

Innovation 2008 Conference



Renewing America Through Smarter Science & Technology Policy
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Panel on Innovation and Competitiveness: Renewing America's Leadership

Dr. Russell Lefevre
President, IEEE-USA



Topics

- **What a new Administration needs to do to ensure that the U.S. maintains a global leader in innovation.**
- **Federal R&D Priorities.**
- **Energy.**
- **Broadband Services.**
- **Health of the High-Tech Workforce.**

Federal R&D Priorities

- Fully funding the America COMPETES Act is the first priority.
- What America COMPETES does is necessary, but may not be sufficient. It may not be how much we spend, but how well we spend it.
- Investment focus needed on exploratory and applied research in the physical sciences, especially in high-risk areas of new and emerging technologies that can lead to new technology-based industries.
- The importance of investing in people and research infrastructure.
- “Nano, Info and Bio” remain valid national priorities.

Energy

- The new R&D priority is energy.
- No silver bullet....we need to invest our research dollars to ensure a diverse set of energy resource options.
- We also need to maximize the electrification of our transportation sector e.g. consider Plug-In Hybrids.
- Increasing efficiency in the conversion, delivery and utilization of energy is a third key component.
- “Smart Grid” technologies, using sensors and real-time monitoring, will help us manage electricity more efficiently and with greater reliability.
- Regulators and Congress are considering moving to a truly “national transmission grid” to ease construction of new transmission lines, and open access to wind and solar resources of the Midwest and Southwest.

Energy: IEEE-USA's Response

- Prompted by a request by Senator Alexander to review his proposed “Manhattan Project” for energy, IEEE-USA is outlining a proposed “National Energy Policy Action Plan” to share with the new Administration.
- IEEE-USA and the American Society of Mechanical Engineers are working on a consensus draft of principles on energy policy as a basis for a broader pan-engineering statement.

Broadband

- **The broadband communications infrastructure is an economic enabler, with applications in areas such as telework, education, telemedicine, etc.**
- **In the U.S., we're not prepared for coming broadband demand and we're not keeping pace with world-class networks. Since 2001, the United States has dropped from 4th place in broadband adoption to 15th among 30 developed OECD nations.**
- **As a nation, we need to give greater priority to high-speed broadband deployment and access to close the widening gaps in penetration, access and price between the U.S. and other developed nations.**
- **The Broadband Data Improvement Act, attached to the market bail-out bill, starts by authorizing the first ever census of the gaps in U.S. broadband coverage. Much more remains to be done.**

Broadband: IEEE-USA's Response

- IEEE-USA's broadband policy position calls for universal and affordable access to high-speed broadband networks as a national priority:
 - The most important short-term goal is broadening ubiquitous availability.
 - Data rates should be sufficient to provide the equivalent of several channels of bidirectional, high-resolution video, achievable by expanding the capabilities of current technologies.
 - Policy calls for economic incentives for broadband investments and changes in laws/regulations designed to promote competition, service provision and content.
- Submitted Sept. 16 testimony to Senate Commerce Committee hearing on "Why Broadband Matters"
- Supported "Broadband Data Improvement Act," passed by Congress in September.

BROADBAND APPLICATIONS

- **Telework:** Broadband-enabled telecommuting will enable people to join in the workforce who would otherwise be excluded by reason of location, mobility, age, or cost. And think about the environmental and social advantages of taking all those cars off the roads.
- **Education:** All levels of education are increasingly using broadband as part of the learning experience. Tele-education broadens access to educator expertise. Images and videos enrich the primary grades in science, music, art, and current events.
- **Telemedicine:** Broad-band enabled telemedicine is not only a way to tap medical expertise quickly and efficiently from a distance. As our population ages, broad band-enabled electronic technologies to assist and monitor elderly, disabled, and chronically ill individuals in the home can improve their quality of life, improve health outcomes, and help control health care costs.

STEM Workforce

- People are the ultimate drivers of innovation.
- Many mature tech fields are looking at a potential “Silver Tsunami” of retirements by “Baby Boomer” engineers.
- The current emphasis on preparing K-12 students for the STEM educational pipeline and on enhancing skill-based immigration is important.
- STEM workers hoping to extend their careers due to the market crash, combined with our lengthening life spans, counsel the need for more emphasis on life-long learning and career resiliency.
- Ultimately, STEM careers have to be seen as rewarding and reasonably stable. Otherwise, it will be increasingly difficult to attract innovative people into the STEM fields.

Closing Notes

- **Fully funding the America COMPETES Act is the first and more important step that the new Administration can take to help shore up U.S. innovation for the long-haul.**
- **There is much more that needs to be done in terms of investing in technology, in people, and in incentives that will drive broad-based entrepreneurship and innovation.**
- **Energy and broadband are two critical fields where more attention is warranted.**