



**Addressing the Nation's
Critical Needs:
*Technology Innovation
Program***

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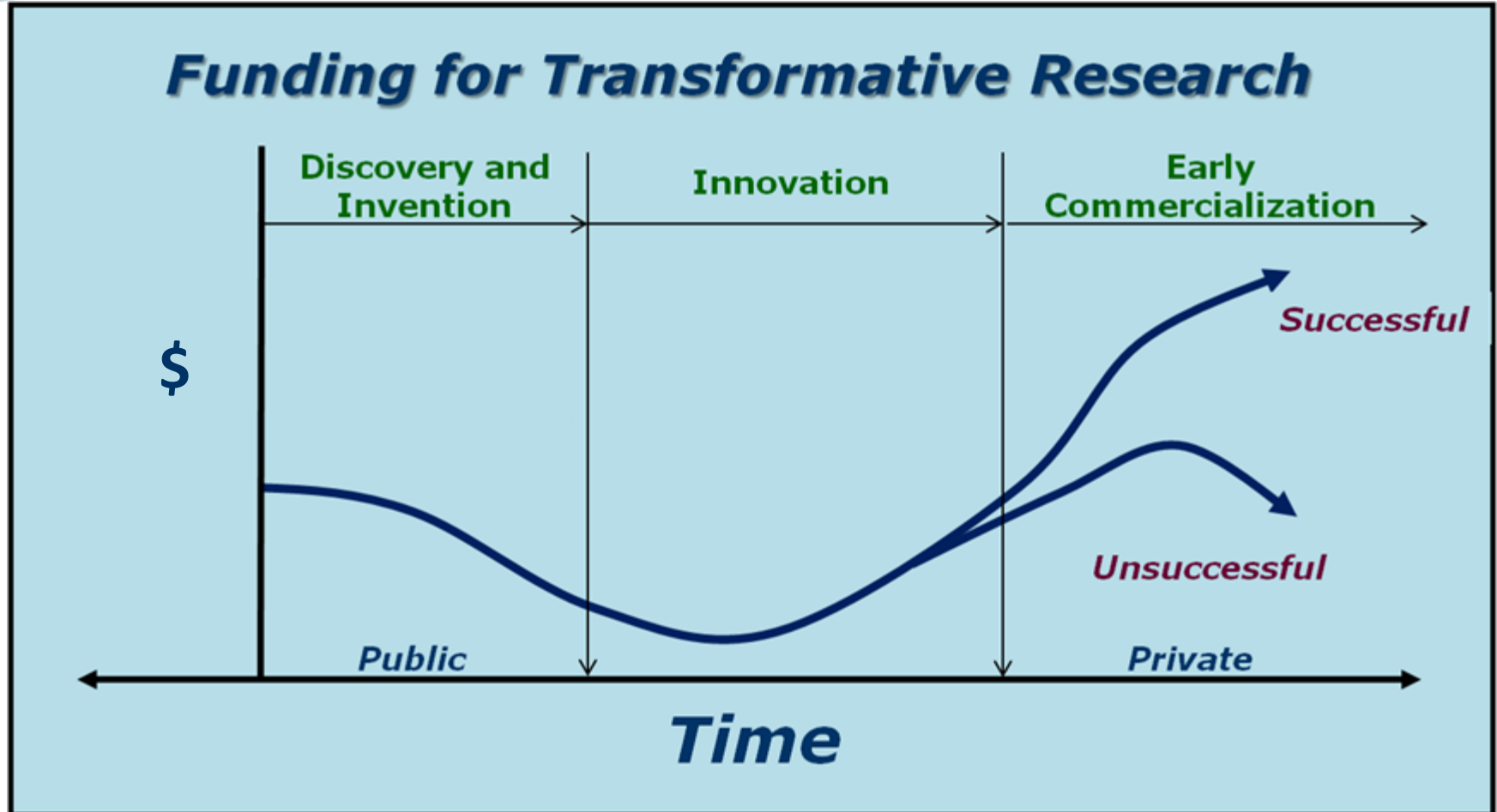
What is TIP?

TIP is a cost-shared, Federal funding program that focuses on high-risk, high-reward research that is expected to transform the nation's capacity to deal with major societal challenges that are not being addressed.

Funding

- \$69.9 million for FY 2010, including management of ongoing TIP and Advanced Technology Program awards

Provide Funding Not Possible by Others



TIP is Part of NIST

TIP benefits from NIST scientific and technical expertise

- Help identify and select areas of critical national need and societal challenge for TIP funding
- Evaluate proposals



NIST benefits from collaborating with TIP

- Apply understandings of critical national needs to NIST research programs
- Enhance knowledge, skills, abilities through TIP program development and proposal review



TIP's Purpose

- Assist United States businesses and institutions of higher education or other organizations, such as national laboratories and nonprofit research institutions
- Support, promote, and accelerate innovation in the United States through high-risk, high-reward research
- In areas of *Critical National Need*

America COMPETES Act, (PL 110-69)

August 9, 2007



TIP's Critical National Need Framework

- TIP uses a *Critical National Need* identification & selection process to shape its competitions and collaborative programs
- What is a *Critical National Need*?
 - *An area that justifies 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*

Societal Challenge

■ What is a TIP *Societal Challenge*?

A problem or issue (*not a solution or answer*)
confronted by society that

- when not addressed could negatively affect the overall function and quality of life of the nation, and as such justifies government attention
- can be addressed through high-risk, high-reward research



Key Features of TIP

- **Novel Purpose**
 - Address societal challenges not being addressed in areas of critical national need with benefits that extend significantly beyond proposers
- **Scientific & Technical Merit**
 - High-risk, high-reward research
- **Transformational Results**
 - Strong potential for advancing state-of-the-art and contributing to U.S. science and technology base



Key Features of TIP

(cont'd)

- **Recipients CAN be**
 - Small and medium-sized, U.S., for-profit businesses
 - Institutes of higher education
 - National laboratories (with the exception of NIST)
 - Nonprofit research institutes
 - Other organizations

- **Large companies (i.e., Fortune 1000 companies)**
 - MAY participate as a JV member and fully fund their participation, a contractor, or an informal collaborator
 - MAY NOT directly receive Federal funds

TIP Project Types

■ Funding

- Single company projects can receive up to \$3M over a maximum of three years.
- Joint Venture (JV) projects may be funded up to \$9M over a maximum of five years.
- Note: TIP funds direct project costs only.

■ Proposers' cost share

- At least 50% of the yearly total project costs – direct plus indirect
- Composed of both cash and in-kind

■ Structure

- Single company projects led by a small or medium-sized U.S. company
- Joint venture projects of either:
 - 1) at least **two** for-profit U.S. companies with the project lead being a small or medium-sized company, or
 - 2) at least **one** small or medium-sized company and **one** institute of higher education or other eligible organization with the lead being either the small or medium-sized company or the institute of higher education.



TIP Project Portfolio

■ Civil Infrastructure

- 2008 and 2009
- 17 awards
 - 5 single company awards
 - 12 joint ventures
- \$149.9 million
 - \$72.6 million Federal share
- 69 participating organizations
(includes sub-recipients and contractors)

■ Manufacturing

- 2009 and 2010
- 21 awards
 - 17 single company awards
 - 4 joint ventures
- \$129.8 million
 - \$63.1 million Federal share
- 63 participating organizations
(includes sub-recipients and contractors)

Total high-risk, high-reward R&D initiated:

- 38 projects
- \$279.7 million (\$135.7 million Federal share)
- 132 participating organizations



Demonstrating Demand

Three Competitions 2008-2010

■ Proposals

- Number 282
- Total TIP Funds Requested \$929M
- Average Funds Requested \$3.3M

■ Participating Organizations

- Number 731
- Type
 - Small businesses 416 (57%)
 - Medium businesses 53 (7%)
 - Large businesses 20 (3%)
 - Universities 198 (27%)
 - Non-profits, State/Local agencies, Labs 44 (6%)

A National Program

Technology Innovation Program
 Proposals, Awards, and Participants
 All Competitions (2008-2010)



*Number of Participating Organizations includes Single Companies, Joint Venture Members, Subrecipients, and Contractors
 **Number of proposals reflects the lead organization was located in that state
 As of 03/23/2011

● Number of Participating Organizations* (132)
 ▲ Number of Awards (38)
 ■ Number of Proposals** (282)

University / Industry Partnerships

University Participation

32 instances among 28 separate institutions

- 8 University led Joint Ventures
- 9 Universities teaming as non-lead JV members
- 15 Universities teaming as contractors or sub-recipients

Industry Participation

91 instances among 89 separate companies

- 72 small-sized companies
- 17 medium-sized companies
- 2 large-sized companies

Other Participation (gov't, not-for-profit)

9 instances



Current TIP Critical National Need and Interest Areas

Critical National Need Areas

- Civil Infrastructure*
- Manufacturing*

Other Interest Areas

- Robotics*
- Complex Networks
- Energy*
- Healthcare*
- Sustainability
- Water*

Interest Areas subject to change
as TIP focuses
on the Nation's most
pressing priorities!

* TIP White Paper available for public comment



Developing a Pipeline of Critical National Need Topics

- Industry white papers
- Input from a host of external stakeholders and organizations
 - Government agencies and advisory bodies (such as the National Research Council, the National Academy of Sciences, the National Academy of Engineering and the Institute of Medicine)
 - Science and Technology Policy Institute
 - Industry organizations, leading researchers from academic institutions, and others

TIP conducts an analysis of Federal funding to determine its unique role within a Critical National Need and Societal Challenge.



Looking Ahead: Shaping Future Topics

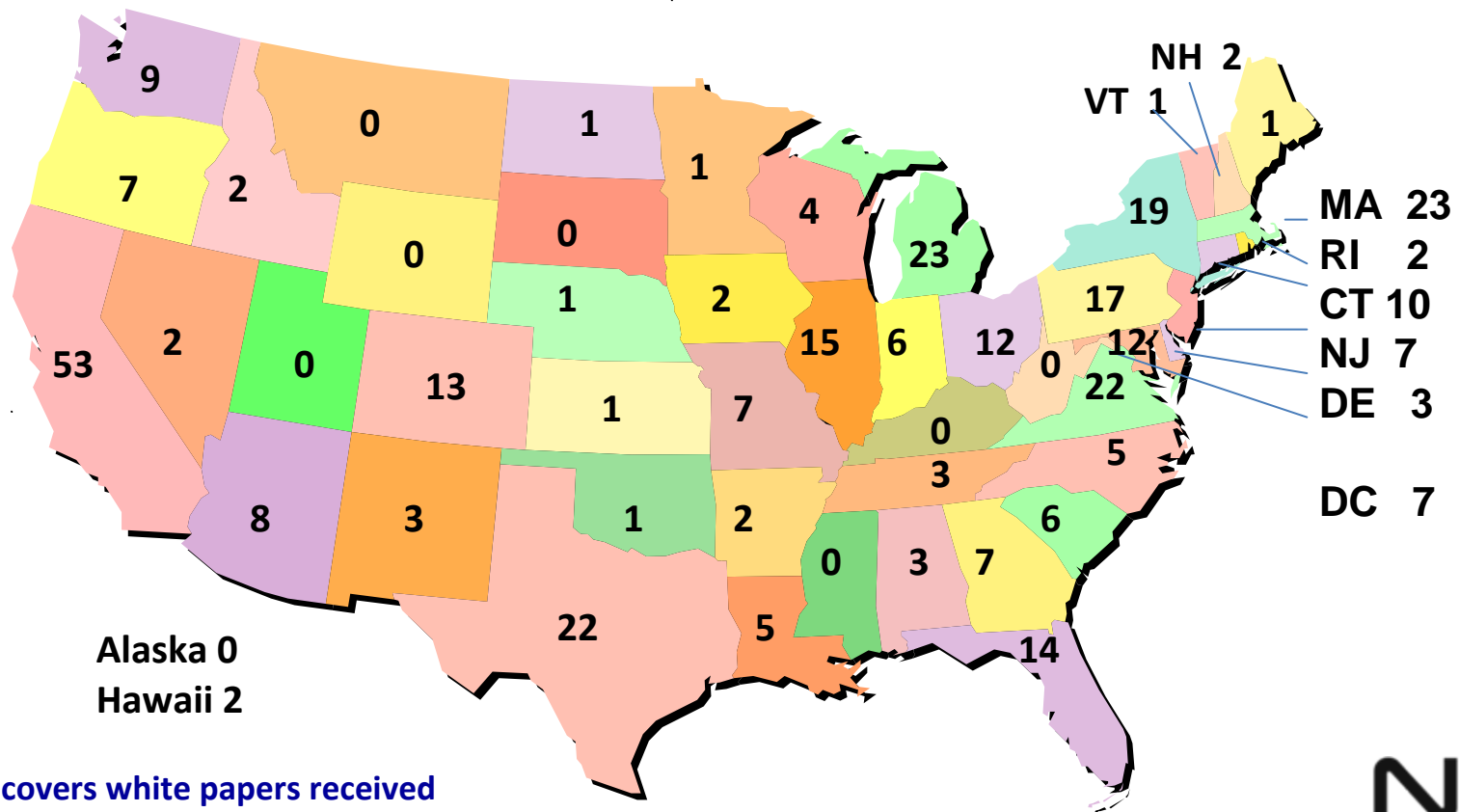
Industry, non-proprietary White Papers

- Present stakeholder views specific for TIP!
- See *“A Guide for Preparing and Submitting White Papers on Areas of Critical National Need”*

(October 2010), at <http://www.nist.gov/tip/wp/index.cfm>

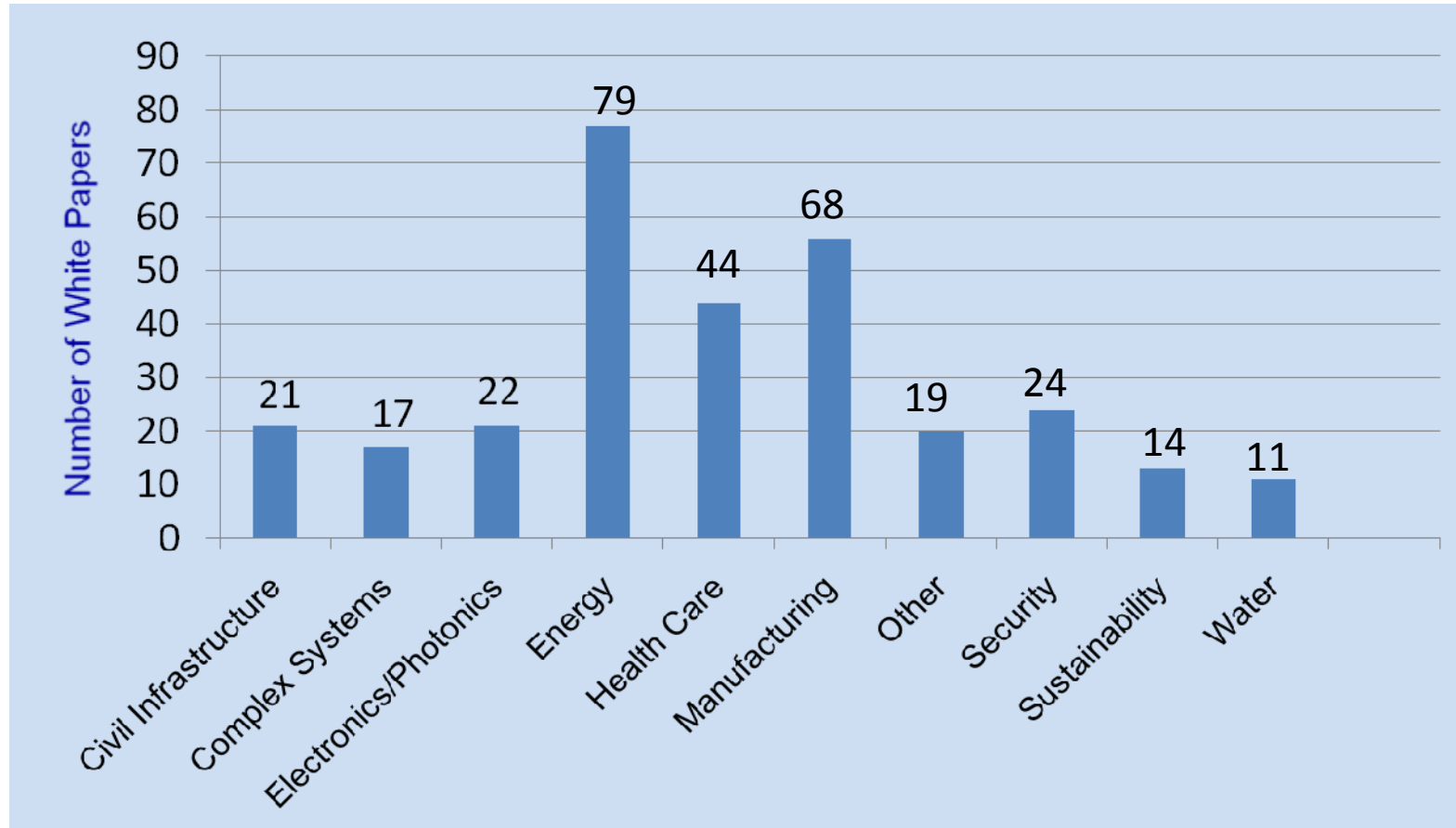
Competition and Planning

TIP Receives Nation-wide Input: White Papers

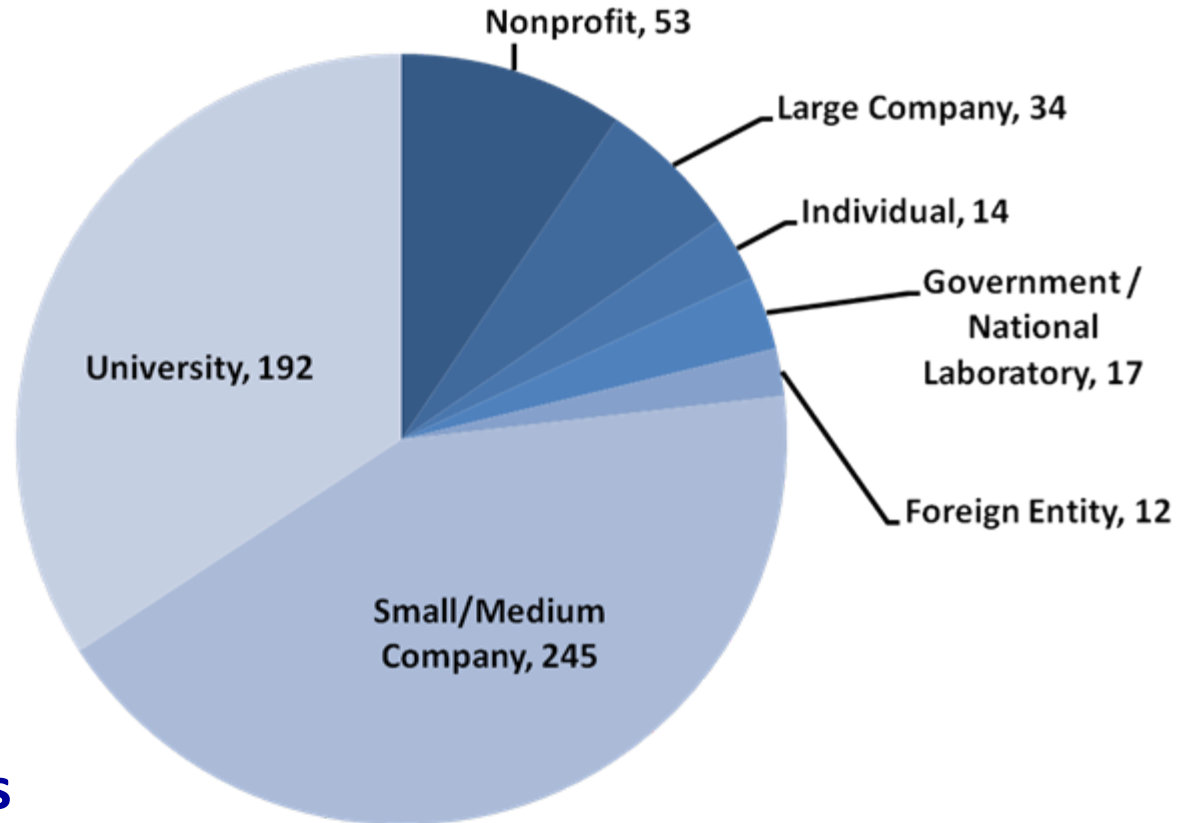


Data covers white papers received through March 1, 2011

White Papers by Technology Area



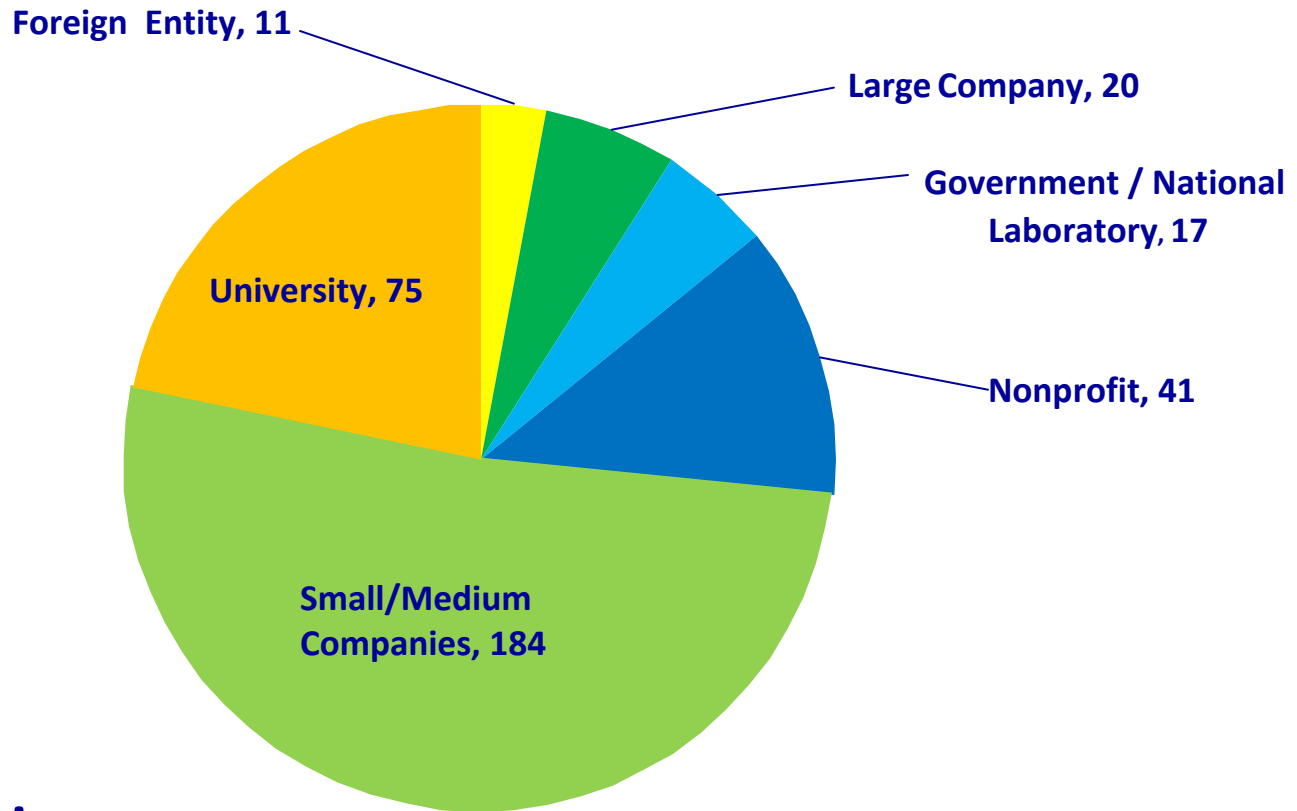
White Paper Authors



574 Authors



Affiliations



347 Entities



Engaging the S&T Community to Shape the Future

Non-proprietary White Papers (from the public)

- Present stakeholder views specific for TIP
- What S&T societal challenges TIP should consider and address
- See *“A Guide for Preparing and Submitting White Papers on Areas of Critical National Need”* (October 2010), at <http://www.nist.gov/tip/wp/index.cfm>

➤ White papers actively being sought

– Rolling deadlines: May 10, July 12



Expectations for 2011

- White papers actively being sought
 - Rolling deadlines: May 10, July 12
 - New/revised TIP Draft White Papers posted for public comment:
<http://www.nist.gov/tip/wp/index.cfm>
- Competition(s)
 - There will not be a competition in FY 2011



For further information...

- TIP website: www.nist.gov/tip
- Toll-free: **1-888-TIP-NIST (1-888-847-6478)**

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