



## Call for Research and Innovation Projects in the Field of Advanced Materials – R24

**Deadline for letter of intent: April 29, 2022 at noon**

**Application deadline: May 30, 2022 at noon**

### 1. Objectives

- a. PRIMA Québec, le Pôle de recherche et d'innovation en matériaux avancés, animates and supports the ecosystem of advanced materials by favoring collaborative innovation for the economic development of Quebec. He is the privileged catalyst between industrial and research circles.
- b. This call for projects seeks to support innovation in the field of advanced materials by funding **collaborative research projects** designed to accelerate the development of advanced materials as a practical response to some of Québec's major industrial challenges. It has been developed to help establish collaborations between industry and the research sector (universities, CCTT or public research centres<sup>1</sup>).
- c. Strengthen the capacity for technological innovation of companies and investment communities and materialize the development and transfer of technology through concrete benefits.
- d. Showcase research results that have commercial potential.
- e. Train highly qualified workforce.
- f. This call for projects involves two types of funding applications according to the project's technology readiness level (TRL<sup>2</sup>) measured at the beginning of the project according to the state of the art in Québec:
  - Application for funding a project with a TRL level between 1 and 3, involving at least two independent companies, including at least one established in Quebec and carrying out internal production or R&D activities there, as well as at least one university or a CCTT or a public research center in collaboration with a university or a CCTT;
  - Application for funding a project with a TRL of 4 to 6 and involving at least one company, which is established in Québec where it carries out its in-house production or R&D activities, as well as at least one university, CCTT or public research centre.
- g. The projects submitted must clearly present the benefits of the projects for research, training and economic development.
- h. It is strongly encouraged to contact a PRIMA advisor to review the application before submission.

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<sup>1</sup> The list of recognized eligible public research centers is available at the [following link](#)

<sup>2</sup> Definitions of different technology readiness levels (TRL) are recapped in Appendix B of this document.



## 2. Recommended themes

In keeping with its strategic plan, PRIMA Québec recommends the submission of files dealing with the development of advanced materials applied to such key Québec sectors as transportation and infrastructure, energy, the environment, electronics, health, chemistry and critical and strategic minerals.

Technologies targeted by this call for projects include primarily:

- **New materials:** Polymers, elastomers, biomaterials, metals, innovative fillers, cellulosic filaments, natural and synthetic fibers, nanomaterials, quantum material, etc.
- **Formulated materials or high-performance finished or semi-finished products:** Composites (TD or TP), rubbers, alloys, ceramics, smart textiles, flexible materials, membranes, thin layers, coatings, biocompatible materials, encapsulation, sensors, quantum technologies, etc.
- **Implementation processes, scaling and new characterization techniques:** Additive manufacturing and 3D printing, modification and surface treatment, micro/nanofabrication, tools, new characterization tools, modelling and simulation, shaping processes, quantum calculus, etc.
- **Use of artificial intelligence** with advanced materials for production, integration or implementation processes or characterization technique.

## 3. The participants

### Eligible candidates

Applications must be submitted by Québec research establishments. Universities, CCTTs or public research centres are eligible (If the research centre is not on the list please contact a PRIMA advisor to check the status [public or private] with the MEI). They must allow the training of highly qualified personnel (HQP).

### Eligible company

- It is necessary to have at least one company with a presence in Quebec (**production or R&D**). Investment funds are not considered an eligible industrialist. It is necessary that the industrialist be a buyer environment and be able to implement the benefits of the project.
- Foreign and Canadian companies are admitted as second (or third, etc.) industrial partner.
- **Related companies will be considered as one and the same company in the project.** Related meaning that "the relationship between the companies would be such that one has the ability to exercise, directly or indirectly, control or significant influence over decisions relating to the financing or operation of the other".
- Companies majority controlled by a government department or agency are not eligible as industrial partners. Their contributions will be considered as a public contribution. As well contribution coming from municipalities.
- **Hydro-Québec** is considered, by default, as a public research center. However, the latter can be considered as an industrialist under certain conditions, see **appendix A** for details.



- Foundations and NPOs may be eligible as a 2nd industrialist. However, they must be a **willing environment**: it must have the capacity and bring their expertise to the project and benefit from the direct benefits of the project.
- Start-ups are eligible; however, the MEI may request additional information to ensure the company’s involvement in the project and its R and D and production capacities and to be able to implement the benefits of the project.

### Membership of PRIMA Québec

All industrial and academic organizations or public research centres participating in a project **are required to be members of PRIMA Québec at the time the project is submitted** and must remain members throughout the duration of the project.

To become a member of PRIMA Québec: <http://www.prima.ca/en/become-member>.

0-50 employees	280 CAD
51-249 employees	450 CAD
250-499 employees	650 CAD
500 employees and (+)	1 000 CAD
Universities	2 000 CAD
CCTT – Public Laboratory	1 000 CAD
Partners	380 CAD



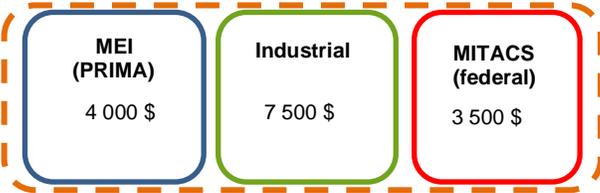
**4. Financing Program Standards**

TRL	1 to 3	4 to 6
<u>Minimum</u> number of industrial partners	2 including at least 1 in Québec	1 in Québec
Eligibility of industrial partners from outside Québec	Yes, as a 2 <sup>nd</sup> company It cannot be related to the first company	Yes, as a 2 <sup>nd</sup> company
<u>Minimum</u> number of Québec academic partners (university or CCTT or public research centres)	1	
Eligibility of public research centres alone	NO The public research centre must collaborate with a university or CCTT	YES provided the project <b><u>involves the training of HQP</u></b>
PRIMA Québec financing maximum, in %, of eligible R&D costs	40%	20%
Minimum industrial financing	<b>Min 20% in cash</b> The cash contribution of any of the partners <u>cannot exceed 80% of the total industrial contribution.</u>  The contribution of a company that has been paid to it as part of a government grant will not be considered an industrial contribution.  Money from another government agency is not accepted.	<b>Min 40% in cash and in-kind</b> Contribution in kind is only considered up to a maximum of 20% of the total research budget.  The contribution of a company that has been paid to it as part of a government grant will not be considered an industrial contribution.  Money from another government agency is not accepted.
Maximum cumulative public financing	80%	60%
Complementary financing encouraged	NSERC <sup>3</sup> , NRC-IRAP, MITACS, other municipal, provincial or federal funding sources. Any additional funding must be added to the PRIMA request (thematic and budget) once the additional funding has been deposited.  <b><u>It is necessary to specify in the request for additional funding that an application to PRIMA has been submitted</u></b> and the supplementary financing budget must include funding <u>from PRIMA<sup>4</sup>.</u>  <u>Complementary funding already obtained that does not specify PRIMA Quebec and the current project cannot be used.</u>	

<sup>3</sup> In alliance grant, please specify PRIMA as “Other funder (who does not participate in the research)” and specify Michel Lefèvre, michel.lefevre@prima.ca as PRIMA resource person.

<sup>4</sup> A copy of the request for additional funding must be sent to PRIMA.



TRL	1 to 3	4 to 6			
	<p><b>Only new industrial contributions for new projects will be recognized as consideration,</b> MEI aid must be granted in return for new industrial inputs (not already committed as co-financing in other programs or projects).</p> <p>Supplementary financing:</p> <ul style="list-style-type: none"> <li>• Cannot be financial aid from another MEI program, or a contribution already matched by the MEI.</li> <li>• Cannot be funding already committed for research activities that are distinct from those that are the subject of PRIMA’s application.</li> <li>• Cannot be a contribution provided by the public research centre that is carrying out the project as support for the project.</li> <li>• Could be an aid from another department or municipality, or public entity. If you plan to use municipality fund contact a PRIMA advisor</li> <li>• <b>For the use of MITACS or NRC-IRAP as complementary funding contact a PRIMA advisor.</b></li> <li>• <u>MITACS funding cannot exceed 50% of the research budget and must be divided into its components.</u> The MEI part enters in the PRIMA funding, the industrial part in the industrial funding, the MITACS part in the complementary funding.</li> <li>• <u>The scientific evaluation of PRIMA serves as a scientific evaluation for MITACS internships.</u></li> <li>• <b>It is mandatory to quickly contact your PRIMA and Mitacs advisor to ensure the coordination of the PRIMA form and the Mitacs appendix.</b></li> </ul> <p>Division of a MITACS internship unit (15 000\$)</p> <div style="text-align: center;">  <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td style="text-align: center; padding: 5px;"> <b>MEI (PRIMA)</b> 4 000 \$         </td> <td style="text-align: center; padding: 5px;"> <b>Industrial</b> 7 500 \$         </td> <td style="text-align: center; padding: 5px;"> <b>MITACS (federal)</b> 3 500 \$         </td> </tr> </table> </div>		<b>MEI (PRIMA)</b> 4 000 \$	<b>Industrial</b> 7 500 \$	<b>MITACS (federal)</b> 3 500 \$
<b>MEI (PRIMA)</b> 4 000 \$	<b>Industrial</b> 7 500 \$	<b>MITACS (federal)</b> 3 500 \$			
Maximum duration of projects	3 years				
Indirect research costs (only for universities)	27% of the MEI contribution on eligible expenses				
PRIMA Quebec management fees	2.4% of the R&D budget for the industrialist (maximum \$30,000) 1.6% of the R&D budget paid by the MEI (maximum \$20,000)	1.2% of the R&D budget for the industrialist (maximum \$40,000) 0.3% of the R&D budget paid by the MEI (maximum \$10,000)			
Maximum PRIMA Québec financing in \$ per project. <u>including indirect research expenses and management fees of the MEI</u>	\$1.5 M (\$500 K/year)				



**Example of funding**

TRL 1-3			TRL 4-6		
Contributions	\$	%	Contributions	\$	%
Industrial partners (Cash)	20,000	Min. 20	Industrial partner	40,000	Min. 40
Industrial partner 1	(16,000)	(Max. 80)	Cash	(20,000)	(20)
Industrial partner 2	(4,000)	(20)	In-Kind	(20,000)	(Max. 20)
PRIMA Québec	40,000	Max. 40	PRIMA Québec	20,000	Max. 20
Additional public funding	40,000	40	Additional public funding	40,000	40
<b>TOTAL R&amp;D BUDGET</b>	<b>100,000</b>	<b>100</b>	<b>TOTAL R&amp;D BUDGET</b>	<b>100,000</b>	<b>100</b>

**Eligible Expenses**

Eligible expenses are the direct project costs (research mandate) that are incurred by public research institutions in Québec. The salaries of university researchers who are currently paid by their institution or by a government granting agency are not eligible expenses.

List of eligible expenses:

1. Wages, salaries and benefits that are not the subject of any other public financial support (students, postdoctoral fellows, assistants and research professionals, technicians, etc.);
2. Scholarships;
3. Consumables and supplies specific to the project<sup>5</sup>;
4. Purchase (less \$ 15k per equipment before taxes) or equipment rental (maximum 25% of total eligible expenses);
5. Intellectual property management fees;
6. Fees of professionals and subcontractors;
7. Travel and subsistence expenses<sup>6</sup>, these must be reasonable. In the context of projects carried out abroad, travel and living expenses abroad for Québec researchers and students are eligible, but may not exceed 15% of the total eligible expenses. Travel and living expenses of foreign researchers are not considered eligible.
8. Monetary compensations for project participation;
9. Dissemination fees;
10. 10. Animal and platform fees;
11. Costs related to subcontracts.

The salaries of university researchers who are currently paid by their institution or by a government granting agency are not eligible expenses.

Administrative costs are not eligible.

<sup>5</sup> Consumables cannot be the object of commercial transactions between stakeholders (for example, purchased from one of the industrial partners)

<sup>6</sup> See Annex C for standards



For TRL 1-3 projects, in-kind contributions from partners are not taken into account in the calculation of the grant. However, the jury can take this into account when measuring the degree of involvement of the company in the project.

For TRL 4-6 projects, in-kind contributions from partners are also accepted if:

- These are expenses subject to audit by the MEI (their value can be reasonably established and supported by supporting documents);
- They are essential for the realization of the selected project;
- They correspond to costs incurred specifically to carry out the project;
- They represent an item for which one would otherwise have to pay at the same or higher cost;
- Only 20% of the total financial package of the project is taken into account, there may be more than 20% in the project.

**The projects are cost-shared between the manufacturer, the MEI and additional financing. MEI's support is aimed at the entire project and not just a portion of the project's research activities.**

### Indirect research expenses

For all funded projects, PRIMA Québec will grant to the university, in addition to the research grant, a subsidy for indirect costs of research for a maximum of 27% of the grant awarded by PRIMA Québec on the following items of expenditure: salaries, student grants, small equipment, equipment rental, material, consumables and supplies, as well as travel expenses.

Note: The other financial contributors to the project must pay an indirect research expenses rate on their contribution at least equivalent to that of the MEI for the project (27%). In other words, all the funders must pay the full costs of the research, notably by paying the indirect research expenses.

### Management costs

PRIMA's management costs are shared between the manufacturers and the MEI. It is the responsibility of the funding applicant to inform industrial partners of PRIMA Quebec's management fees. The combined management fees of the MEI and the industrialist are a maximum of \$50,000.

For TRL 1-3 projects

- The industrialists involved in the project must contribute to the management fees of PRIMA Québec for a total amount of **2.4%** of the amount of research mandate or 30 000\$ max.
- The management fees of the MEI are 1.6% or 20 000\$ max.

For TRL projects 4-6

- The industrialists involved in the project must contribute to the management fees of PRIMA Québec for a total amount of **1.2%** of the amount of research mandate or 40 000\$ max.
- The management fees of the MEI are 0.3% or 10 000\$ max.



## Intellectual property management

An agreement governing conditions for the management of intellectual property must be concluded among all partners (companies, universities, research centres) before financing is awarded.

Application files will be accepted for evaluation even if an intellectual property agreement is not available at the time the proposal is submitted. Nonetheless, **the application file must present a broad outline of the sharing of intellectual property under consideration.**

## Communications

Please note that the information given in the identification sheet section as well as the amount of the subsidy are public data and can be used by the MEI and PRIMA Québec for promotional purposes.

If your project is approved for funding, the ministry may reserve the right to a first communication. Please communicate with PRIMA before any first communication about the project.

## 5. The procedure and the timetable

1. Launch of the call for projects on February 14, 2022
2. Letter of Intent mandatory before April 29, 2021. It is not mandatory that all partners be determined at this time.
3. Applicants must submit a COMPLETE APPLICATION by 12:00 p.m. May 30, 2022. With the PRIMA form, it is necessary to attach
  - a. The CVs of the main researchers and academic and industrial collaborators (no particular format is imposed).
  - b. Signed letters of support from manufacturers for the project, these must indicate:
    - i. The amount of cash and in-kind allocated to project R&D.
    - ii. Why is this project necessary for them?
    - iii. What will be the benefits for them?
  - c. A PDF copy of the additional funding request must be sent to PRIMA Quebec once it has been submitted.
  - d. If applicable, the Mitacs joint application form with an RSRI if the promoter does not use the NSERC/MITACS joint program
4. Projects will be evaluated by a scientific and economic evaluation committee selected by FRQ-NT and IRAP-NRC. (See point 6 for criteria)
5. The results will be announced in September 2022.
6. Obtaining additional financing and signing the intellectual property agreement. Please obtain these elements within a reasonable time to avoid any questioning of the scientific and economic evaluation.
7. Sending of the file to the MEI to obtain the authorization of financing.



8. Once authorization has been obtained, the grant agreement between the project promoter and PRIMA Québec must be signed within 9 months. The start date of the project cannot be earlier than the date of submission of the project to PRIMA Québec.
9. During the project, proof of the industrial partners' contribution as well as technical and financial reports will be required as specified in the grant agreement.
10. At the end of the project, final reports (technical and financial) from the promoter and assessment report completed by the industrialists present in the project will be requested.

## 6. Evaluation criteria

For each of the “TRL 1-3” and “TRL 4-6” components, the selection of applications will be made by an independent selection committee selected by the FRQ-NT and the PARI-NRC according to the following criteria and according to the weighting indicated:

### TRL 1-3 projects:

#### A. Scientific component (70% of the overall mark)

- Scientific quality and feasibility of the project (40%)
- Training and knowledge transfer (20%)
- Innovation and impact of the project in the medium term (40%)

#### B. Economic relevance component (30% of the overall score)

- Relevance and adequacy between the project and the industry as well as the quality of the team (50% of the economic component)
- IP strategy and economic spinoffs for industry and Québec (50% of the economic component)

### TRL 4-6 projects:

#### A. Scientific component (60% of the overall mark)

- Scientific quality and feasibility of the project (30%)
- Training and knowledge transfer (30%)
- Innovation and impact of the project in the medium term (40%)

#### B. Economic relevance component (40% of the overall score)

- Relevance and adequacy between the project and the industry as well as the quality of the team (50% of the economic component)
- IP strategy and economic spinoffs for industry and Québec (50% of the economic component)



To be eligible for funding, a project must obtain:

- A score above **70%** on the scientific component,
- A score higher than **50%** on the economic component,
- The overall score must be greater than **70%**.

The selection committee can approve the project, refuse it or approve it conditionally to changes or clarifications required by the selection committee.

Following a positive evaluation, the project sent to the board of PRIMA Québec for recommendations for funding to the MEI. However, the MEI reserves the right or not to award the funding. It could prioritize projects based on the benefits for research, the training of skilled workers and the economic benefits.

The approval of the MEI is also subject to obtaining additional funding and an intellectual property agreement between the participants. To avoid lengthening the time between the submission of the project and the funding agreement, please submit the request for additional funding and the PRIMA request at the same time.

This program is dependent on funding from the MEI. No guarantee of obtaining the grant can be granted. The grant criteria and other terms and conditions of this funding program are subject to change without notice.

Please note that the decisions of the Evaluation Committee and PRIMA Québec Board of Directors are **final and without appeal**.

## 7. Notes on the project submission form.

- Feel free to send the completed form to an advisor for verification before submission.
- We encourage you to submit your application for PRIMA and additional funding in the same period to avoid extending the time before funding approval.
- If you are using Mitacs funding, please contact your PRIMA and Mitacs advisor to ensure funding rules are followed and forms completed correctly.
- Please note that the information (name of the promoter, name of the companies, as well as the summary) given in the section I-identification form as well as the amount of the subsidy are public data and can be used by the MEI and PRIMA Quebec for promotional purposes.
- Make sure you have all the expertise needed to carry out the project.
- In the intellectual property section even if an agreement is not yet signed at the time of filing. Please state clearly the outline on which the negotiation is taking place or will take place.
- This program targets, among other things, the training of highly qualified personnel as well as economic spinoffs for businesses and Quebec. Please ensure that your application presents these aspects.
- Along with the form comes an Excel file to help you calculate the correct Section VII budget values.
- In the financial budget industrial contributions are direct contributions to R&D. This excludes amounts such as FIR that universities may request and management fees from PRIMA.



- For the justification of the prototype line of the budget, please show that you have the necessary expertise and that the costs are realistic for the realization of the prototype and that if authorizations are necessary, these have been obtained or are in the process of being obtained.

## 8. Contact person

For further information or assistance in the drafting of the application file, do not hesitate to contact an advisor:

- Michel Lefèvre: 514 284-0211, ext. 227, [michel.lefevre@prima.ca](mailto:michel.lefevre@prima.ca)
- Sébastien Garbarino: 514 284-0211, ext. 226, [sebastien.garbarino@prima.ca](mailto:sebastien.garbarino@prima.ca)
- Stéphane Ruggeri : 514 284-0211, ext. 231, [stephane.ruggeri@prima.ca](mailto:stephane.ruggeri@prima.ca)

Applications must be sent in one file in PDF format (Adobe Acrobat) by email to:  
[laura.salatian@prima.ca](mailto:laura.salatian@prima.ca), 514 284-0211, ext. 225.



## APPENDIX A

### Hydro-Québec

Hydro-Québec is considered by default to be a public research center.

However, Hydro-Québec plays an extremely structuring role in the innovation ecosystem in electricity production and distribution, a sector where it is a major client in a context of monopoly. Because of this unique situation, the MEI authorizes Hydro-Québec to be considered as an industrial partner in research projects in partnership with InnovÉÉ, PRIMA and PROMPT if the following criteria are met.

1. Themes:
  - Field of production, transport and distribution of electricity.
2. Partnership:
  - At least one Québec company other than Hydro-Québec must be involved in the project.
  - The Québec company must derive significant benefits from the partnership, notably an equitable sharing of the IP.
3. Structuring and strategic nature of the projects:
  - To be eligible, projects involving Hydro-Québec must be “structuring” and aim at “solving problems of a strategic nature for Québec”. In this sense, projects whose spin-offs will allow above all the continuous improvement of Hydro-Québec operations are not eligible.

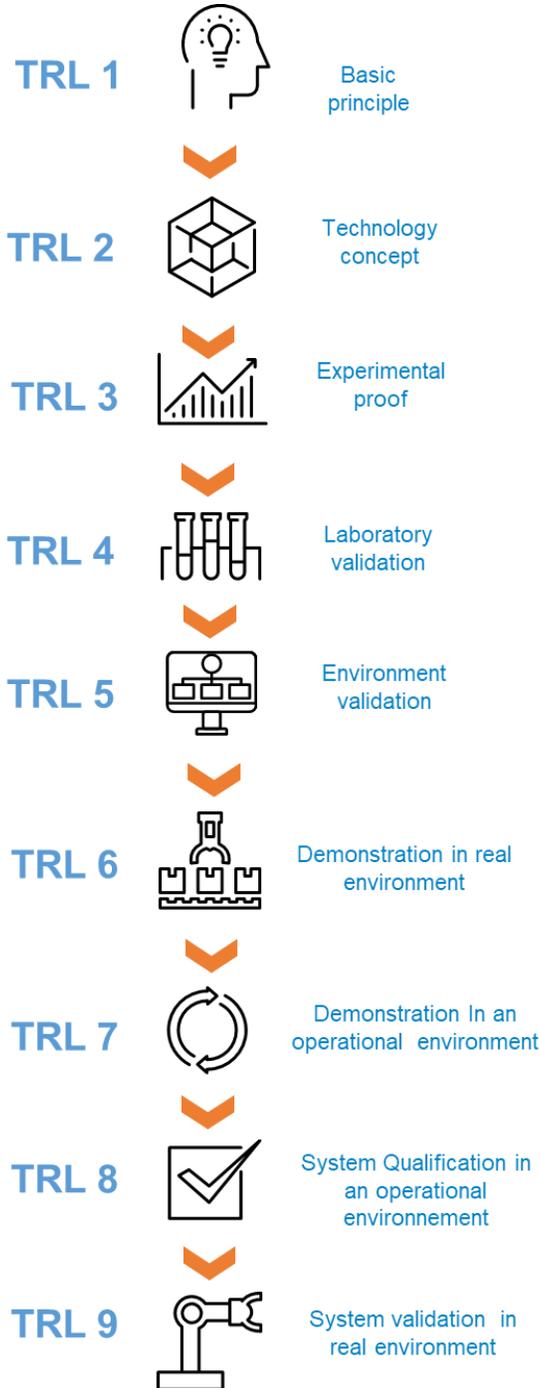
These project eligibility criteria must be analyzed by the evaluation committee and appear in the report submitted to MEI.

Apart from this exception, all other PSov2b standards must be respected.



**APPENDIX B**

**Definition of different technology readiness levels (TRL)**



Graphic inspired by the document: Space Systems - Definition of Technology Readiness Levels (TRL) and their criteria of assessment, ISO 16,290. (<https://www.iso.org/fr/standard/56064.html>)  
The ISO16290 standard is available for consultation at the offices of PRIMA Québec.



**APPENDIX C**  
**Details on certain eligible expenses relating to travel expenses**

**TRAVELLING EXPENSES**

Travel expenses correspond to the expenses incurred when a person travels outside his usual place of work. This appendix relates to travel expenses related to certain modes of transport, accommodation in hotel establishments as well as meals. Other travel expenses or reimbursements higher than those established may also be deemed necessary. In all cases, unless there are exceptional circumstances, the approach adopted must demonstrate a concern for economy.

**TRANSPORT**

The use of public transportation should be preferred as it is more economical than using a personal vehicle.

When using a personal vehicle, the following rates are admissible depending on the applicable mileage:

Annual mileage	Rate
1st: from 1 to 8,000 km	0.520 \$/km
2nd: more than 8,000 km	0.465 \$/km

If an appropriate form of public transportation is available and a personal vehicle is used, the eligible rate is reduced to \$0.145 per kilometre travelled.

**ACCOMMODATION IN HOTEL ESTABLISHMENTS**

The maximum daily allowances are as follows for accommodation in a hotel establishment:

City	Maximum allowances	
	Low season <sup>7</sup>	High season <sup>8</sup>
City of Montreal territory	126 \$	138 \$
Québec City Territory	106 \$	
Cities of Laval, Gatineau, Longueuil, Lac-Beauport and Lac-Delage	102 \$	110 \$
Establishments located elsewhere in Québec	83 \$	87 \$
Any other establishment	79 \$	

<sup>7</sup> From November 1 to May 31.

<sup>8</sup> From June 1 to October 31.



## MEALS

The maximum daily allowances are as follows for meals:

	Applicable rates
Breakfast	10.40 \$
Lunch	14.30 \$
Supper	21.55 \$
<b>Total</b>	<b>46.25 \$</b>

The above rates include taxes and tips.