

# Technology Policy International

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### Science and Technology Policy — A Comparison of Kerry with Bush

#### ABSTRACT

If he is elected President, John Kerry's science and technology policies are likely to differ in some respects from those of President George Bush. Such differences, however, should be viewed in the larger context of a very broad consensus on essential features of such policies in the United States. Senator Kerry's positions on many issues in science and technology policy have not been articulated in detail, in part because, with certain high-profile exceptions such as research using human stem cells, science and technology issues are not expected to become major issues in the presidential campaign this year. President Bush, on the other hand, by virtue of having been in office for more than three years, has adopted positions on a wide variety of issues.

#### INTRODUCTION

This issue begins with a discussion of a number of realities of contemporary American circumstances that constrain the discretion that President Bush and Senator

Kerry have to fashion science and technology ("S&T") policies. Next this issue outlines the key features of the broad national consensus on S&T policy in the United States that are not likely to change much regardless of the outcome of the election. It then turns to several broad themes that may differentiate Senator Kerry's stances on S&T from those of President Bush. The final part of this issue discusses a number of specific issues in S&T policy on which one can perceive significant differences between the President and his challenger.

This issue builds on the framework established in Number 1 in this series, "John Kerry's Science and Technology Policies," June 2, 2004.

#### CONSTRAINTS ON PRESIDENTIAL DISCRETION AND INITIATIVE IN SCIENCE AND TECHNOLOGY POLICY

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<sup>1</sup>*Prepared for the Washington, DC, office of NEDO, the New Energy and Industrial Technology Organization of Japan. Copyright 2004 by Technology Policy International.*

Issue number 1 describes in some detail two key limitations on what any President will be able to do about S&T policies in the next administration: the budget deficit and Republican control of Congress.<sup>2</sup>

For purposes of analysis it is convenient to divide S&T policy into “Policy for S&T” and “S&T in Policy.” “Policy for S&T” includes such matters as federal funding for R&D programs and projects, support for human resource development for R&D, and controls on the conduct of research and the use of technology. “S&T in Policy,” on the other hand, generally refers to the use of scientific and technical data, understanding and capabilities in setting policies in a wide variety of arenas including national defense, homeland security, environmental quality, natural resources management, telecommunications and information, agriculture, product safety, foreign affairs, transportation, and so on.

The distinctions between “Policy for S&T” and “S&T in Policy” are not always clear-cut. For example, in trying to use scientific understanding or technological capabilities to address a general problem in public policy, decision makers may find that the base of such understanding or the array of capabilities is not sufficient for informed and effective policy decisions to be made. In such a case, they may decide to enhance investments in a particular field of S&T to strengthen the basis for decision.

The very large *federal budget deficits* that are now once again a fact of life in the United States are putting great pressure on the budgets for nearly every “discretionary”

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<sup>2</sup>It is customary to refer to the “next administration,” even if the incumbent President is re-elected. Thus, we are not assuming for purposes of this issue that Sen. Kerry will replace Pres. Bush.

government program. Funding the continuing costs of the war in Iraq and the war against terrorism is adding to the pressure on other programs, while entitlement programs, which do not require annual decisions on funding levels, continue their inexorable upward funding demands.

Essentially every R&D program funded by the federal government is in the “discretionary” part of the budget and is, therefore, subject to annual review, revision, and appropriation. Even a President who wanted to make major new investments in research or technology development would be hard-pressed to do so in this tight budgetary environment.

If Sen. Kerry is elected President, there is every reason to think this budget pressure will continue for a number of years. He has proposed to roll back some of the tax cuts that Pres. Bush has won over the past three years, but the total impact of these roll backs, assuming he could obtain them, on the deficit will be limited. Stronger economic growth could also help relieve some of the budgetary pressure as growth both increases revenues and reduces the cost of some social programs.

On the other hand, it is not out of the realm of possibility that new and greater demands will be placed on the federal budget by, for example, further terrorist challenges. Another major terror attack on the United States akin to the events of September 11, could well lead this country into a much more expensive and extensive world-wide effort to find and neutralize terrorist units. Further destabilization of the Middle East, by, for example, the eruption of major internal conflict in Saudi Arabia, could also lead to much greater expenditures on national security and homeland defense, to

the detriment of other fields such as research and development.

As noted in Number 1, if he is elected President, Sen. Kerry is likely to face a Republican-controlled Congress, at least in the House of Representatives. If this happens, it will be extremely difficult for Kerry to make major changes in either budgetary priorities or substantive law. If the Republicans adopt the same approach they employed in 1993 and especially in 1995 against Pres. Clinton, they will oppose almost any proposal a Pres. Kerry would make, regardless of its merits, for the purpose of frustrating his ability to build a winning coalition in the Congress. Further, should Sen. Kerry defeat a sitting Pres. Bush in the November elections, partisan division is likely to dominate nearly every aspect of public life throughout 2005, and major changes in policy will be very difficult to make.

There is a different possibility--that John Kerry will be elected president and that the Democrats will win a majority of seats in both the House and Senate. Until the past few weeks, this outcome has seemed highly unlikely; now, however, experienced observers are beginning to talk about this possibility as not out of the question. If the situation in Iraq continues to deteriorate or if other divisive issues do not accrue to the benefit of the incumbent Republicans, it is quite possible that Sen. Kerry's party, the Democrats, will gain control of Congress.

If both the presidency and the Congress fall under Democratic party control, the Democrats would undoubtedly interpret this outcome as a mandate to make major changes in public policy. R&D funding priorities would be modified, support for industrial technology development programs would be greatly strengthened, and other

changes might occur in such fields as space research and exploration, environmental quality and global change, homeland security research, and so on. In effect, both a new Pres. Kerry and a new Democratic leadership would seek to advance a host of new initiatives that have been on their "back burner" since 2002 and earlier.

#### THE AMERICAN CONSENSUS ON SCIENCE AND TECHNOLOGY POLICY

There has long been a strong bipartisan consensus in the United States on S&T policy, especially on "policy for science." For many decades, the federal government has been a major financial supporter of research, including basic research of broad societal value; applied research on important national challenges such as energy, health, agriculture, and the environment; and development in such fields as national defense, space exploration, and advanced transportation systems. Government has also been a performer of research, especially for, but not limited to, national security. More than seven hundred federal laboratories conduct research on key national problems.

Similarly, the federal government has been widely seen as appropriately providing financial support to graduate studies in scientific and technical fields, and, with a brief hiatus in the early Reagan administration, to strengthening math and science education in the primary and secondary schools (grades 1 through 12.)

In addition, the political parties have generally agreed on the need for certain controls on the conduct of science, such as regulations on the treatment of human subjects of research, the care of animals used in research, and national security

restrictions on certain kinds of research or research done in certain places.

This is not to say that there are not differences of view between the political parties on various specific issues in “policy for science.”

On the funding side, Democrats have tended to be more openly supportive than Republicans of government financing of research intended to strengthen industrial technologies, such as the Advanced Technology Program in the Department of Commerce, the aeronautics research program in NASA, and energy technology programs in the Department of Energy. On the whole, Democrats have typically sought rough parity in federal funds made available for both civilian and defense research, whereas Republicans have typically been more favorably inclined toward defense than civilian research.<sup>3</sup>

On the regulatory side of “policy for science,” Democrats have tended to favor somewhat greater stringency and oversight of compliance with rules governing research, yet the Bush Administration’s limitations (ban) on federally-funded research using embryonic stem cells from lines established after August 2001 are substantially more stringent than Democrats, in general, would support. Republicans tend to want to impose tighter national security controls on the export of advanced technologies than do most Democrats.

Both political parties support funding for the education of graduate students as well as for primary and secondary school students in

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<sup>3</sup>There no known principle to suggest that parity in defense and non-defense research spending is a meaningful or desirable goal, but it has taken on political significance for Democrats.

math and science. Democrats are somewhat more supportive than Republicans of awarding unrestricted fellowships to individual graduate students, whereas Republicans tend to prefer supporting them through funding channeled through faculty as research grants. This is more a difference of view about means than it is about policy. And, Republicans are generally opposed to federal involvement in the primary and secondary schools, which has led them until recently to oppose federal support for K-12 education in science and math, which Democrats support.

The national S&T policy consensus is not as well-developed on aspects of “science in policy” as it is for “policy for science.” The American approach to government regulation, in general, strongly encourages the use of scientific and technical information in public decision making, especially by regulatory authorities. In the U.S., regulatory agencies are created by Congress and given certain policy making powers in the laws that create them. By law, however, regulatory agencies are required to make policy decisions only after considering all available “facts” on the matter at hand. Scientific “facts” are given a great deal of weight in such decision making. Furthermore, regulatory agencies that do not take into account all relevant facts, including scientific facts, face the very real likelihood that their decisions will be challenged in court and that, if they have not considered all the facts, their decisions may be reversed by judges. This regulatory process creates a huge demand in the American system for research on matters that may come under regulation, including environmental, health and safety regulation, where scientific and technical information may be particularly important in influencing regulatory decisions.

Thus, both Democrats and Republicans tend to support examination of “good science” in making regulatory decisions. Such science is generally agreed to be that which is conducted according to key norms of the scientific community, such as objectivity, controlled experiments, peer review, open publication, and verification by others.

The parties do differ, however, in the precise role that “good science” should play in regulatory decision making. Republicans, who generally, but not always, support less stringent regulation of industry, tend to argue that the findings of “good science” should be given very heavy weight in regulatory decision making.

Democrats, on the other hand, adopt a somewhat different stance on the use of science in regulation. To be sure, they do not favor the use of “bad science.” However, they are more willing than Republicans to take into account scientific evidence that may be less compelling than the “good science” supported by the latter. In making regulatory decisions, Democrats would consider scientific findings about the potential deleterious effects of industrial technologies, especially if they suggest harm to people and the environment, even if the evidentiary basis is somewhat limited. They often argue that on important regulatory issues, decisions makers must operate in a world of high uncertainty about health effects and the like, and that to wait for more certain results could also mean that society remains exposed to risks and dangers longer than is desirable. Some Democrats are willing to adopt the “precautionary principle” that is widely favored in Europe, which states, in essence, that it is better to err on the side of safety in the face of uncertainty, than it is to regulate with a lighter hand and face the possibility of major harm in the future.

Put another way, Democrats would argue that the scientific record created during a regulatory proceeding is useful evidence that should influence decisions, but would not argue that only a certain style of scientific inquiry should be considered as valid and useful for this purpose. Republicans would also tend to recognize the value of a scientific record in regulatory decision making, but would encourage that only “good science” of a certain style should be taken into account in making those decisions.

#### MAJOR THEMES IN A KERRY S&T POLICY PORTFOLIO

In recent weeks, Sen. Kerry has begun to outline the specifics of his S&T policy agenda if he is elected. He spoke about some of his S&T policy preferences at an event in Denver, Colorado, on June 21. He highlighted differences between his position and that of Pres. Bush on a number of issues in both “policy for science” and “science for policy.” He said he would overturn Pres. Bush’s ban on federal funding of research using new stem cell lines. He criticized reports that Pres. Bush intends to cut the budgets of key science funding agencies in FY2006, including NIH and NSF. He was also critical of what he said was an effort by Pres. Bush to distort and manipulate scientific information for political ends, pointing specifically to removal of information about the challenge of global warming from an EPA report in 2003, deleting information about the use of condoms from a government web site, and ordering changes to a report that described damage that would be caused by oil drilling in the Arctic National Wildlife Refuge.

In another speech in June 15, Sen. Kerry was critical of Pres. Bush’s vision for the

future of NASA. That vision includes the goal of returning to the moon by 2020, but with a NASA budget that would increase by only five percent annually to 2008 and at the rate of inflation thereafter. Pres. Bush also envisions completion of the International Space Station by 2010, along with retirement of the Space Shuttle fleet after that job is done. The Space Station's research would focus on studying the long-term effects of extended periods of living in space on humans. NASA, under Pres. Bush, has canceled a previously planned Shuttle mission to repair and upgrade the Hubble Space Telescope, although in recent weeks it has responded to criticism by both scientists and experts by agreeing to consider ways in which Hubble could be serviced by a robotic, unmanned mission.

By inference, Sen. Kerry would not follow the Bush path. He would continue programs to develop low-cost transportation to space. He would also support continuing micro-gravity research on the Space Station as one rationale for its continued existence. In his speech, he did not offer specific funding or operational goals for NASA beyond those just mentioned.

Sen. Kerry's most detailed exposition of his position on S&T policy matters addresses issues around technology, competitiveness, high-tech jobs and information industries. His positions on these matters have been developed in an issue paper on the web.<sup>4</sup>

The Kerry issue paper leads with a statement of three principles. They lie squarely within

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<sup>4</sup>[www.johnkerry.com/issues/tech/](http://www.johnkerry.com/issues/tech/) as well as additional detail entitled, "John Kerry's Plan to Create Millions of High-Wage Jobs in the Industries of the Future," obtained by clicking on "Technology" under "John Kerry on the Issues" on the same web page.

the American consensus on S&T policy, and, in the judgment of TPI, reflect equally adequately the views of Pres. Bush. The differences between Pres. Bush and Sen. Kerry arise when these principles are translated into programs and actions, and when they are combined with a host of other considerations in policy making. Briefly the principles are:

- *The ability to innovate...is a unique strength of the American people and the American economy,*
- *The private sector is the engine of economic growth and job creation, and*
- *The creation and adoption of new technologies are important because of the key economic and social benefits that they provide.*

Here are some of the more important aspects of Sen. Kerry's positions on high-wage jobs and industries of the future. In summary, he would:

- *Eliminate capital gains taxes for long-term investments in small businesses,*
- *Extend the research and experimentation tax credit*
- *Reform or eliminate regulations that impede American's high-tech competitiveness [e.g., support stem-cell research, reform export controls on computers to emphasize software, use market-based approaches to regulation, enable alternative energy sources to connect to the power grid, and provide adequate funding to the Patent Office],*
- *Open foreign markets to U.S. goods and services,*
- *End special tax breaks for moving jobs overseas — and cut corporate taxes in the United States,*

- *Cut the budget deficit in half while investing in priorities,*
- *Provide tax incentives to make broad-band access universal,*
- *Ensure universal broad-band for “first responders” by the end of 2006,*
- *Expand the spectrum available for new broadband wireless services and “first responders” — while raising \$30 billion to fund science and technology innovation,*
- *Promote private sector investment in and competition in broadband,*
- *Encourage marketplace solutions to attract broadband providers to under-served regions,*
- *Restore integrity and honesty to science policy,*
- *Provide broad-based increases in funding for research, helping to create the industries and jobs of the future [e.g., increased support for physical sciences and engineering research through general increases for NSF, NIH, DOE, NIST and NASA in such areas as nanotechnology, advanced manufacturing, information technology, life sciences, clean energy, and industrial biotechnology],*
- *Expand support for “curiosity-driven” research and long-term, high-risk research,*
- *Devote more defense research and development to long-term research,*
- *Use prizes to stimulate technological innovation,*
- *Accelerate the pace of scientific discovery by investing in cyber-infrastructure,*
- *Balance science and security by streamlining our visa system to facilitate scientists and students to*

- *work and study in the United States while improving our security,*
- *Build a high-tech workforce for the 21<sup>st</sup> Century [more details to be announced],*
- *Promote digital opportunity,*
- *Make our government more open, responsive, and efficient,*
- *Transform America’s health care system [using information technology],*
- *Empower people with disabilities to lead more independent lives, and*
- *Put America’s cultural heritage at the fingertips of every American [through digital libraries, archives and museums].*

This is an ambitious agenda for action. In some respects it reflects a continuation of “business as usual” as compared with Bush positions; in others it reflects a radical departure from the Bush positions; and, in still others, it reflects a modest redirection of current policies.

That the Kerry agenda incorporates so many key themes advanced by Democrats and their supporters over the past several years indicates that this is a well-developed Kerry statement that is the result of a serious effort within the Democratic party to prepare what reads more like a party platform statement than a candidate’s position. Supporters of greater research spending, more use of broad band telecommunications, improvements in science advice, and a stronger government role in industrial technology development can all find many of their favorite issues addressed in this document.

What would be a real challenge for Sen. Kerry would be for him, or for any candidate at the presidential level, to keep all of these matters in his consciousness as he goes about the campaign. It is too early

in the campaign season for him to have whittled down this list to a few key points that he can incorporate into his standard “stump speech” that he will give many times each day as the election draws nearer.

## A COMPARISON OF THE BUSH AND KERRY POSITIONS ON S&T POLICIES

The Bush campaign has not yet issued a detailed and comprehensive statement on high-tech industries, research and jobs like that of Sen. Kerry. On the other hand, Pres. Bush has a record of nearly three and a half years in office as the basis for consideration of his policies on science and technology matters.

Some of the salient features of the Bush presidency and S&T policy are the following. This is necessarily a selective list as the Administration has taken positions on hundreds of matters that are arguably in the domain of S&T policy.

- Substantial increases in R&D funding for a range of federal agencies, and especially for NIH, DOD and Homeland Security,
- The ban on federal research funding using stem cell lines established after August 2001. [In the aftermath of September 11, 2001, it may be difficult to remember that the speech by Pres. Bush stating his position on stem cell research was one of his first major policy addresses to the nation and certainly his first on a science issue. Thus, his stance on this matter was not adopted casually but must have been the result of a very thoroughly researched and vetted process inside the Administration.],
- Announcement of a long-term plan to return to the moon and a shorter-

term plan to terminate the Space Shuttle program,

- Refusal to approve the Kyoto agreement on global climate change,
- Maintaining the federal moratorium on state and local taxation of transactions conducted over the Internet,
- Continuation and expansion of the program of support for research in nanotechnology begun by Pres. Clinton,
- Continued efforts to eliminate funding for the Advanced Technology Program and Manufacturing Extension Partnership program,
- Issuance of formal guidance to agencies for preparation of their FY2006 budget proposals [since disavowed] that told agencies to anticipate cuts in R&D funding over a broad range of programs at NIH, NSF, DOC and others.

## CONCLUDING OBSERVATIONS

Only a few issues in S&T policy have become evident as political issues in the current presidential campaign.

The stem cell research issue has received perhaps the greatest attention from the public and the media. Put simply, Pres. Bush would seek to limit such research; Sen. Kerry encourages it.

The integrity of scientific advice to government at several levels has also become something of an issue. Pres. Bush has been accused by a number of individuals and groups, including some leading scientists, of deliberating seeking science advice to support a preferred political position, or even of modifying the advice that scientists have given for political



objectives. Sen. Kerry says he would fix this problem. He doesn't say exactly how he would do it except to say that, "John Kerry will make sure that his Administration gets the best possible advice on science, technology, and environmental issues."

What to do about weapons of mass destruction in the hands of terrorists, or potentially in their hands, has not yet emerged as a dividing issue, but certainly has the potential to do so. Kerry has proposed a program to "buy up" WMD from around the world to help keep them from terrorists. This is in essence an expansion of the concept underlying American policy to purchase nuclear materials from nations of the former Soviet Union. It makes sense for nuclear weapons; it is less clear how this

policy could make a difference for chemical or biological weapons, which can be regenerated at will by people with limited skills and limited resources. Slow movement by the Bush Administration to address issues related to protection of the homeland, coupled with public disaffection over the fact that WMD have not been found in Iraq and the perpetrator(s) of the October 2001 anthrax attacks on the U.S. have not been found, have the potential to drive handling of WMD to the top of the political agenda by the time of the election.

A range of environmental issues, including what to do about global warming, may also emerge as important in the electoral debate, although they have yet to be featured prominently.