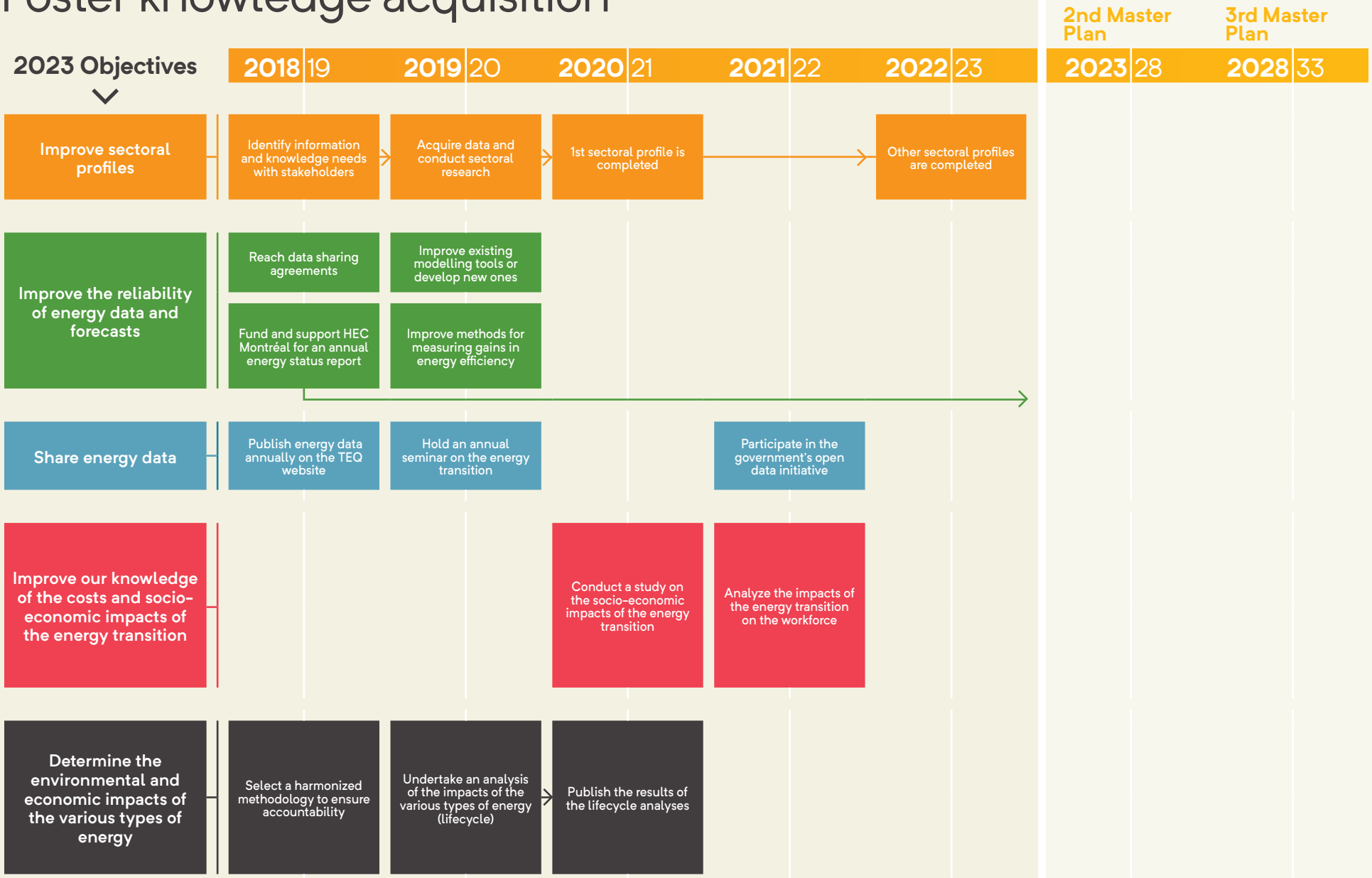
Identify projects that can be funded by green bonds	Identify major projects that can contribute to the energy transition and determine whether they can be funded by green bonds.
Organize a strategic watch to take advantage of business opportunities and innovations that can be used to fund the energy transition	In collaboration with various partners, organize a strategic watch for business opportunities and innovations that can be used to fund the energy transition. Develop partnerships to take advantage of promising opportunities and innovations that can be used to fund energy transition projects.

2030 Vision
for Knowledge Acquisition

By 2030, the development and sharing of energy transition knowledge will foster innovation and the participation of stakeholders. Meanwhile, the knowledge underpinning the government's priorities and planned actions to meet its targets will continue to help it plot its course.

Roadmap

Foster knowledge acquisition



Summary Table
Measures to foster knowledge acquisition

Objective 1: Improve sectoral profiles

Identify information and knowledge needs with stakeholders	Develop partnerships with government departments and agencies and other stakeholders in the energy sector (private sector, NGOs and universities). Ask these stakeholders to complete a survey.
Acquire data and conduct sectoral research	By sector: > Compile available data > Collect missing data > Conduct research in collaboration with firms and research chairs to obtain data > Create an online platform that features all available information

Objective 2: Improve the reliability of energy data and forecasts

Reach data sharing agreements	Determine which data is missing, inaccessible for reasons of confidentiality or lacking in terms of quality. Draw up a list of organizations likely to possess this information. Enter into data sharing and confidentiality agreements, as warranted.
Fund and support HEC Montréal for an annual energy status report	Share the data needed to take stock of the status of energy. Fund and collaborate on studies. Collaborate on drafting a document on the status of energy.
Improve methods for measuring gains in energy efficiency	Together with experts, revisit the methods for calculating energy efficiency in order to improve the accuracy of the results.
Improve existing modelling tools or develop new ones	Evaluate the advantages and limitations of the forecasting model currently in use. Compare its performance with that of other existing forecasting models and select the best model.

Objective 3: Share energy data

Publish energy data annually on the TEQ website	Identify the data to be published based on the needs expressed by the partners. Improve the statistical information system, notably to make it more user-friendly.
Hold an annual seminar on the energy transition	Organize an annual seminar to transfer and share knowledge on the energy transition.
Participate in the government's open data initiative	Identify energy data requirements, then compile and share the data on Données Québec, the government's open data portal.

Objective 4: Improve our knowledge of the costs and socio-economic impacts of the energy transition

Analyze the impacts of the energy transition on the workforce	In partnership with the competent organizations, conduct a study on the impacts of the energy transition on Québec workers. Draw up a list of the challenges and the solutions that could be put in place during the final years of this plan and in subsequent plans.
Conduct a study on the socio-economic impacts of the energy transition	Issue calls for tenders to mandate a specialized organization to conduct a study on the socio-economic impacts of the energy transition for Québec. Verify the availability of the data required for the study with partners that possess them. Measure the impact and effectiveness of programs and other public policies.

Objective 5: Determine the environmental and economic impacts of the various types of energy

Analyze the impact of the various types of energy	Mandate a recognized organization to examine the impacts of the various types of energy on the environment and the economy. Publish the data and results obtained.
Select a harmonized methodology for the energy transition and GHG emission reduction accountability	Develop accountability processes that include quantification of the energy impacts of the measures implemented. Harmonize target monitoring and accountability processes with similar government processes.

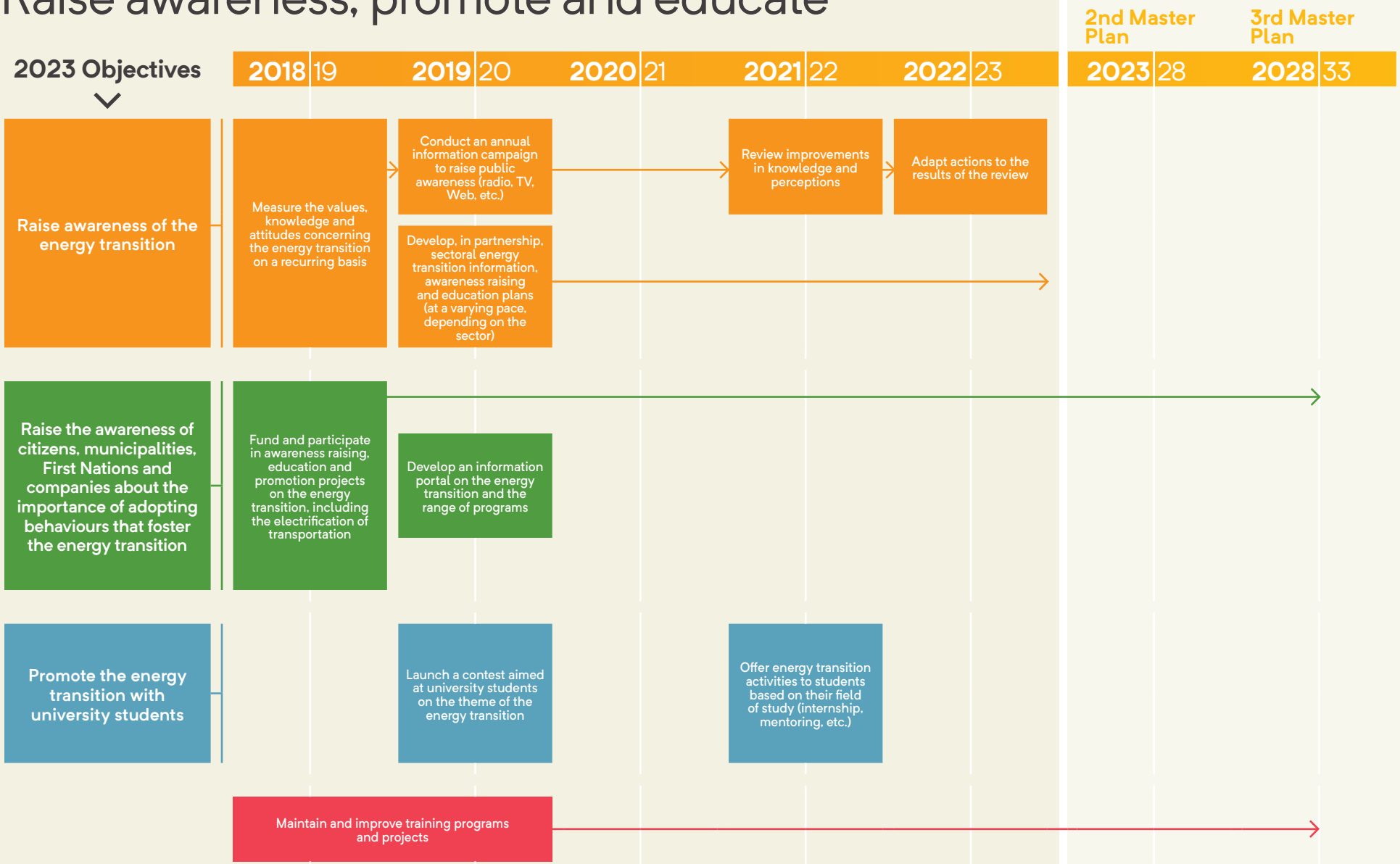
/share /improve /raise our knowledge

2030 Vision

for Awareness raising, Promotion, and Education

By 2030, the culture of energy efficiency will be well ingrained in Québec, and its citizens, the First Nations, municipalities, and businesses will naturally seize every opportunity to make the energy transition.

Roadmap
Raise awareness, promote and educate



Summary Table
Measures to raise awareness, promote and educate

Objective 1: Raise awareness of the energy transition

Conduct an annual information campaign to raise public awareness	›	Conduct a citizen survey of the values, knowledge and attitudes concerning the energy transition. Conduct an information campaign aimed at the public based on the survey results. Following the information campaign, conduct another citizen survey of the values, knowledge and attitudes concerning the energy transition and tailor awareness raising actions based on the responses.
Develop sectoral energy transition information, awareness raising and education plans	›	In partnership with actors in the various sectors, determine the information, awareness raising and education requirements for the energy transition. Develop and implement action plans that meet the needs of actors in the various sectors.

Objective 2: Raise the awareness of citizens, municipalities, First Nations and companies about the importance of adopting behaviours that foster the energy transition

Fund and participate in awareness raising, education and promotion projects on the energy transition	›	Launch calls for tenders to raise the awareness of and educate citizens on different themes related to the energy transition. Fund the selected projects.
Develop an information portal on the energy transition and the range of programs	›	Develop and maintain a web platform featuring up-to-date information on the energy transition and behaviours that favour the energy transition. Forward information to various clienteles on the content of the programs and how to participate in them.

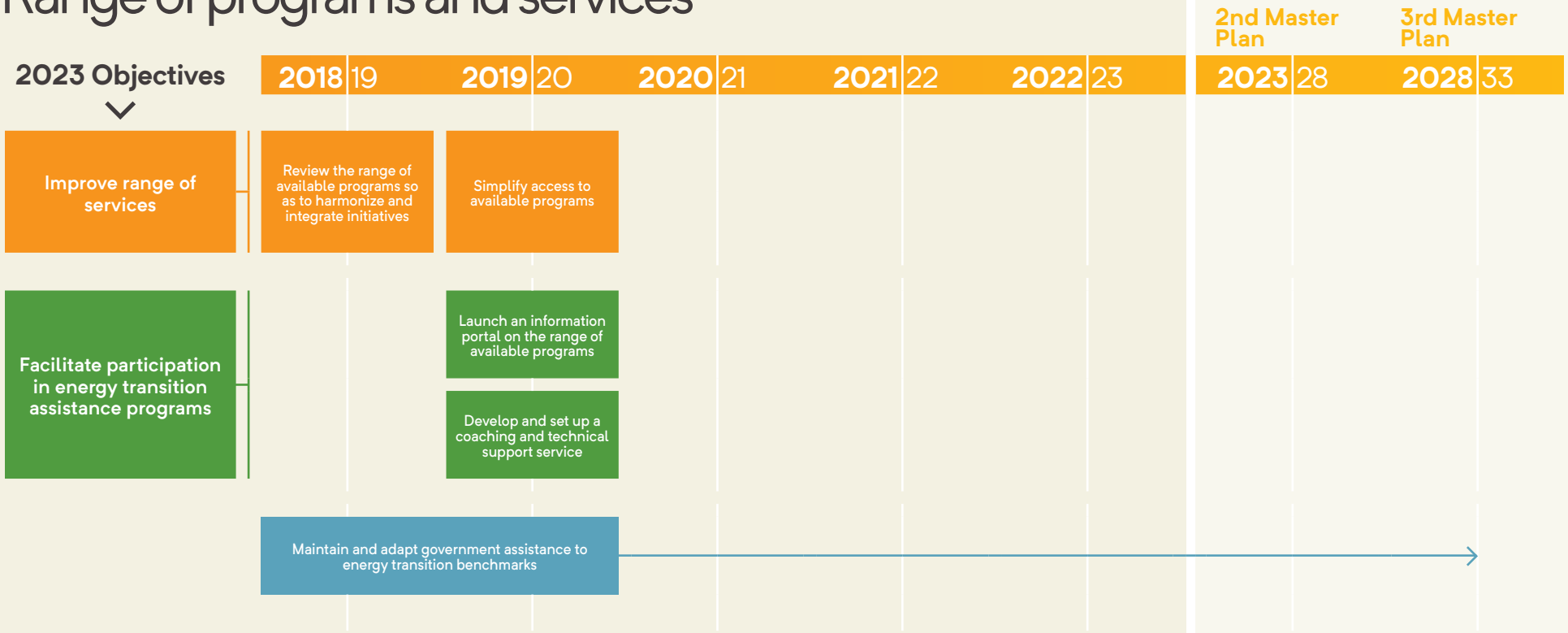
Objective 3: Promote the energy transition with university students

Launch a contest aimed at university students on the theme of the energy transition	›	Launch a contest on the theme of the energy transition that will help university students to hone their expertise. The selection criteria will include originality, intellectual rigour and an understanding of the challenges facing Québec.
Offer energy transition activities to students based on their field of study	›	Offer internship and mentoring activities that promote the application and development of knowledge in areas related to the energy transition.

2030 Vision
for the Range of Programs and Services

By 2030, the integrated array of programs and services will have helped support the energy transition through the consistent and concerted actions of the actors.

Roadmap
Range of programs and services



Summary Table
Measures to improve the range of programs and services

Objective 1: Improve range of services

Review the range of available programs	>	Set up a working committee to review the range of available programs in each sector. Make recommendations to simplify the range of services.
Simplify access to available programs	>	Implement the recommendations of the committee by combining certain programs and harmonizing administrative procedures, for example.

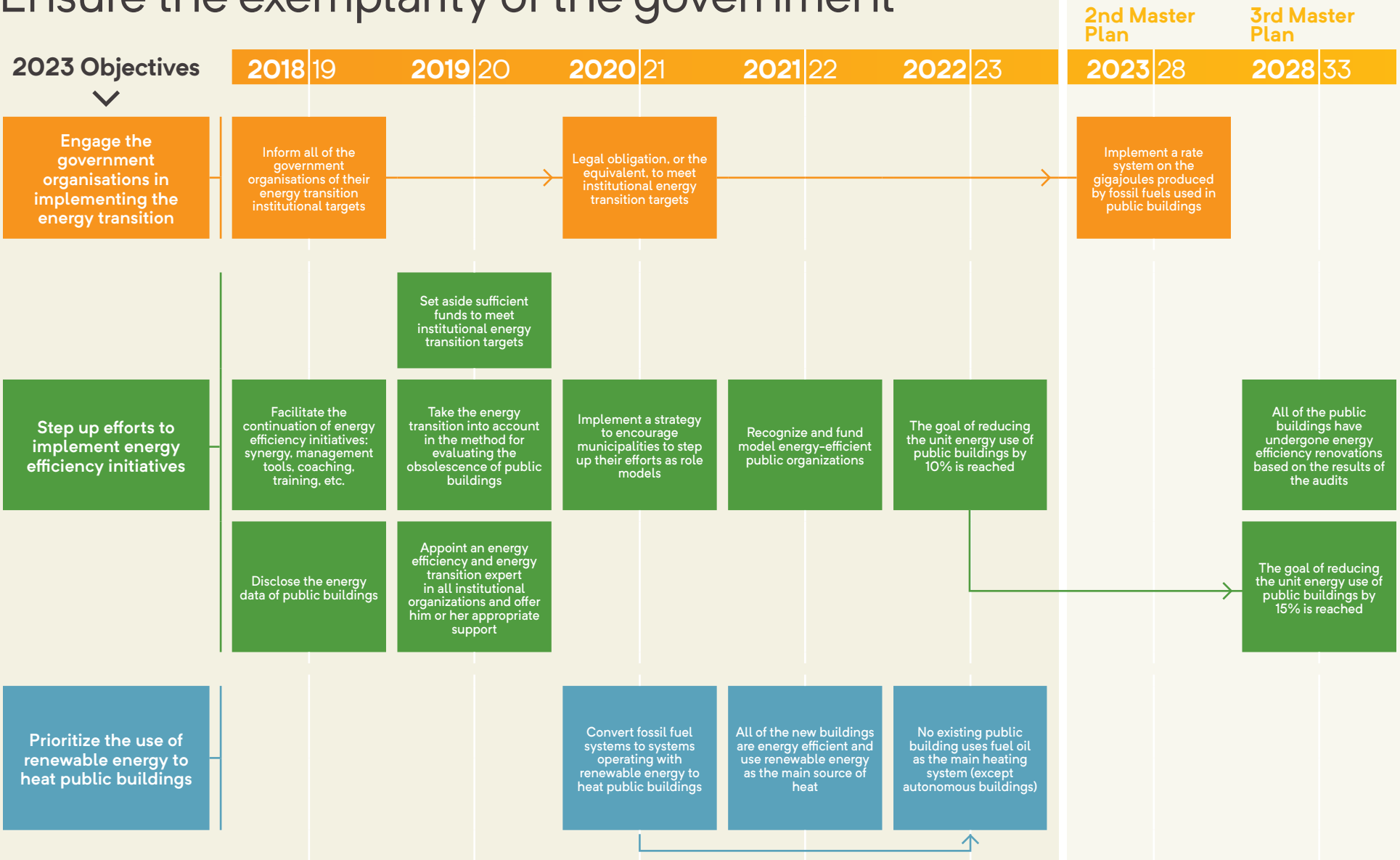
Objective 2: Facilitate participation in energy transition assistance programs

Launch an information portal on the range of available programs	>	Design and launch a web platform containing all the information required by various clienteles on the content of the programs and the conditions for participating in them. Set up a Carrefour québécois de l'économie verte (Québec green economy hub) on the Entreprises Québec portal for companies in order to simplify access by them to information and assistance programs. Create a network of resource persons in government departments and agencies and among energy distributors in order to help business customers access information and assistance programs.
Develop and set up a coaching and technical support service	>	Create a centre devoted to the promotion and development of technical expertise in the energy transition and pool the government's expertise and that of its partners.

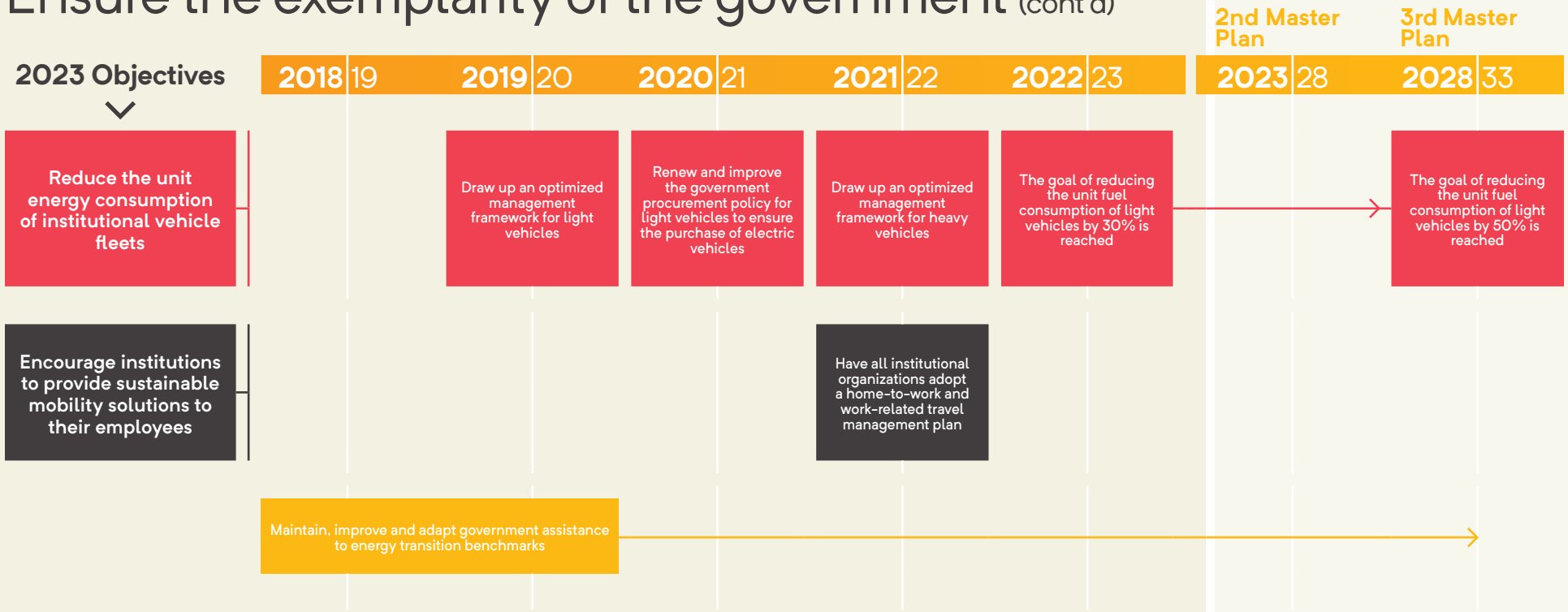
2030 Vision
for the Exemplarity of the government

By 2030, the Government of Québec will have integrated energy efficiency and the prioritization of renewable energy into its organizational culture. It will lead by example with good energy management practices and will pave the way for Québec to complete its energy transition.

Roadmap
Ensure the exemplarity of the government



Roadmap
Ensure the exemplarity of the government (cont'd)



Summary Table
Measures to ensure the exemplarity of the government

Objective 1: Engage the government organisations in implementing the energy transition

Inform all government organisations of their energy transition institutional targets	Determine the energy reduction targets the various government departments and agencies will need to meet in the coming years.
Compel public organizations to meet institutional energy transition targets	Adopt a framework law, or its equivalent, on the exemplarity of the government.

Objective 2: Step up efforts to implement energy efficiency initiatives

Facilitate the continuation of energy efficiency initiatives: synergy, management tools, coaching, training, etc.	Continue the initiatives already under way to achieve energy efficiency and GHG emission reduction goals.
Set aside sufficient funds to meet institutional energy transition targets	Include energy transition requirements for building projects registered under the Québec Infrastructure Plan and provide sufficient funds to ensure that the requirements can be met.
Take the energy transition into account in the method for evaluating the obsolescence of public buildings	Adopt a mandatory audit procedure and include an evaluation of the potential for improving the energy performance and the reduction of GHG emissions of public buildings when assessing their obsolescence. Adopt a measure for the mandatory recommissioning of the mechanical systems of public buildings. This measure will be included in the framework law on the exemplarity of the government.
Appoint an energy efficiency and energy transition expert in all institutional organizations and offer him or her appropriate support	Analyze the workforce and offer continuing education and ad hoc assistance in energy efficiency to project managers.
Disclose the energy data of public buildings	Post the energy performances of public buildings on line on an annual basis. Begin with the overall energy performance of all buildings and work up to the energy performance of individual buildings. This measure will be included in the framework law on the exemplarity of the government.
Recognize and fund model energy-efficient public organizations (buildings and transportation)	Spotlight and offer increased visibility to model institutions that meet the highest standards of energy management and reduction of GHG emissions. Fund specific innovative initiatives.
Step up the efforts of municipalities to adopt exemplary practices	Draw up and implement a strategy to encourage more municipalities to adopt exemplary practices for managing their buildings and vehicle fleets.

Objective 3: Prioritize the use of renewable energy to heat public buildings

Install renewable energy heating systems with superior energy performance in new public buildings	This measure can be found in the 2013-2020 Climate Change Action Plan (CCAP) which is already in force. The application of this measure will be enhanced within the framework law on the exemplarity of the government.
Convert fossil fuel systems to systems operating with renewable energy to heat public buildings	Continue the conversion of oil heating systems. Starting in 2020-2021, convert all fossil fuel heating systems at the end of their useful life to systems using renewable energies. This measure will be included in the framework law on the exemplarity of the government.

Objective 4: Reduce the unit energy consumption of institutional vehicle fleets

Encourage the purchase of electric vehicles	Extend the current *Politique d'acquisition gouvernementale pour les véhicules légers* (government policy on the acquisition of light vehicles) beyond 2020 and include charging stations as well as the goal of acquiring 1000 additional vehicles (rechargeable electric or hybrid) by 2022-2023.
Draw up an optimized management framework for light and heavy vehicles	Mandate Centre de gestion de l'équipement roulant — CGER (rolling stock management centre) to establish and apply a management framework to optimize the performance of vehicles fleets. This measure will be included in the framework law on the exemplarity of the government.
Enhance centralized services provided for the management of vehicle fleets	Strengthen the responsibility of CGER for helping government departments and agencies as well as institutions to manage their vehicle fleets.
Collect all fuel consumption figures for light and heavy vehicles	Include the collection of fuel consumption figures from the vehicle fleets of the education and health and social services networks. Post the energy performance of vehicle fleets on line.

Objective 5: Encourage institutions to provide sustainable mobility solutions to their employees

Have all institutional organizations adopt a home-to-work and work-related travel management plan	Assign the responsibility to a team to coordinate and optimize eco-responsible efforts in the area of work-related and personal travel within the government. This team will be tasked with supporting institutional organizations in the preparation of home-to-work and work-related travel plans to demonstrably reduce GHG emissions.
Limit the travel of public building users	Include criteria in the decision-making process for selecting building projects that favour sites that make it possible to reduce the fuel consumption of people who work in these buildings or who must go to these buildings, including suppliers of goods and services

The First Nations

Setting the stage for lasting collaboration to improve the well-being of communities

More than ever the First Nations are engaging in energy and climate issues.

On the one hand, since their way of life is intimately linked to the land and natural resources, they are well placed to quantify the magnitude of the changes that human activities are having on the environment. These increasingly frequent and marked changes are forcing the communities being impacted to find ways to adapt to social, environmental and economic consequences that are often difficult to predict or measure.

On the other hand, the First Nations want to take direct action to improve the energy situation of their communities and their members. Their objectives include increasing the use of renewable energy sources located close to their communities, improving the energy performance of their homes and buildings by decreasing local emissions of GHGs and other pollutants and reducing the energy costs of households and businesses while, at the same time, improving living standards and local economies.

Time and again the First Nations have demonstrated their leadership by developing energy efficiency projects in their territories. Pekuakamiulnuatsh Takuhikan collaborated in developing, launching and now monitoring mini-hydroelectric plants in Val-Jalbert and at the 11th falls of the Mistassini River, which has stimulated local economic development.

Akwesasne, for its part, has worked to improve the energy efficiency of its buildings and to set up energy management training programs. Wind and solar farm projects have also been inaugurated and are a type of initiative that deserves to be better known and encouraged.

In general, the First Nations require adequate financial assistance, but they also would like to see greater awareness of their situation and their knowledge of their land and resources, as well as recognition of the important contribution they can make in resolving the various energy issues.

Of all the ideas expressed in discussions with the First Nations during the preparation of the Master Plan, their increased and ongoing commitment came up time and again.

Lasting collaboration with the First Nations

Indigenous nations in Québec

Québec is home to forty-one Indigenous communities grouped into ten First Nations. Some 63,000 Indigenous people live in their communities while nearly 30,000 others live in municipalities across Québec. Indigenous communities are governed by band councils. This political structure is different from the administrative structure in place in Québec municipalities.

In addition, some 12,000 Inuit live mainly in northern villages located along Ungava Bay and the Hudson Strait. These villages, which make up the Inuit Nation, are headed by a mayor and a council. TEQ intends to hold discussions with the Inuit Nation over the next several months in order to agree on an approach similar to that used with the First Nations.

Using existing solutions to improve the energy efficiency and reduce the GHG emissions in Indigenous communities requires specially tailored measures and local involvement to ensure that all actions take their priorities and best practices into account.

Some of the energy issues faced by the First Nations are different from those of Québec society in general. The First Nations rarely participate in government priority-setting processes with regard to energy. Neither are they consulted when intervention measures are developed. This often results in government actions that are ill suited to the needs of their communities and members and are thus ineffective in terms of the energy transition.

Certain communities are not connected to the hydroelectric grid. They are dependent on fossil fuels, which is a burden on their annual budgets. The problem is even more acute given that the housing stock is especially energy-guzzling in a number of communities.

The First Nations also need to improve their knowledge about the production and use of energy. This knowledge is essential for creating and sustaining vital projects for communities and for providing advice to families and businesses on energy efficiency issues.

Objectives and key measures

The main objective of the Master Plan with respect to the First Nations is to consult their representatives on issues surrounding the energy transition and to act in concert with them in order to take their needs, values and interests into consideration and to implement well-adapted measures.

Define a specific action plan for the First Nations

A number of actions must be taken to respond to energy transition issues. A specific action plan for the First Nations will be developed in the months following the tabling of the energy transition, innovation and efficiency Master Plan. A TEQ-First Nations committee will be rapidly established to prepare the action plan.

This plan will set out specific measures to deal with the following issues:

- Improve knowledge in the various areas where action is required (state of the housing stock, bioenergies, etc.)
- Perform a diagnosis of the energy needs of the First Nations in areas of action related to TEQ's mission
- Evaluate financial requirements and develop financial assistance options
- Modify the terms and conditions of assistance programs to take the reality of the First Nations into consideration (including the creation of special programs, as warranted)
- Develop expertise within the communities
- Develop measures to raise the awareness of community members concerning energy issues and available strategies
- Collaborate with the federal government

TEQ and the First Nations will decide which Québec government departments and agencies will be called on to contribute to the work of the committee on the action plan. The best avenue to secure the collaboration of the federal government will also be determined jointly.

The action plan will identify the actions that will be taken for the duration of the Master Plan, the people in charge and the timelines for these actions.

The TEQ-First Nations committee will conduct an annual follow-up in order to measure the progress of the action plan and to propose adjustments, as needed.

TEQ will cover the operating costs of the committee. Provisional amounts will be allocated to the First Nations so as to permit the rapid start-up of initiatives while the action plan is being prepared.

Financial Framework

The overall budget for the master plan totals over $6 billion and is funded by a number of different sources.

The plan's financial framework consists of confirmed amounts as well as amounts yet to be confirmed. The latter are in line with earlier decisions regarding the use of available funds earmarked for energy transition activities.

The choice of the preferred funding source for each of the measures in the master plan is directly linked to its anticipated impact, since each funding source has a clearly defined objective.

The budget for the master plan takes into account the sums from dedicated funds[1] such as the Fonds vert, as well as Québec and federal government credits. On top of these sums are the annual contributions paid to TEQ by the energy distributors, and the financial aid provided by the energy distributors for the programs and measures for which they are responsible.

Annual contribution payable to TEQ

Under the Act respecting Transition énergétique Québec, energy distributors must pay an annual contribution to TEQ. In order to meet the master plan's objectives and targets, in addition to the measures for which the regulated energy distributors are responsible, the financial input from their annual contributions is in the order of $426 million for the period covered by the master plan. This amounts to an average annual contribution of $85.2 million.

See Figure 1 for the breakdown of energy forms.

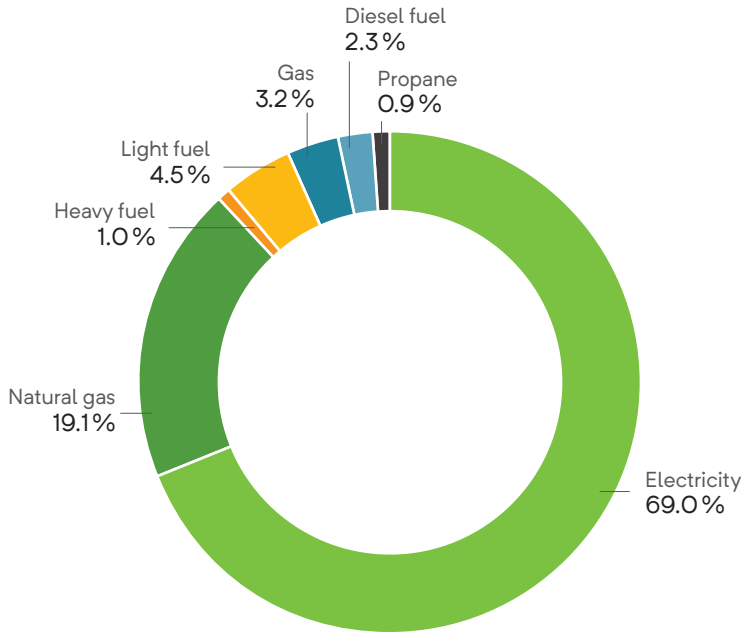
Financial contribution of energy distributors

Québec's energy and natural gas distributors, like TEQ and the agencies that came before it as far back as the 1970s, have been active in the area of energy efficiency for many years.

The Regie de l'énergie will approve five-year budgets for the master plan measures implemented by the regulated energy distributors.

These measures and programs are in keeping with those presented in tariff applications submitted to the Regie de l'énergie in the past.

Figure 1: Breakdown, by energy form, of funding from annual contributions paid to TEQ by energy distributors



1 Dedicated funds include the Fonds des réseaux de transport terrestre (FORT) and the Fonds du Plan Nord.

Budget Breakdown

The following two figures show the budget breakdown by theme and by government department or agency, or energy distributor.

With an amount corresponding to over 43% of the master plan's total budget, the transport sector receives the greatest financial contribution, followed by the building sector (16%) and industry (13%).

TEQ accounts for nearly half of the master plan's financial framework. Government departments and agencies—with Ministère des Transports, de la Mobilité durable et de l'Électrification des transports — MTMDET leading the way (27%)—account for 42%, while energy distributors, through the funding of their respective programs, contribute over 12%, of which 10% is from investments by Hydro-Québec.

Figure 2: Budget breakdown by theme

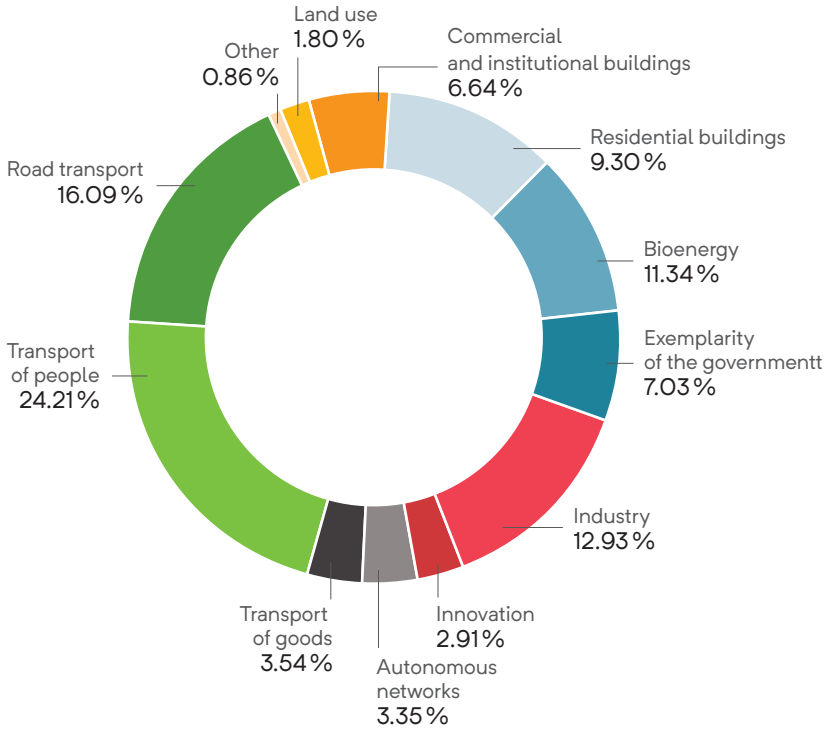
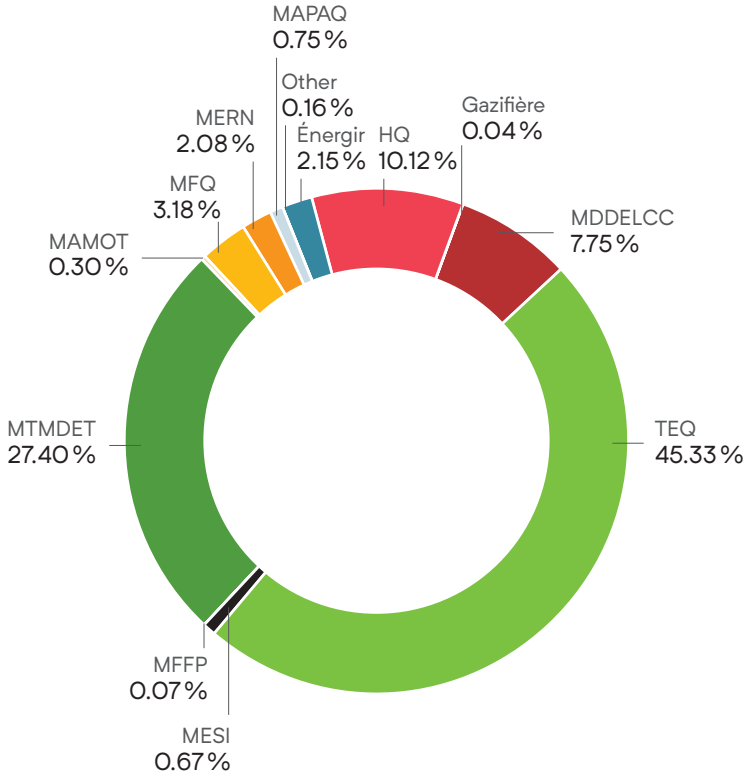


Figure 3: Budget breakdown by government department or agency, or energy distributor



/Conclusion

The 2030 Energy Policy gave rise to Transition énergétique Québec, entrusting it with the mandate to coordinate Québec's energy transition by way of the Energy Transition, Innovation and Efficiency Master Plan.

In an Order in Council adopted on June 7, 2017, the Government of Québec set out its expectations with regard to the first master plan, stipulating that it must help...

Increase

the use of clean energy

Reduce

energy consumption

Boost

innovations in energy efficiency and in the production and consumption of renewable energies

The plan put forth by TEQ meets legal requirements and the government's expectations and targets. With the new plan, **Québec's energy efficiency will be improved by approximately 1.2% a year and, by 2023, the consumption of petroleum products will have dropped by 12.2% compared to 2013 levels**. For the first time in recent history, **renewable energy could exceed 50% of Québec's energy balance by 2023**.

The measures set out in the master plan are the culmination of a joint process, supervised by TEQ, involving government departments and agencies, as well as energy distributors, that identified over 200 measures targeting every sector of activity and all consumers.

Throughout the master plan development process, TEQ sought to group together the many energy transition measures proposed by Québec into one coherent document. In so doing it became evident that we could achieve even more by consolidating the initiatives and expertise devoted to this mission.

Over and above this point, the measures set out in the master plan seek to address a number of obvious facts: Québec is a society that consumes enormous amounts of energy and, despite its significant production of green energy, it is still highly dependent on fossil fuels that it must import. That's why energy efficiency must be the first line of response to the ever-growing demand for energy, and the key measure for improving quality of life, protecting the environment, and boosting the productivity of Québec's companies.

The master plan sets out a range of initiatives to enhance the knowledge base on which the next master plans will be based to meet the more ambitious targets to which Québec aspires.

In addition, these measures will support the innovation challenges prioritized by the main actors. The plan also includes measures to ensure the government leads by example in terms of energy consumption and management.

Efforts to reduce the carbon footprint of the transport sector are still in the early stages. All those involved are convinced of the need to do more in the long term, and the master plan sets out some ambitious initiatives in this regard. But even more important is the need to move quickly to reverse the trends in this sector that run counter to the energy transition.

Lastly, the implementation of the master plan will be monitored closely. Its progress and intermediate results will need to be measured constantly, rigorously, and in a highly transparent fashion so that the government's services can be adapted and improved as required. This monitoring will provide an opportunity to step up governance of the services offered by the government as well as by other stakeholders, which are key to achieving the targets of the next master plans.

With this first Energy Transition, Innovation and Efficiency Master Plan, Quebecers are joining forces to carry out the energy transition toward an economy that uses energy in a sustainable manner.

Support

the decarbonization of the transport of people and goods

Improve

Québec's average energy efficiency by 1% annually

Reduce

by 2023 total consumption of petroleum products by at least 5% compared to 2013.

Québec

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