



## 7.0 Review of Research Tools and Instruments Grant Applications

### 7.1 Contact Points

- For eligibility and missing documents: program officer
- For application assignments and review process: Evaluation Group chair / program officer

### 7.2 Objectives

Research Tools and Instruments (RTI) Grants foster and enhance the discovery, innovation and training capability of university researchers in the natural sciences and engineering by supporting the purchase of research equipment and installations.

### 7.3 Description

RTI Grants are one-year awards that assist in buying or developing research equipment that costs more than \$7,000. In exceptional cases, multiple-year requests will be accepted. The onus is on the applicant to clearly explain the rationale. Items costing less than \$7,000 each can be purchased with Discovery Grant funds or be included as a complement to a main piece of equipment being requested. Applications for the purchase of several pieces of equipment costing less than \$7,000 each are also acceptable. RTI grants are divided into three categories according to the total net cost of the equipment, i.e., excluding taxes, shipping, and handling. These categories are:

- RTI–Category 1: \$7,001 to \$150,000;
- RTI–Category 2: \$150,001 to \$325,000 (Subatomic Physics only); and
- RTI–Category 3: more than \$325,000 (Subatomic Physics only).

NSERC will accept applications under Category 1 for equipment whose total net cost, i.e., excluding taxes, shipping and handling, is up to \$250,000, provided that the applicant is able to secure funding from other sources to bring the amount requested from NSERC to \$150,000 or less. Such sources may include contributions from NSERC Discovery Grants held by the applicant or co applicants. The use of other types of NSERC grants is permitted, provided that prior written authorization is obtained from NSERC.

NSERC will pay part or all of the applicable taxes, as well as part or all of the shipping and handling expenses, as long as the overall grant does not exceed \$150,000. The applicant will be responsible for any amount in excess of \$150,000.



The eligibility of specialized facilities, such as large environmental chambers and mobile Laboratories, is considered on a case-by-case basis. Applicants or Research Grants officers should contact NSERC before submitting proposals.

NSERC recognizes that equipment may have to be purchased at any time during the year to avoid an unnecessary delay in a research program. Grantees should explore all possible avenues, such as the institution's General Research Fund, to cover the cost of replacement (refer to the paragraph on *Residual Balances in Agency Accounts* under *Administrative Matters* in the [Financial Administration](#) section of the *Program Guide for Professors*). NSERC will accept applications only for equipment that has not yet been purchased, or that has been purchased within the one-year period immediately prior to the current deadline for receipt of applications. All applications are reviewed on a competitive basis. NSERC will not accord any preferential treatment for equipment already purchased at the time of application and is under no financial obligation should such an application be unsuccessful in the competition. The applicant must indicate whether equipment has already been purchased and justify why a purchase prior to the application was necessary.

## 7.4 Conflict of Interest

**Note:** The conflict of interest guidelines found in Section [6.9.1](#) also apply to RTI Grant applications.

- When less than one third of the Evaluation Group members have RTI applications in the competition, the following suggestions are made in an attempt to reduce the possibilities of conflict of interest:
- When EGs form sections to evaluate RTI applications, members with RTI applications in the current competition should not be part of the section.
- Members with RTI applications in the competition must be excluded from the process of final ranking of RTI applications. When the section rankings are discussed by the full EG, members with applications in the competition must not be present.
- When EGs do not form RTI sections, but the whole EG evaluates and priority ranks applications, the final ranking of the RTI applications must be done in the absence of EG members with applications in the competition. This will allow members with applications in the competition to contribute their input on other applications, but not be involved in the final ranking.'
- When more than one third of the members in a EG have RTI applications in the competition, the preferred mechanism is to strike a special section to review and priority rank the applications. Membership on the section should not include members with applications in the competition. If this approach is not feasible, the EG must establish a procedure to ensure that reviewers cannot influence the outcome of their own application. One option for the EGs who pre-rate their applications would be to implement a forced ranking procedure.

Some EGs use a system in which all members give an initial rating or ranking of all RTI applications (for which they are not in a conflict of interest). These ratings are used to



establish a priority order for funding. During the competition meetings, the EG may discuss only the applications that are near the cutoff point corresponding to the budget available. In such a system, members with applications in the competition must be excluded from any discussion or re-ordering of the applications. In November, when it is known which members have submitted RTI Grant applications, the program officer will propose a process to the EG chair that conforms as closely as possible to the procedures outlined above. In designing the process, the following practices will be encouraged:

- Pre-ranking of RTI applications before the competition, with scores being sent in advance of the competition week;
- Monitoring of the deliberations by EG chairs and/or senior NSERC staff;
- Designing spreadsheets to protect the identity of reviewers and to prevent members from learning the scores given to their own applications;
- Using past members or other experts for the adjudication of RTI applications.

For large group proposals or large RTI requests involving several departments in several universities, a member from the same institution as one or several of the co-applicants may be allowed to participate in the discussion and vote. The process to be used in such cases is the following:

- Well before the meeting, NSERC staff will attempt to identify potential conflicts of interest to avoid placing members in an uncomfortable position; at the beginning of a session, the chair will read the list of identified conflicts and will also ask each member in turn to disclose any other relationship to the proposal or applicant (whether positive or negative). If the chair or NSERC believes that a member should not participate in the review, that member should withdraw from discussion and voting.
- When the EG (or the chair) has difficulty dealing with a particular situation, it should be brought to the attention of NSERC staff, who are responsible for making the final decision on compliance measures.

## 7.5 Criteria for Evaluation

Applications for all categories of RTI are judged on the basis of the following criteria:

- **The excellence of the applicant(s)** (see Section [6.8.1](#) for additional factors related to this criterion):
  - Scientific or engineering calibre of the applicant and major users
  - Extent to which the applicant or the group have relevant experience and demonstrated ability to fully use the equipment
- **The merit of the proposed research program(s)** (see Section [6.8.1.2](#) for additional factors related to this criterion):
  - Overall quality of the research programs of proposed users
  - Recent track record
  - Potential for major advances in the discipline



- **The need and urgency for the equipment, including availability of, and access to, similar equipment:**
  - What is the impact of a delay in the acquisition of the equipment?
  - Is new equipment moving the research forward or helping to launch new research directions?
  - Will the progress of the research be slowed by lack of access to new equipment?
  - Is there a problem in accessing existing equipment (e.g., is the increased number of users slowing research progress)?
  - Are there other available facilities/services in the vicinity?
  - Is there a limited institutional infrastructure (more likely in small vs. large universities or new vs. established research groups)?
  - Is there a need to upgrade or replace obsolete or failed equipment?

Applicants (and co-applicants) are asked to provide information on other equipment obtained from NSERC funds and other sources within the past four years and on equipment currently applied for from other sources (i.e., Canada Foundation for Innovation [CFI]). They must provide a brief description of the equipment obtained or applied for to enable the committee to evaluate the use of the equipment and its relationship with the proposal. This information should be provided in the budget justification section of Form 101.

- **The suitability of the requested item(s) for the proposed research program(s):**
  - For multi-user applications, is the proposed equipment suitable for a multi-user facility and for the desired applications?
  - Is the equipment essential to do the work, or are there other more cost effective ways of obtaining the results (e.g., send samples for analysis, use other techniques)?
  - What is the probable degree of utilization or accessibility of outside users?
  - What is the capability of applicant(s) to fully utilize the equipment?
  - How accessible will the equipment be, both in terms of location and the availability of technical support to assist in operations?

When the justification for the equipment is based to some extent on the anticipated use by, or benefit to, other sectors, the applicant should describe the support secured from these sources or demonstrated efforts made to secure it. The Evaluation Group should take this information into consideration in assessing this criterion.

- **The importance of the requested item(s) for the training of highly qualified personnel** (see Section [6.8.1.3](#) for additional factors related to this criterion):
  - The importance of the equipment for training as well as the value of the training
  - Will this type of training be a marketable skill for students?
  - The quality and extent of training
  - The opportunity for hands-on training



**Note:** The necessity of the requested item(s) for the completion of student projects and theses should be addressed under the third criterion (need for access to the equipment).

**For RTI–Categories 2 and 3 only–Organizational structure, accessibility and synergy:**

An important consideration in the RTI–Categories 2 and 3 is the presence of a clearly defined organizational structure to ensure that the equipment can be operated and maintained efficiently and effectively, as well as providing ready access for other users.

In addition, the synergy of the proposed equipment or installation with existing ones should be considered. Synergy, in this case, is considered to be the extent to which a grouping of equipment and staff enhances the value and capability of each piece of equipment and enables researchers to obtain results or carry out studies that would otherwise be very difficult or impossible. Synergy is viewed as a positive factor, but is not a necessary requirement for funding.

- Provisions for the maintenance and upgrading of equipment
- Operation of the equipment
- Efficiency, effectiveness and accessibility for other users
- Appropriateness of proposed plan and budget for maintenance and upgrading
- Suitability of the director’s and users’ committee
- Value and capability of each piece of equipment
- Does it enable researchers to obtain results or carry out studies that would otherwise be very difficult or impossible?

**7.6 Eligible Expenses**

RTI grants are one-year awards that assist in buying or developing research equipment that costs more than \$7,000. In exceptional cases, multiple-year requests will be accepted. The onus is on the applicant to clearly explain the rationale. Items costing less than \$7,000 each can be purchased with Discovery Grant funds or be included as a complement to a main piece of equipment being requested.

In addition to the equipment cost, eligible expenses for RTI include:

**RTI – Categories 2 & 3**

| Type of Expenditure   | RTI – Category 1   | RTI – Categories 2 & 3   |
|-----------------------|--------------------|--|
| Salaries and benefits | Not eligible       | Salaries and training costs of technical support personnel for the initial phase-in period of operations (up to two years) |
| Equipment or facility | Purchase or rental | Purchase or rental   |



| Type of Expenditure   | RTI – Category 1 | RTI – Categories 2 & 3  |
|---|------------------|---|
| Travel  | Not eligible     | Travel costs to visit manufacturers to select major equipment purchases |
| Others (shipping costs for purchased equipment, extended warranty, brokerage and customs charges for the importation of equipment and supplies) | Eligible         | Eligible  |

**NOTE the table and this section are fine. No changes.**

**Costs that are not eligible for all categories of RTI include:**

- insurance costs for equipment and research vehicles;
- costs of the construction, renovation or rental of laboratories or supporting facilities; and
- software licensing or upgrades for subsequent years.

## 7.7 Policies and Guidelines

Evaluation Groups are asked to give particularly careful and sensitive evaluation to requests for equipment from new researchers. NSERC is concerned if a Discovery Grant is provided without the availability of associated tools. In fields where any real advance requires access to sophisticated equipment that is not available on site, EGs are asked to place special weight on the “need and urgency” criterion in the case of new researchers. The “calibre and relevant experience” criterion must be assessed in the context of the pool of relatively young researchers who do not yet have extensive research experience. A new applicant should be provided with the resources to demonstrate within a reasonable period of time (for example, three to five years) that he/she can make significant advances in the field. However, new applicants, like all applicants, have to provide sufficient justification for the equipment requested in light of other equipment funding that they may have received from NSERC and other sources, including the Canada Foundation for Innovation (see Section 7.3 above).

Applications for RTI–Categories 2 and 3 that involve new researchers in a leadership role have more difficulty succeeding in the peer review system. Here it is reasonable to expect a very strong track record and extensive linking with other established researchers. It also may be appropriate to acquire equipment in stages over time or to make use of other equipment, for example, at regional centres.

While NSERC is concerned that new researchers may not get an appropriate opportunity to build a strong research program, responsibility for this does not rest solely with NSERC. The university is expected to assist in launching a young researcher’s program. Award quotas by department or university are not permitted. The EG cannot establish



policies whereby, for example, RTI applications from a given applicant could only be recommended every two years.

Only applications from researchers (applicant and co-applicants) who currently hold or are applying for an NSERC research grant (e.g., Discovery Grant, Strategic Grant, Research Partnerships Program Grant, Canada Research Chair), at the time of application will be accepted. Researchers holding an adjunct position are not eligible to apply on an RTI application.

RTI awards should normally be for the full cost of the recommended items (including tax, transportation and eligible installation costs). EGs may recommend partial funding, but the amount recommended must be sufficient to allow for the purchase of a functional unit. The EG must provide staff with a written justification indicating the components to be funded. If the EG receives many applications for computing equipment and lacks detailed expertise to consider these requests, the GSC should bring this to the attention of the program officer. Some EGs use experts in computing systems to help them assess these requests.

It may be appropriate, in certain cases, to provide applicants with specific comments on Research Tools and Instruments applications. Also, some EGs also ask applicants, through a general comment or through university information sessions, to provide, if possible, two or three different configurations in their RTI applications. This sometimes allows EGs to recommend funding for a somewhat smaller, less expensive configuration in times of severe budgetary constraints. NSERC asks EGs to provide a ranked RTI list in cases where the budget situation changes after the competition. It is important that the final ranked RTI list, both within or exceeding the expected budget, truly reflect the order in which a EG wants RTI applications to be funded. Last-minute revisions to the RTI budget may result in more or fewer awards being made, and NSERC staff relies on the EG rankings to make these adjustments.

## 7.8 Deliverables

Reviewers use a spreadsheet to submit ratings (for all applications assigned to them) to the chair or program officer in advance of the competition session. These ratings are tabulated and applications sorted by priority. The prioritized list is distributed at the competition session, and a subset of the applications is discussed in depth at that time. These are applications that are near the cutoff for which ratings from different reviewers differ significantly or for which a member questions the priority assigned to the application. The exact process may take different forms, e.g., straight ranking of all applications, a rating on a 5- or 10-point scale either with quotas on the distribution (equal numbers of 1, 2, 3, etc.) or a normal distribution. The chair or program officer will brief committee members on the Evaluation Group's particular procedures.

As mentioned above, it is appropriate in certain cases to provide applicants with written comments on an RTI–Category 1 application. Recommendations for partial funding must specify which components of the equipment are recommended.



**Deliverables** – Ranked list or ratings depending on EG modus operandi.

## **7.9 Review of RTI – Categories 2 and 3 Applications**

The review of RTI grant applications of Categories 2 or 3 only applies to Subatomic Physics. Refer to the internal procedures of the Subatomic Physics Section for details.

### **7.10 Use of Rating Form**

Using the rating forms provided by NSERC to review RTI applications (see sample of the RTI rating form) will help to ensure that you take all criteria into account when formulating your recommendations.

## Rating Form Research Tools and Instruments Grant Application

|  |  |                            |
|--|--|----------------------------|
| <b>Applicant</b>   | <b>Department/University</b>             | <b>Volume &amp; Page #</b> |
| <input type="checkbox"/> First-time Applicant <span style="float: right;">Consultation from EG:</span> |  |                            |
| <b>Title of Proposal</b>   | Amount Requested                         |                            |
|  | Number of Users                          |                            |
| <b>EVALUATION CRITERIA</b> (See Section 7 of Peer Review Manual)                                       |  |                            |
|  | <b>Provide comments on each criteria</b> |                            |
| <b>Excellence and experience of researcher(s)</b>  |  |                            |
| Calibre of applicant/users   |  |                            |
| Relevant experience  |  |                            |
| Ability to exploit equipment   |  |                            |
| <b>Merit of programs to be supported</b>   |  |                            |
| Quality of research program(s)   |  |                            |
| Recent track record  |  |                            |
| Potential for major advances   |  |                            |
| <b>Need and urgency</b>  |  |                            |
| Suitability for intended use   |  |                            |
| Impact of equipment on program(s) and area of research   |  |                            |
| Need for dedicated equipment   |  |                            |
| Impact of delay if not awarded   |  |                            |
| Cost-effective solution  |  |                            |
| Availability of similar equipment  |  |                            |
| Probable degree of utilization   |  |                            |
| Accessibility to users   |  |                            |
| Availability of technical support if needed  |  |                            |
| Management structure (if relevant)   |  |                            |
| <b>Impact on HQP training</b>  |  |                            |
| Accessibility  |  |                            |
| Potential for training   |  |                            |
| <b>Other Comments</b> (e.g., special circumstances, consultation with other EG, etc.):                 |  |                            |
|  |  |                            |
| <b>Overall Impression/Priority:</b>  | <b>Rating:</b>                           |                            |
|  |  |                            |
| <b>Recommendation</b> (explain and describe item(s) if a partial award is recommended): \$             |  |                            |
|  |  |                            |