The Technology Innovation Program

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VCAT Presentation

TIP
Technology Innovation Program

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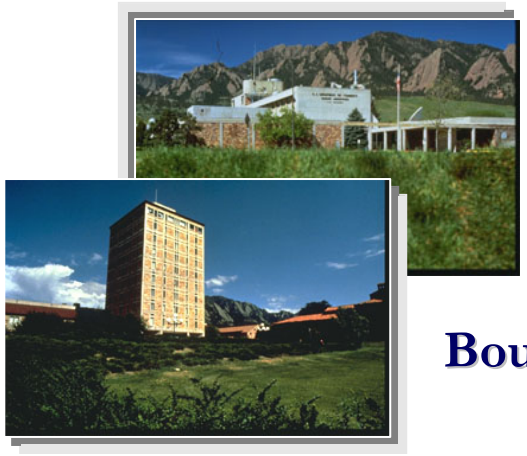
NIST Mission …

Gaithersburg, MD



Boulder, CO

To promote U.S. innovation and industrial competitiveness by advancing

measurement science, **standards**, and **technology**

in ways that enhance economic security and improve the quality of life for all Americans.

TIP is Part of NIST

Funding: **$70 million FY 2008 including management of ongoing ATP awards**

TIP draws upon NIST scientific and technical expertise:

- Identifying and selecting critical national need areas for TIP funding
- Peer review of proposals

NIST benefits from collaborating with TIP:

- Learning about critical national needs as applied to NIST research
- Enhancing knowledge through proposal review

TIP Purpose …

"Assisting United States businesses and institutions of higher education or other organizations, such as national laboratories and nonprofit research institutions, to 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

Key Features of TIP

- **Novel Purpose:** address societal challenges not being addressed in areas of Critical National Need (CNN) with benefits that extend significantly beyond proposers
- **Rich Teaming:** businesses, academia, national labs, nonprofit research institutions and other organizations
- **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
- **Societal Challenges:** demand government attention
- **Clear Government Need:** no other funding sources are reasonably available

Awards based on *"high-risk, high-reward"* innovation,
need for public funding, and potential to meet unaddressed societal challenges

Key Features of TIP (cont)

- Funding
  - **Single company projects up to $3M for maximum three years.**
  - **Joint Venture projects may be funded up to $9M for maximum five years**
- Allows institutions of higher education to lead a joint venture R&D project
- Intellectual property will reside with U.S. company or any JV member (including a university JV member)
- Opportunities for state involvement with R&D planning
- Program assessment required
- Annual reports from Program and Advisory Board to Congress

The TIP Advisory Board…

- Purpose:
  - Provide advice to the NIST Director on plans & policies
  - Review TIP's efforts in R&D acceleration
  - Report on the health and effectiveness of TIP in meeting its mission
- 10 members (at least 7 from industry)
- Meets twice per year
- Reports to Congress

TIP CNN Process…

- Critical National Need identification & selection process will shape TIP collaborative outreach and competitions
- Gap Analysis – Determine unique NIST role within Critical National Needs
  - NRC (National Research Council) of the National Academies of Science
  - STPI (Science & Technology Policy Institute)
  - Published Industry Roadmaps
  - Others
- Competition topic areas based on the ***needs***, not ***technologies***, for meeting societal challenges

Potential CNN Topic Areas

- Civil Infrastructure
- Energy
- Manufacturing
- Water
- Communications
- Complex Networks
- Personalized Medicine

These seven areas represent the potential broad topic areas that TIP has identified to date. However, this list is not exhaustive; TIP may select a different or more specific Critical National Need.

Civil Infrastructure…

- Poor road conditions cost U.S. motorists $54 billion a year in repairs and operating costs.

- More than 33% of the nation's 600,000 bridges are rated structurally deficient or functionally obsolete.

Failure to reverse a trend of increasing highway infrastructure deterioration will lead to reductions in national and economic security, lower worker productivity, and a overall reduction in the quality of life.

Energy…

Energy Impacts:

The Economy

The United States economy is dependent on foreign sources of energy. Disruptions in oil supply from foreign countries and/or rise in price impacts all sectors of U.S. economy.

Sky Factory from Flickr by Taras Kalapun

The Environment

Energy-related carbon dioxide emissions causes environmental damage and reduces the quality of life in United States. Carbon dioxide, nitrous oxide and other greenhouse gases are significant contributors to global warming.

Manufacturing…

Manufacturing generates a large share of American prosperity. Yet…

At 14.3 million workers, employment in manufacturing today is at its lowest point since 1950. Virtually every state lost manufacturing jobs between 2001 and 2004, average loss 11.5%.

Rapidly changing market demands necessitate:

- shorter innovation cycles
- more flexible and rapidly re-configurable manufacturing systems
- integrated and streamlined communications and supply chains
- reduced environmental impacts and improved energy efficiencies

Glowing Steel from Flickr by crowbert

Water…

Six billion gallons per day of clean, treated drinking water disappears, mostly due to old, leaking pipes and water mains… Enough to serve the population of California!

Pharmaceutical agents (i.e. mood stabilizers, antibiotics, sex hormones, anti-convulsants) are in drinking water supplies of 41 million Americans.

TIP Next Steps…

- New TIP website available
  - **http://www.nist.gov/tip/**
  - Additional future webcasts on various topics will be available on the website
- Proposed Rule published
  - **Received public comments (comment period closed April 21st)**
  - **Available from http://www.nist.gov/tip/rule_frn.pdf**
- Critical National Need selection in progress
- Competition planning is underway
- Proposal Preparation Kit under development