

CHAPTER 1

QUESTIONS AND ANSWERS ABOUT THE TECHNOLOGY INNOVATION PROGRAM (TIP)

A. GENERAL INFORMATION

1. *What is TIP?*

TIP is a cost shared federal financial assistance program to support, promote, and accelerate innovation in the United States through high-risk, high-reward research in areas of critical national need. High-risk, high-reward research is research that has the potential for yielding transformational results with far-ranging or wide-ranging implications; addresses areas of critical national need which support, promote, and accelerate innovation in the United States and is within NIST's areas of technical competence; and is too novel or spans too diverse a range of disciplines to fare well in the traditional peer-review process.

The TIP statutory authority is 15 U.S.C. § 278n (see Appendix A). The TIP implementing regulations are set forth in 15 C.F.R. Part 296 (see Appendix B). Both are also available at <http://www.nist.gov/tip/helpful-resources.cfm>.

2. *How can I receive funding?*

You must submit a proposal to TIP in response to a notice published in the Federal Register announcing a competition and availability of TIP funds (solicitation/request for proposals or RFP).

Notices are also posted on the TIP Web site <http://www.nist.gov/tip> and at <http://www.grants.gov> Announcement of Federal Funding Opportunity (FFO).

In addition, you can have your name added to the TIP mailing list by completing an electronic request at http://tipmailing.nist.gov/forms/mailling_list.cfm or by calling 1-888-847-6478 to receive competition announcements delivered electronically.

3. *What are areas of critical national need?*

Areas of critical national need are areas that justify government attention because the magnitude of the problem is large, and the societal challenges that need to be overcome are not being addressed, but could be addressed through high-risk, high-reward research. The areas of critical national need to be addressed in a particular competition are described in the Federal Register notice announcing the competition. Only proposals addressing the defined competition scope in the subject Federal Register Notice will be considered for funding.

4. *Is there a deadline for submitting a TIP proposal?*

Yes. The deadline date(s) are included in the Federal Register notice announcing the competition and are also posted on the TIP and Grants.gov websites. Once a competition is announced, proposals may be submitted prior to and up to the deadline date(s) and time.

5. *What information is required in a TIP proposal?*

Information requirements are discussed in detail in Chapters 2 through 7.

6. *Does TIP accept unsolicited proposals?*

No.

7. *How are proposals submitted?*

Proposals may be submitted either electronically or in hardcopy by mail. Electronic submissions are encouraged and offer many benefits to the proposer, including no mailing or copying fees. Proposals submitted by e-mail will not be accepted under any circumstances. See Chapter 4 for format instructions and Chapter 7 for electronic submission guidance.

8. *Where do I submit proposals?*

Proposals must be submitted to either of the following locations only and will not be accepted if submitted directly to any TIP staff member:

a. Electronic submission: www.grants.gov

b. Paper copy:
*Technology Innovation Program
National Institute of Standards and Technology
100 Bureau Drive, Stop 4750
Gaithersburg, MD 20899-4750*

9. *Will confidential/proprietary information in my proposal be protected?*

Yes. All individuals who will have access to submitted proposals must sign nondisclosure agreements. The government will protect confidential/proprietary information about business operations and trade secrets possessed by any company or participant

to the full extent of the law. To the extent permitted by law, TIP will withhold such information from disclosure pursuant to the following statutes, which can be found at <http://www.nist.gov/tip/helpful-resources.cfm>.

- a. Freedom of Information Act (FOIA)—5 U.S.C. § 552(b).
- b. Economic Espionage Act—18 U.S.C. § 1832.
- c. Trade Secrets Act—18 U.S.C. § 1905.

In view of the above, proposers are cautioned that proposals are likely to be less competitive if significant details are omitted due to the proposer's reluctance to reveal confidential/proprietary information.

10. Does TIP hold any public meetings or conferences to assist in proposal preparation?

Yes. TIP will hold one or more proposers' conferences after a competition is announced. Proposers' conferences will provide general information regarding TIP, guidance on preparing proposals, providing detailed budgets, the opportunity for questions and answers, and general discussion regarding TIP criteria.

NIST/TIP staff will not critique or provide feedback on the quality of specific project ideas while they are being developed by a proposer. However, NIST/TIP staff will, at any time, answer questions about the TIP eligibility and cost-sharing requirements, evaluation and award criteria, selection process, competition scope, and the general characteristics of a competitive TIP proposal at the proposers' conferences and by phone and email.

Attendance at TIP proposers' conferences is not required. Information regarding dates and locations of TIP proposers' conferences is published in the Federal Register and posted at <http://www.nist.gov/tip>. The Federal Funding Opportunity may also list the date(s) and location(s) of the proposers' conference(s) which will appear at <http://www.grants.gov>.

Presentation materials from proposers' conferences will be made available on the TIP website. In addition, TIP may offer various

13. Who do I contact if I have questions?

Subject Area	Point of Contact
Administrative, budget, cost-sharing, and eligibility questions	Michael Walsh Phone: 301-975-5455 Fax: 301-975-2147 E-mail: michael.walsh@nist.gov
Human and/or animal subjects used in research	Lawrence Uhteg Human & Animal Subjects Advisor Phone: 301-975-8779, Fax: 301-548-1087 E-mail: lawrence.uhteg@nist.gov
Project selection, evaluation and award criteria, and other programmatic questions	Thomas Wiggins, Director Selection Management Office Phone: 301-975-5416, Fax: 301-975-2147 E-mail: thomas.wiggins@nist.gov

“webinars” to help proposers which will also be available on the TIP website.

11. How can I find out if my project idea is in scope?

The details of the solicitation scope are published in the Federal Funding Opportunity (FFO) notice. Consider where the key research results would be for the project and the research approach to get there to evaluate whether or not your proposal would fit into the solicitation scope. One helpful way to think about the technical scope is what new-to-the-world knowledge (i.e., the high-risk, high-reward research outcomes) is created by your research and how does that map onto the technical scope. If the outcomes you are targeting will be reached by your team solely through existing techniques and methods of research and/or engineering it is likely that even if the outcome is in scope, the technical approach may not be competitive against the TIP Award and Evaluation Criteria discussed on pages 9 and 10. Questions regarding scope can be addressed in general by TIP staff.

12. Where can I seek additional help with proposal preparation?

It is the responsibility of proposers to seek the assistance and resources they need for completing a proposal. Proposers may wish to contact the NIST Hollings Manufacturing Extension Partnership (MEP), a nationwide network of locally managed extension centers whose sole purpose is to provide small- and medium-sized manufacturers with the help they need to succeed. The centers provide guidance to high-technology companies seeking resources and teaming relationships. To contact an MEP center, call 1-800-MEP-4-MFG (1-800-637-4634) or visit MEP's website at <http://www.nist.gov/mep/>.

Proposers may wish to contact independent state, regional, or area specific resources, for example, economic development agencies or local incubators.

University research offices and technology transfer offices are also very often interested in building teaming relationships with the private sector.

Subject Area	Point of Contact
Electronic proposal submission	Christopher Hunton Phone: 301-975-5718 Fax: 301-840-5976 E-mail: christopher.hunton@nist.gov
Technical questions related to NIST-1022 and associated forms	Deborah Dubeau Phone: 301-975-3462, Fax: 301-975-2147 E-mail: deborah.dubeau@nist.gov
Foreign-owned company and foreign-owned entity participation	Kathleen McTigue Phone: 301-975-8530, Fax: 301-975-2147 E-mail: kathleen.mctigue@nist.gov
Grant and cooperative agreement rules and regulations including establishing indirect cost rates	Grants & Agreements Mgmt. Division Phone: 301-975-6328, Fax: 301-840-5976 E-mail: grants@nist.gov

B. ELIGIBILITY

1. Who is eligible to apply?

There are two types of eligible project structures for applying to TIP:

a. Single Company (a for-profit organization, including sole proprietors, partnerships, limited liability companies (LLCs), and corporations) — an eligible small- or medium-sized company doing a majority of its business in the United States and is either:

- (1) A U.S. owned company or
- (2) A U.S. subsidiary of a foreign parent company that meets the requirements listed in 6 a. and b.

The single company must also be substantially involved in the R&D, leading the project, and defining the research agenda.

b. Joint Venture—a business arrangement that includes either:

- (1) At least two separately owned eligible companies that are both
 - (a) substantially involved in the project and,
 - (b) contributing to the required cost share (see Chapter 1 Section C.2),
- (2) At least one eligible company and
 - (a) one institution of higher education or
 - (b) other organization, such as a national laboratory, governmental laboratory (not including NIST), or nonprofit research institute.

Both entities must be substantially involved in the project and contributing to the required cost share (See Chapter 1 Section C.2).

The lead entity of a joint venture (Joint Venture Administrator) can be either an eligible company or an institution of higher education. (The joint venture lead is the party specified in item 2 of the NIST-1022 form.)

TIP joint venture members must formally agree (i.e., sign a joint venture agreement as discussed in Chapter 5 Additional Documentation, 7.a. through 7.g.) to collaborate on the project. The joint venture may include additional companies, institutions of higher education, and other organizations, such as national laboratories, governmental laboratories (not including NIST), and nonprofit research institutes, which may or may not contribute nonfederal funds to the project. A large-sized company may also participate as a joint venture member and provide cost sharing; however, a large-sized company MAY NOT receive federal funds as a joint venture member. A large-sized company is defined as any business, including any parent company plus related subsidiaries, having annual revenues in excess of the amount published of the 1000th company listed in Fortune magazine's Fortune 1000 list. (Note that the revenue amount will be updated annually and will be noted in future annual announcements (FFOs) of availability of funds.)

2. What is "substantial involvement in a project" under a joint venture?

Substantial involvement by a joint venture member in a joint venture may be demonstrated in a variety of ways within a TIP proposal. Generally, joint venture members demonstrate substantial involvement through documented, planned research contributions within the proposal's technical plan and on the NIST 1022-F form in the budget allocations by task. Typically this involves research staff performing technical activities within their organization's facilities. These research contributions should be clearly tied to completion of high-risk, critical research tasks. A key scientific intellectual role in guiding the research effort is also one example demonstrating substantial involvement. It should be clear from your narrative why their technical contributions are critical to technical success and overcoming the technical barriers for this project.

A joint venture member that only provides space and equipment for other joint venture members' staff to perform technical activities will not be considered to be substantially involved in the research. In addition, a joint venture member that subcontracts out most of their high-risk research activities or all performance of their research activities will not be considered to be substantially involved.

3. *May institutions of higher education, national laboratories, governmental laboratories (not including NIST), and nonprofit research institutes participate as contractors to a single company or to a joint venture?*

Yes.

4. *May a large-sized company participate?*

Yes.

As a Contractor, a large company may participate in a project and receive funding of the contract if it is awarded in accordance with procedures established under Procurement Standards required by 15 C.F.R. Part 14. In this case, the large company may not provide cost share.

As a Joint Venture Member, a large company may be a member of a joint venture as long as it does not receive TIP funds. It may provide cost share and hold title to intellectual property arising from the project, if so specified within the joint venture agreement for the project. In this case, the NIST-1022B form is filled out identifying this joint venture member, along with the NIST-1022C form (budget narrative) for the company's budget and the company has a column in the NIST- 1022F form (multi-year budget).

As a Third Party Contributor, a large company may provide in-kind contributions to a TIP project. In this case, a NIST-1022D form is necessary to document the contributor and their contribution(s).

If the majority ownership of a company is by a large company (including a large foreign company), then the company is also considered to be a large company.

5. *May a Federal or national laboratory participate in a TIP project?*

Yes; however, Federal funds may not be used as cost share. Federal or national laboratories may not lead TIP projects. NIST laboratories are not allowed to participate.

As a Contractor, a Federal or national laboratory may receive funding if the contract is awarded in accordance with procedures established under Procurement Standards required by 15 C.F.R. Part 14 (which applies to all contracts under a TIP award).

A Federal or national laboratory may be a member of a joint venture as long as it does not provide cost share using federal funds. If nonfederal sources of funds are available, it can provide cost share with those funds. In this case, a NIST-1022B form identifying this joint venture member is filled out together with a NIST-1022C form (budget narrative) for the company's budget and the company has a column in the NIST-1022F form (multi-year budget).

6. *May a foreign-owned company participate and receive TIP funding?*

Yes, provided that certain requirements are met. A company incorporated in the United States that has a parent company incor-

porated in another country is eligible to participate and receive TIP funding if it meets the conditions set out in the TIP legislation (15 U.S.C. § 278n(l)(1)) and regulations (15 C.F.R. §296.5). Before making a final award, TIP will make a foreign-eligibility finding based on these conditions regarding the company's participation in a TIP project. The foreign-eligibility finding involves the collection of evidence to determine whether the following conditions are met:

- a. The company's participation in the TIP project would be in the economic interest of the United States, and
- b. The home country of the parent company provides all of the following:
 - (1) Comparable opportunities to those afforded to any other company for U.S.-owned companies to participate in government-funded programs similar to TIP;
 - (2) Comparable local investment opportunities to those afforded to any other company for U.S.-owned companies; and
 - (3) Adequate and effective protection of U.S.-owned companies' intellectual property rights.

TIP takes responsibility for gathering information related to the above requirements. The submitting organization must provide with the proposal a form NIST-1022G form, "Foreign-Owned Company Questionnaire" (see Exhibit 10), which relates to the role of the foreign-owned company in the project to help address foreign-eligibility requirement 6.a. above. If there is more than one such company, a separate questionnaire must be submitted for each company.

It is important that the information requested on the form NIST-1022G form, "Foreign-Owned Company Questionnaire", be provided in complete form at the time of proposal submission because it is used to assess the foreign-owned proposer's ability to bring about economic benefits to the United States. Information requested on this questionnaire relates to evidence that the company's participation is in the economic interest of the United States as stated in 6.a. above and includes the following:

- A sound justification that the involvement by the company and its role in the project is necessary to achieve the technical objectives and goals of the project;
- Evidence that the company makes investments in research, development, and manufacturing in the United States (an example might be the location and square footage of facilities and special equipment where the project will be carried out);
- Evidence that the company makes significant contributions to employment in the United States (i.e., number of employees); and
- Evidence that the company agrees to promote the manufacture within the United States of products resulting from the TIP-supported project and to procure supplies from competitive U.S. suppliers. (For instance, will the company incorporate the technology into its existing product lines

or processes, or will the company develop new products or processes related to the project's R&D in the United States?)

7. Is a foreign-eligibility finding required for foreign contractors?

No. The submitting organization, however, must justify the use of foreign-owned and foreign-located contractors or subsidiaries and explain how their participation will benefit the U.S. economy (see Exhibit 11, NIST-1022H form, "R&D Work Performed Outside the United States by the Recipient or Contractor Questionnaire") and the achievement of project goals, by completing the questionnaire. The completed questionnaire should state how and why U.S. sources were judged to be unavailable and inadequate in meeting the project goals. If there is more than one such instance, a separate questionnaire must be submitted for each instance.

8. May a foreign company or entity (e.g., university, government laboratory, or nonprofit) located outside the United States receive a TIP award?

No. Foreign-owned companies or entities located outside the United States cannot receive a TIP award (i.e., be a single applicant, project lead, or joint venture member). Only U.S.-owned companies and U.S. subsidiaries of foreign-owned companies that meet the requirements stated above are eligible to receive TIP funding. (See 15 C.F.R. 29 b (2) (ii).)

9. Can a company owned or controlled by non-U.S. citizens and without a foreign parent company receive a TIP award?

No.

10. Can a Cooperative Research and Development Agreement (CRADA) between a participating organization and a U.S. federal laboratory be part of a TIP project?

Possibly. To be acceptable to TIP, a CRADA cannot conflict with TIP requirements. For example, intellectual property provisions cannot be in conflict with TIP intellectual property provisions. A description of TIP intellectual property requirements may be found in Section F of this chapter. Any CRADA that is proposed to be part of a TIP proposal will require legal analysis by NIST, and revisions may be required for the CRADA to be in compliance with the TIP statute and regulations. A copy of the CRADA will be requested during the review by the Evaluation Panel for analysis. Therefore, parties are encouraged to carefully consider whether a CRADA is appropriate and to contact the Office of the Chief Counsel for NIST (301-975-2803) in advance of submitting a proposal that includes a CRADA.

11. Can an informal collaboration that does not impact the proposed funding or cost share requirements be used to address a critical task in the project?

Possibly. NIST may require that aspects of the informal collaboration be documented to be sure the arrangement is in compliance with the TIP statute and regulations. If the collaboration is key to accomplishing a critical task in the project, the proposer needs to address what alternatives are available if maintaining the informal collaboration fails. Therefore, parties are encouraged to carefully consider whether an informal collaboration is appropriate and to contact the Office of the Chief Counsel for NIST (301-975-2803) or the TIP Selection Management Director in advance of submitting a proposal involving an informal collaboration. A copy of any existing agreements regarding the informal collaboration will be requested during the review by the Evaluation Panel for legal analysis by the Office of the Chief Counsel for NIST.

C. FUNDING AND COST SHARING

1. How much funding can a TIP recipient receive, and is cost sharing required?

- a. Single small- or medium-sized company recipients can receive up to a total of \$3 million in TIP funding for R&D activities spanning up to 3 years. Small-sized and medium-sized companies applying as single company proposers must cost share at least 50 percent of the total yearly project costs (direct plus all of the indirect costs). TIP funds may only be used to pay direct costs. Single company recipients are responsible for funding all of their indirect/overhead costs which they can use as part of their cost share contribution. A large-sized company is not eligible to apply for TIP funding as a single applicant.
- b. Joint venture recipients can receive up to a total of \$9 million for R&D activities spanning up to 5 years. Joint ventures must cost share at least 50 percent of the total yearly project costs (direct plus all of the indirect costs). TIP funds may only be used to pay direct costs. Joint ventures are responsible for funding all of their indirect/overhead costs which they can use as part of their cost share contribution.

If an award is issued to a joint venture, each joint venture member will be responsible for meeting its committed cost share in accordance with the approved budget incorporated in the award. Joint venture members may have different cost share rates as long as the joint venture as a whole is providing at least 50% of total yearly project costs and TIP funds are not used to pay indirect costs. No joint venture member will be responsible for the cost share commitment of any other joint venture member.

Example 1 (Single)

Project Direct Costs	\$2 million
Project Indirect Costs	\$1 million
Total Project Costs	\$3 million

TIP funds must be no more than \$1.5 million of direct costs (50% of the \$3 million total cost.) Proposer responsibility would be \$1 million in indirect costs and \$0.5 million direct costs.

Example 2 (Joint Venture)

Project Direct Costs	\$ 4.5 million
Project Indirect Costs	\$ 2.0 million
Total Project Costs	\$ 6.5 million

TIP funds must not exceed \$3.25 million for direct costs which is 50% of the total costs.

Proposer responsibility would be \$2 million in indirect costs and \$1.25 million direct costs.

Example 3 (Joint Venture)

Project Direct Costs	\$ 15 million
Project Indirect Costs	\$ 7 million
Total Project Costs	\$ 22 million

TIP funds must not exceed \$9 million for direct cost.

Proposer responsibility would be \$7 million in indirect costs and \$6 million direct costs.

Note that proposed indirect cost rates are subject to approval by the cognizant Federal agency, if the proposal is selected for funding (See Question 6 in this section for additional information).

The final approval of selected proposals and award of assistance will be made by the NIST Grants Officer. The award decision of the NIST Grants Officer is final and cannot be appealed.

NIST reserves the right to negotiate the cost and scope of the proposed work with the proposers that have been selected to receive awards. This may include requesting that the proposer delete a particular task from the scope of work that is deemed by NIST to be inappropriate for support. In addition, NIST reserves the right not to fund a proposal where information exists that raises a reasonable doubt as to the responsibility of the proposer.

2. How does TIP define cost sharing?

Cost sharing is that portion of project costs not borne by the Federal government. Sources of revenue to satisfy the required cost share include cash and third party in-kind contributions. Cash may be contributed by any nonfederal source, including but not limited to recipients, state and local governments, companies, and nonprofits (except contractors working on a TIP project). Third party in-kind contributions can be made by any nonfederal third-party source (except contractors working on a TIP project), and include but are not limited to equipment, research tools, software, supplies, and/or services. Except as specified in 15 C.F.R. §296.6, the value of in-kind contributions shall be determined in accordance with 15 C.F.R. § 14.23 (Uniform Administrative Requirements for Grants and Cooperative Agreements With Institutions of Higher Education, Hospitals, Other Non-Profit, and Commercial Organizations <http://www.nist.gov/tip/helpful-resources.cfm>) and will be prorated according to the share of total use dedicated to the TIP project.

Additionally, as with the federal share, cost share must be allowable under the following applicable federal cost principles available at <http://www.nist.gov/tip/helpful-resources.cfm>:

For-profit companies: 48 C.F.R. Part 31.

Educational Institutions: 2 C.F.R. Subtitle A, Chapter II, Part 220 (formerly OMB Circular A-21).

Nonprofit organizations: 2 C.F.R. Subtitle A, Chapter II, Part 230 (formerly OMB Circular A-122).

State and Local Governments: 2 C.F.R., Subtitle A. Chapter II, Part 225 (formerly OMB Circular A-87).

Hospitals: 45 C.F.R. Part 74, Appendix E.

3. What are direct and indirect costs?

Direct costs are those that are directly related to a specific, single-cost objective. Examples include personnel, travel, equipment, contractors, and materials and supplies.

Indirect costs are those costs incurred for common or joint objectives that cannot be readily identified with activities carried out in support of a particular final objective. A cost may not be allocated to an award as an indirect cost if any other cost incurred for the same purpose in like circumstances has been assigned to an award as a direct cost. Because of diverse characteristics and accounting practices, it is not possible to specify the types of costs which may be classified as indirect costs in all situations. However, typical examples of indirect costs include general administrative expenses, such as the salaries and expenses of executive officers, office rent, personnel administration, fringe benefits, maintenance, library expenses, office supplies, general purpose office equipment (office computers, printers, copiers, etc.), and accounting costs. NIST will determine the allowability of indirect costs in accordance with applicable federal cost principles.

4. I am a small startup company and do not have any indirect costs. If funded, the TIP project would be the only project for my company. Will TIP fund a proposal that only has direct costs?

No. If a company claims to have no indirect costs, this suggests to TIP that the company is inexperienced in its fiscal affairs, the company may not be a financially viable business, or the company has no intention of carrying on any business other than performing research for the TIP project.

5. What if the project's indirect costs exceed its direct costs? Can all of the cost share funds be provided through indirect costs?

Yes, the project could provide its entire cost share through contributing indirect costs IF these exceed direct costs. NOTE: Indirect cost rates are subject to approval by a cognizant federal agency and can vary through the life of a project. If your proposal is exactly at 50% cost share over the life of the project and the majority of or all of the cost share is made up of indirect costs, assuming a maximum indirect cost rate for all project years, your cost share commitment may be at risk if your proposal is selected

for funding. Here's why, if your proposed indirect cost rate is not approved at the level desired, your cost share could go below the statutory requirement of 50% and the project would no longer be eligible for funding without additional sources of cost share. The project would be suspended to see if the situation could be resolved so that the project could continue. If the cost share requirement is not resolved, termination of the project would result. Projects proposing to meet the minimum cost share requirement are strongly encouraged to be aware of the need for alternative cost share arrangements, if availability of cost share varies at any time during the project.

6. *What if my company does not have a federally approved indirect cost rate?*

Using Generally Accepted Accounting Principle (GAAP) and the U.S. Department of Commerce general Indirect Cost Rate Program Guidelines for Grantee Organizations (available at http://oamweb.osec.doc.gov/GMD_grantsPolicy.html), determine your indirect costs as accurately as possible. If the proposal receives an award, you will submit an indirect cost rate proposal to the Department of Commerce who will work with you to establish an indirect cost rate agreement. This agreement will bind your company on all of its government work and, for future reference, will make the Department of Commerce your cognizant federal agency. An agreement can be renegotiated should the company's cost structure change.

7. *Our small startup company expects to cost share through the use of state funds, other private investors, or with the help of a cost sharing subrecipient. If those resources fall through after we receive a TIP award, will we be expected to make up the cost share gap?*

Yes. If a single-company or joint venture proposal is selected for funding, the recipient's percentage of cost sharing will be made a part of the award, and will become a requirement. Failure to satisfy your cost share requirement can result in suspension of work until funding can be found to resolve the cost share requirement. If after a reasonable time, the cost share requirement is not resolved, the project will be terminated. NIST cannot violate the TIP statutory cost-sharing requirements.

8. *Can a subrecipient participate in a TIP award?*

Yes. TIP awards allow for participation by subrecipients. A subrecipient is a legal entity to which a subaward is made, and the subrecipient is accountable to the recipient for use of the funds provided by the recipient. Subrecipients can also cost share through direct or indirect cost contributions under the same requirements that apply to an award recipient. They cannot be joint venture members, nor directly receive TIP funds.

9. *Can independent research and development (IR&D) funds be used as cost sharing?*

The expectation is that the proposer's share of the TIP project costs will be funded from nonfederal sources, such as retained

earnings or profits, not funds included as an indirect expense that is subsequently allocated for reimbursement under federally funded procurement contracts, grants, and other agreements. Recovering the proposer's cost share as part of its IR&D/General and Administrative (G&A) allocation to other federally funded projects would be contrary to the kind of financial commitment expected of proposers by the TIP statute.

Proposers MAY NOT classify the nonfederal share of the TIP project costs as an IR&D expense that is subsequently allocated, either as a separate cost or as an element of a G&A cost pool, to federally funded procurement contracts, grants, or other agreements.

Proposers MAY allocate to a TIP project IR&D or G&A costs that include IR&D as an element provided that the IR&D/G&A rate applied to the TIP project is a federally approved indirect cost rate.

D. INELIGIBLE PROJECTS AND INELIGIBLE OR UNALLOWABLE COSTS

1. *What types of projects are ineligible for TIP funding?*

- a. Straightforward improvements of existing products or product development.
- b. Projects that are Phase II, III, or IV clinical trials. TIP will rarely fund Phase I clinical trials and reserves the right not to fund a Phase I clinical trial. The portion of a Phase I trial that may be funded must be critical to meeting evaluation criterion (a)(1) addressing the scientific and technical merit of the proposal. The trial results must be essential for completion of a critical R&D task of the project. The definitions of all phases of clinical trials are provided in the TIP Guidelines and Documentation Requirements for Research Involving Human and Animal Subjects located at <http://www.nist.gov/tip/helpful-resources.cfm>.
- c. Pre-commercial-scale demonstration projects where the emphasis is on demonstrating that some technology works on a large scale or is economically sound rather than on R&D that advances the state of the art and is high-risk, high-reward.
- d. Projects that TIP determines would likely be completed without TIP funds in the same time frame or nearly the same time frame, or with the same scale or scope.
- e. Predominantly straightforward, routine data gathering (e.g., creation of voluntary consensus standards, data gathering/handbook/specification sheet preparation, testing of materials, or unbounded research aimed at basic discovery science), or application of standard engineering practices.
- f. Projects in which the predominant risk is market-oriented—that is, the risk is that the end product may not be embraced by the marketplace.

- g. Projects with software work that are predominantly about final product details and product development, and that have significant testing involving users outside the research team to determine if the software meets the original research objectives, are likely to be either uncompetitive or possibly ineligible for funding. However, R&D projects with limited software testing, involving users outside of the research team, or vertebrate animals, may be eligible for funding and contain eligible costs within a TIP award when the testing is critical to meeting evaluation criteria and/or award criteria and the testing results are essential for completion of a critical task in the proposed research. This type of testing in projects may also be considered to involve human subjects or vertebrate animals in research and require compliance with applicable federal regulations and NIST policies for the protection of human subjects or live vertebrate animals.

2. *How are indirect costs handled in TIP budgets?*

Indirect costs, which include overhead and general and administrative expenses, must be absorbed by the recipient. TIP funds cannot be used to pay for indirect costs. Indirect costs can be used as cost share on TIP projects and are considered to be a cash contribution.

3. *How are tuition costs handled in TIP budgets?*

Tuition costs are generally not allowed as direct costs on projects. An institution of higher education participating in a TIP project as a contractor or as a joint venture member or lead may charge TIP for tuition remission or other forms of compensation paid as, or in lieu of, wages to students performing necessary work. These are allowable, provided the requirements are met under 2 C.F.R. Subtitle A, Chapter 2, Part 220, Appendix A, 45 (formerly OMB Circular A-21, Section J.41). In such cases, tuition remission and other forms of compensation paid to students shall be treated as direct costs in accordance with the actual work being performed, and listed in the budget under "Other." Tuition remission may be charged on an average rate basis.

4. *How are fringe benefits handled in TIP budgets?*

Fringe benefits are generally considered to be indirect costs. However, if it is your organization's accounting practice to always charge fringe benefits as direct costs, fringe benefits can be included as a direct cost of the project and should be included in the "Other" budget category of the NIST 1022-C form Budget Narrative.

5. *What types of costs are ineligible or unallowable?*

The following items, regardless of whether they are allowable under federal cost principles, are ineligible or unallowable under TIP:

- a. Bid and proposal costs (e.g., payments to any organization or person retained to help prepare a proposal), unless they are incorporated into a federally approved indirect cost rate.
- b. Construction costs for new buildings or extensive renovations of existing buildings. However, costs for the construction of experimental research and development facilities to be located within a new or existing building are allowable provided the equipment or facilities are essential for carrying out the proposed project and are approved in advance by the NIST Grants Officer. These types of facility costs may need to be prorated if they will not be used exclusively for the research activities proposed.
- c. Contractor office supplies and contractor expenses for conferences/workshops.
- d. Contracts to another part of the same company or to another company with identical or nearly identical ownership. Work proposed by another part of the same company or by another company with identical or nearly identical ownership should be shown as funded through inter-organizational transfers that do not contain profit. Interorganizational transfers should be broken down in the appropriate budget categories.
- e. For research involving human and/or animal subjects, any costs used to secure Institutional Review Board or Institutional Animal Care and Use Committee approvals before or during the award.
- f. General purpose office equipment and supplies that are not used exclusively for the research: e.g., office computers, printers, copiers, paper, pens, and toner cartridges.
- g. Marketing, sales, or commercialization costs, including marketing surveys, commercialization studies, and general business planning, unless they are included in a federally approved indirect cost rate.
- h. Office furniture costs, unless they are included in a federally approved indirect cost rate.
- i. Patent costs and legal fees, unless they are included in a federally approved indirect cost rate.
- j. Preaward costs: i.e., any costs incurred prior to the award start date.
- k. Profit, management fees, interest on borrowed funds, or facilities capital cost of money. However, profit is allowable for contractors under a single company or joint venture.
- l. Project development planning (e.g. patent and literature searches) and creation of milestones. For example, proposals that plan on developing milestones only if an award is received and after literature searches are performed under the award are generally not competitive. Costs for literature searches in general are ineligible.
- m. Relocation costs, unless they are included in a federally approved indirect cost rate.

- n. Salaries: NIST limits the salaries of project personnel so to not exceed Level I of the Executive Schedule, the specific amount can be found in future annual announcements (FFOs) of availability of funds.

6. *Can a university employee establish a company and contract back to his/her university?*

Generally, no. This would present a conflict of interest. However, under certain circumstances, for example, if the university's participation is unique and essential to the project, the contracting arrangement may be considered. In such a case, the organization/individual with the conflict of interest may not benefit or profit from the contract. For more information, see the Codes of Conduct guidance in 15 C.F.R. § 14.42 (<http://www.nist.gov/tip/helpful-resources.cfm>).

7. *Is there a limit to the number of university students that can participate in a project?*

Since the mission of TIP is not primarily one for educating students, NIST reserves the right to limit the number of graduate students and post-doctoral researchers requested to participate in the research plan and budget narrative. For each graduate student proposed, you must indicate which specific research tasks in the technical plan require their participation and whether or not this position is expected to be rotated on a regular schedule to another graduate student. Describe the research activities the student will contribute to and how the project would proceed if the student contribution is not approved. Post-doctoral researchers will be considered to be key personnel and need to be named specifically in the budget narrative. In addition, their contributions need to be associated with specific research tasks in the technical plan.

TIP requires recipients to provide the names of graduate students who are working on the project. The name of each student's receiving wage compensation should appear on the NIST-1022C form under "Personnel." Enter TBD if students are not known at the time. If an award is made, the NIST-1022C form will be updated with the student's name as soon as they are known (e.g., at the start of each rotation.)

With regard to student involvement, TIP expects:

- limited involvement and rotation of students on research activities within the project;
- no undergraduate student activities charged to the project; and
- that all activities by graduate students will be technically justified in the technical plan and budget narrative.

8. *Can an individual who has a financial or other interest in a company receive a contract from that company?*

Generally, no. See the question and answer in D.6. above

9. *Will TIP fund research performed outside the United States?*

Possibly. Although TIP is not precluded from funding research performed outside the United States, proposals involving significant research outside the United States would likely be considered less competitive when evaluated against the TIP evaluation criteria related to advancing the state of the U.S. science and technology base and generating substantial benefits to the Nation. Any proposed use of a foreign contractor or foreign-located organization must be justified (see Exhibit 11, NIST-1022H, "R&D Work Performed Outside the United States by the Recipient or Contractor Questionnaire"). The completed questionnaire must include an explanation of why the work or services cannot be performed equivalently or obtained in the United States. For requirements on research involving human subjects in research activities, or research involving live vertebrate animals proposed to be performed outside of the United States, see *the TIP Guidelines and Documentation Requirements for Research Involving Human and Animal Subjects located at <http://www.nist.gov/tip/helpful-resources.cfm>*. Contacting the TIP Human and Animal Subjects Advisor is strongly encouraged.

E. THE SELECTION PROCESS AND CRITERIA TO SELECT PROPOSALS

1. *How are proposals selected for funding?*

Proposals are selected based on a multi-disciplinary peer-review process, as described in 15 C.F.R. §296.20 (see Appendix B). A preliminary review is conducted to determine if the proposal is in accordance with 15 C.F.R. §296.3, complies with the eligibility requirements described in 15 C.F.R. §296.5, addresses award criteria (a) through (c) of 15 C.F.R. §296.22, was submitted to a previous TIP competition and if so has been substantially revised, and is complete. Proposals that are incomplete or do not meet any one of the preliminary review requirements will normally be eliminated. All remaining proposals are then carefully reviewed based on the TIP evaluation criteria listed in 15 C.F.R. §296.21 and award criteria listed in 15 C.F.R. §296.22. An Evaluation Panel will present funding recommendations to a Selecting Official in rank order for further consideration. The Selecting Official makes the final selections for funding. The selection of proposals by the Selecting Official is final and cannot be appealed. The final approval of selected proposals and award of assistance will be made by the NIST Grants Officer. The award decision of the NIST Grants Officer is final and cannot be appealed.

NIST reserves the right to negotiate the cost and scope of the proposed work with the proposers that have been selected to receive awards. This may include requesting that the proposer delete a particular task from the scope of work that is deemed by NIST to be inappropriate for support. In addition, NIST reserves the right not to fund a proposal where information exists that raises a reasonable doubt as to the responsibility of the proposer.

2. *What criteria are used to select proposals for funding?*

Proposals are selected for funding based on the evaluation criteria listed in 15 C.F.R. §296.21 and the award criteria listed in 15 C.F.R. §296.22 as identified below. Additionally, no proposal will be funded unless TIP determines that it has scientific and techni-

cal merit and that the proposed research has strong potential for addressing a societal challenge defined within the TIP-identified areas of critical national need.

Evaluation Criteria: The two evaluation criteria and their respective weights as listed in 15 C.F.R. §296.21 are as follows:

(a)(1) The proposer(s) adequately addresses the scientific and technical merit and how the research may result in intellectual property vesting in a U.S. entity including evidence that:

- (i) The proposed research is novel;
- (ii) The proposed research is high-risk, high-reward;
- (iii) The proposer(s) demonstrates a high level of relevant scientific/technical expertise for key personnel, including contractors and/or informal collaborators, and has access to the necessary resources, for example, research facilities, equipment, materials, and data, to conduct the research as proposed;
- (iv) The research result(s) has the potential to address the technical needs associated with a major societal challenge not currently being addressed; and
- (v) The proposed research plan is scientifically sound with tasks, milestones, timeline, numerical metrics, decision points, and alternate strategies.

(2) Total weight of (a)(1)(i) through (v) is 50%.

(b)(1) The proposer(s) adequately establishes that the proposed research has strong potential for advancing the state of the art and contributing significantly to the U.S. science and technology knowledge base and to address areas of critical national need by transforming the Nation's capacity to deal with a major societal challenge(s) that is not currently being addressed, and generate substantial benefits to the Nation that extend significantly beyond the direct return to the proposer including an explanation in the proposal:

- (i) Of the potential magnitude of transformational results upon the Nation's capabilities in an area;
- (ii) Of how and when the ensuing transformational results will be useful to the Nation; and
- (iii) Of the capacity and commitment of each award participant to enable or advance the transformation of the proposed research results (technology).

(2) Total weight of (b)(1)(i) through (iii) is 50%.

Award Criteria: The six award criteria as listed in 15 C.F.R. §296.22 are as follows:

- (a) The proposal explains why TIP support is necessary, including evidence that the research will not be conducted within a reasonable time period in the absence of financial assistance from TIP;

(b) The proposal demonstrates that reasonable and thorough efforts have been made to secure funding from alternative funding sources and no other alternative funding sources are reasonably available to support the proposal;

(c) The proposal explains the novelty of the research (technology) and demonstrates that other entities have not already developed, commercialized, marketed, distributed, or sold similar research results (technologies);

(d) The proposal has scientific and technical merit and may result in intellectual property vesting in a U.S. entity that can commercialize the technology in a timely manner; and

(e) The proposal establishes that the research has strong potential for advancing the state of the art and contributing significantly to the U.S. science and technology knowledge base; and

(f) The proposal establishes that the proposed transformational research (technology) has strong potential to address areas of critical national need by transforming the Nation's capacity to deal with major societal challenges that are not currently being addressed, and generate substantial benefits to the Nation that extend significantly beyond the direct return to the proposer.

NIST must determine that a proposal successfully meets all six award criteria in order for the proposal to receive funding under the Program.

Detailed guidance on how to address the evaluation and award criteria is provided in Chapter 2.

3. *What factors could result in a proposal not being competitive?*

Examples of factors that could result in a proposal not being competitive include the following:

- a. An incomplete proposal. For example, a proposal that states a more detailed technical plan and project milestones will be developed after an award is received, and/or after a literature search is performed will not be considered to be a complete proposal.
- b. Failure to address a societal challenge(s) as described in an area of critical national need identified in the Federal Register notice announcing the competition.
- c. Failure to address in sufficient detail any evaluation or award criterion.
- d. Omissions of significant details due to the proposer's reluctance to reveal confidential/ proprietary information.
- e. Lack of clear science-based explanation of the high technical risks and their potential rewards that require TIP funding. Explanations of technical risk that are limited to the level of

cost or length of time to complete the work are considered to be insufficient, and not science based.

- f. Failure to adequately address the question, “What technical issue or issues are preventing progress in addressing the particular societal challenge within an area of critical national need?”
- g. Inadequate documentation of the novelty of the expected research/or technology results/outcomes with respect to what is currently available. Specifically, it should be clear that other entities have not developed, commercialized, marketed, distributed, or sold similar technologies.
- h. Lack of detail in the technical plan or failure to clearly describe how the research path will be accomplished, including project milestones with appropriate technical metrics. For example:
 - (1) Use of a trial-and-error approach to generate new technologies or processes based on state of the art techniques that do not result in advancing the methodology beyond trial and error.
 - (2) Technical risks in the project not described at the scientific level other than that the approach may not work as expected, or there is no clear identification of alternative mitigation strategies for overcoming various risks at each step in the R&D plan.
 - (3) Technical risks and proposed key accomplishments during the project are not adequately linked to project milestones with appropriate technical metrics.
 - (4) Straightforward scale-up based on standard engineering practices or state of the art techniques that will not advance scale-up methodology (e.g., faster, better, cheaper).
 - (5) Use of proprietary techniques that are already developed in-house to generate novel technologies or processes where there is no expectation to move the technique(s) to a next-generation advancement.
 - (6) Lack of detail as to how the research has a strong potential for advancing the state of the art and contributing significantly to the U.S. science and technology knowledge base.
 - (7) Unconvincing case of the need for TIP funding or failure to describe thorough actions taken to already secure non-TIP funding (or lack of evidence of the results of those actions).
 - (8) Failure to address the technical scope requirements specific to the societal challenge(s) for this competition as outlined in the Federal Funding Opportunity announcement.

- a. For single company award recipients, pursuant to the Bayh-Dole Act (35 U.S.C. 202 (a) and (b)) and “Memorandum to the Heads of Executive Departments and Agencies: Government Patent Policy” (February 18, 1983), the entity that invents owns the invention. However, pursuant to 35 U.S.C. 202(a)(i), when a single company or its contractor under a TIP award is not located in the United States or does not have a place of business located in the United States or is subject to the control of a foreign government, NIST will require that title to inventions made by such parties be transferred to a U.S. entity that will ensure the commercialization of the technology in a timely fashion.
- b. For joint ventures, ownership of inventions arising from a TIP-funded project may vest in any participant in a joint venture, as agreed to by the members of the joint venture (notwithstanding 35 U.S.C. 202 (a) and (b)) and specified in their joint venture agreement. (Participants include all entities that are identified as a recipient, subrecipient, or contractor on an award to a joint venture.)

Title to any such invention shall not be transferred or passed, except to a participant in the joint venture, until the expiration of the first patent obtained in connection with such invention.

Should the last existing participant in a joint venture cease to exist prior to the expiration of the first patent obtained in connection with any invention developed from assistance provided under TIP, title to such patent must be transferred or passed to a U.S. entity that can commercialize the technology in a timely fashion.

Patent reporting requirements using iEdison.gov is described within the TIP General Terms & Conditions which are available at <http://www.nist.gov/tip/helpful-resources.cfm>.

2. *Does the Federal government have any rights to patentable inventions arising from a TIP-funded project?*

Yes. The United States reserves a nonexclusive, nontransferable, irrevocable paid-up license, to practice or have practiced for or on behalf of the United States any intellectual property developed from a TIP award. The federal government shall not in the exercise of such license publicly disclose proprietary information related to the license. This does not prohibit the licensing to any company of intellectual property rights arising from a TIP-funded project. (15 C.F.R. §296.11(b)(3)). The federal government also has march-in rights in accordance with 37 C.F.R. §401.6.

3. *Can an entity other than a JV participant own any intellectual property arising from the TIP project?*

No. However, if it is desirable for the joint venture to have another entity own any IP arising from the TIP project, that entity could become a participant of the joint venture, either by becoming a member of the joint venture (if eligible) by signing the joint venture agreement, or by revising the project budget to include that entity as a contractor or subrecipient. For example, a recent

F. INTELLECTUAL PROPERTY

1. *Who retains title to patentable inventions arising from a TIP-funded project?*

TIP project added, as a joint venture member, a university's non-profit research foundation, that had been formed to hold/own intellectual property for the university.

G. HUMAN AND ANIMAL SUBJECTS

1. *Will TIP fund projects involving human subjects and/or live vertebrate animals in research activities?*

Yes, provided the research involving human subjects or live vertebrate animals is in compliance with applicable federal regulations and NIST policies for the protection of human subjects or live vertebrate animals. Human subjects research activities involve interactions with live human subjects or the use of data, images, tissue, blood and/or cells/cell lines (including those used for control purposes) from human subjects. Research involving human subjects may include activities such as testing new devices, techniques, and sensors, the use of image and/or audio recording of people, taking surveys or using survey data, using databases containing personal information, testing software with volunteers, and many tasks beyond those within traditional biomedical research.

Vertebrate animal research involves live animals that are being cared for, euthanized, or used by the project participants to accomplish research goals or for teaching or testing. The regulations do not apply to animal tissues purchased from commercial processors or tissue banks or to uses of preexisting images of animals (e.g., a wildlife documentary or pictures of animals in newscasts). The regulations do apply to any animals that are transported, cared for, euthanized, or used by a project participant for testing, research, or training, such as testing of new procedures or projects, collection of biological samples or observation data on health and behavior.

2. *Does TIP have any written guidance to help me determine what documentation is required if my project involves human subjects or live vertebrate animals in research activities?*

Yes, and it is critical that you review this guidance. TIP has prepared detailed guidance in the *TIP Guidelines and Documentation Requirements for Research Involving Human and Animal Subjects* to help you determine what documentation is required if your research plan contains studies using human subjects, human materials, or live vertebrate animals. This booklet is available at <http://www.nist.gov/tip/helpful-resources.cfm> or it can be mailed to you by calling 1-888-847-6478 and requesting a copy. You are also encouraged to call the TIP Human and Animal Subjects Advisor for assistance at 301-975-8779.

3. *We are not a biotech company. Could our research involve human subjects?*

Yes, it could. Manufacturing, electronic, and information technology projects may use human subjects in a way that falls within the regulations. For example, a software company may propose

to test a new approach to software development by having a group of experienced programmers try it and measure their reactions and results with the new tools. The use of human subjects is not limited to biologically based studies; there are numerous examples of nonmedical research proposals that may use human subjects or data with personal information about people. Any use of human subjects requires careful review to determine if and how the regulations apply and may require the submission of certain documents to NIST. A Human Subjects Determination Checklist is included in this Proposal Preparation Kit in Chapter 6 to assist you in determining whether your proposed research plan has human subjects involvement, which would require additional information in your proposal submission, and possibly more documentation during the Evaluation Panel's consideration of your proposal. See the *TIP Guidelines and Documentation Requirements for Research Involving Human and Animal Subjects* for more specific information on documentation requirements and due dates for documentation.

Examples of human subjects in research activities that may require the submission of certain documents to NIST include, but are not limited to, using human subjects to:

- a. Test software, recording (audio or visual) methods, equipment, therapeutic methods or materials;
- b. Collect data about human subjects through direct interviews, written surveys, or online interactive methods, etc.; or
- c. Observe people and their behavior in specified circumstances controlled by the research team.