

**NOMINATION OF SEAN O'KEEFE TO BE
ADMINISTRATOR OF THE NATIONAL
AERONAUTICS AND SPACE ADMINISTRATION**

HEARING

BEFORE THE

**COMMITTEE ON COMMERCE,
SCIENCE, AND TRANSPORTATION
UNITED STATES SENATE**

ONE HUNDRED SEVENTH CONGRESS

FIRST SESSION

DECEMBER 7, 2001

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COMMITTEE ON COMMERCE, SCIENCE, AND TRANSPORTATION

ONE HUNDRED SEVENTH CONGRESS

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FRIDAY, DECEMBER 7, 2001

U.S. SENATE,
COMMITTEE ON COMMERCE, SCIENCE, AND TRANSPORTATION,
Washington, DC.

The Committee met, pursuant to notice, at 9:30 a.m., in room SR-253, Russell Senate Office Building, Hon. Ron Wyden, presiding.

**OPENING STATEMENT OF HON. RON WYDEN,
U.S. SENATOR FROM OREGON**

Senator WYDEN. The hearing will come to order. This is a hearing of the Full Committee this morning. We will excuse our Chairman, Senator Hollings, this morning. His prepared statement will be made part of the record.

I will have an opening statement, but first I would like to recognize our friend and colleague from Alaska.

**STATEMENT OF HON. TED STEVENS,
U.S. SENATOR FROM ALASKA**

Senator STEVENS. Thank you very much, Mr. Chairman. I am going to be opening the floor soon with my amendment, but I come to welcome to the Committee once again a former Chief of Staff of the Defense Appropriations Subcommittee, former Secretary of Navy, currently at the OMB and other times Professor at Syracuse University. Sean O'Keefe is a man of great honor, great talent, great ability and he is the right man for NASA at this time. I am delighted to have an opportunity to be here and recommend him to the Committee for quick confirmation. Thank you.

Senator WYDEN. Well, I thank my colleague and it is a plus for this Committee that Senator Stevens and Mr. O'Keefe go way back. Mr. O'Keefe, we welcome you. This morning, the Committee is going to consider the nomination of Deputy Director Sean O'Keefe of the Office of Management and Budget, to be the Administrator of the National Aeronautics and Space Administration. NASA is charged to undertake research regarding flight activities in aeronautics and space. The Subcommittee on Science, Technology, and Space, which I chair, has oversight responsibility of NASA. NASA, with a budget of over \$15 billion, is the largest program within the Subcommittee's jurisdiction. I look forward to working with Mr.

O'Keefe on many of the issues facing the agency. Mr. O'Keefe will bring to the job a reputation of a tough fiscal watchdog.

His skills are especially needed at NASA right now. Mr. O'Keefe's watch will begin during the period of exceptionally tough choices for our Nation's space program. Costs for the horrendously mismanaged Space Station have shot out of control while its capabilities have shrunk. Unless Mr. O'Keefe can get the International Space Station program back in the box—and quickly—the Space Station will use not only allotted resources, but will devour the dollars needed for NASA's other high-priority missions.

The fiscal bottom line is clear. There will not be a massive infusion of new funds for NASA during Mr. O'Keefe's tenure. Mr. O'Keefe's principal challenge will be to refocus the agency and existing Federal funds for carrying out NASA's original goals—research, development, and scientific exploration of space. Specifically, I want Mr. O'Keefe to return NASA to a science and research driven agenda so that our dedicated scientists and engineers can find the breakthrough technologies that have been NASA at its best.

I want to be clear. I am not interested in Mr. O'Keefe coming in and being a fiscal watchdog to narrow NASA's scope, but so NASA can enlarge its scientific visions. The chief value of sound financial management is to ensure the agency has the resources to fulfill its mission. I want Mr. O'Keefe to cut the massive overhead that keeps us from the stars.

There will be opposition to this approach. As chair of this subcommittee, I intend to work closely with my colleagues from Congress, those in the Administration with the country's science leadership and find a way to make this crucial transition. It is absolutely central to the bright future we all want for NASA.

As Mr. O'Keefe begins to return NASA's resources to its origins, I believe that safety must continue to be the No. 1 priority. I also believe that ensuring safety, shortening timelines, and introducing new technologies do not have to be mutually exclusive. You cannot convince me that NASA doesn't have the talent to come up with new ways of doing things that are also smarter ways of doing things.

Cutting fat doesn't mean cutting corners on safety. Where there are dollars spent on layers of bureaucracy or other areas, the fat is not protective padding. The fat is what's keeping NASA's missions from reaching their full potential. For example, with respect to the International Space Station, in 1993 when the current design was adopted, NASA said the Space Station would cost \$17.4 billion for construction, no more than \$2.1 billion per year.

Earlier this year, NASA admitted the cost of completing the Space Station had grown to roughly \$30 billion, almost \$5 billion above cost caps imposed by the Congress. Cost overruns for the Space Station reduced a number of astronauts able to work there. The station is being redesigned and dubbed U.S. core complete, but it is far from the complete scientific platform originally envisioned.

NASA scrapped plans for the crew return vehicle, application module and the propulsion module. Even with those cutbacks, NASA will still have to find ways to make management more efficient and do a better job of estimating costs before an even scaled-

back version of the program. NASA charged a task force to conduct an independent external review for the program. It recently published a recommendation. We are going to discuss them this morning with Mr. O'Keefe.

The challenge of the Space Station is not enough. NASA also faces the difficult challenge of funding necessary upgrades to the fleet of Space Shuttles. The subcommittee already held a hearing on this topic. These upgrades have become increasingly important as the life expectancy of the Space Shuttle has been stunted. Mr. O'Keefe is going to be faced with tough choices that are certainly not going to always be possible, but it is essential that he choose well.

It is not simply that NASA produces the technology to drive our Nation's economy from aerospace and electronics. The future of the human race in space rests on a renewing of NASA's purpose. The alternative is dire. Continuing on the current path will surely bind NASA to Earth and its mission along with it.

Mr. O'Keefe needs this Committee's support. I look forward to his testimony and I want to make it clear that we anticipate swift confirmation. For those who are keeping track, this would be his second confirmation in less than a year, fourth overall. We are going to have some introductions in a moment, Mr. O'Keefe, but first I want to recognize my colleague, the distinguished Senator from Arizona.

**STATEMENT OF HON. JOHN McCAIN,
U.S. SENATOR FROM ARIZONA**

Senator McCAIN. Thank you, Mr. Chairman. I want to thank you and Chairman Hollings for calling this hearing today. Mr. O'Keefe's nomination comes at an important juncture for the National Aeronautics and Space Administration. I appreciate your willingness to work with myself and others on the Committee to give consideration to this important nomination in a very timely fashion. I welcome you, Mr. O'Keefe, and your family who are with you here today.

As we all know, Mr. O'Keefe is currently the Deputy Director of OMB and he has a history of taking on major challenges. He took over as Secretary of the Navy at a very demanding and stressful time for that branch of our services.

The challenge of leading NASA appears to be equally demanding. The agency is currently at a major point in its history. When I was the Chairman of this Committee, I was amazed as much as anyone by the many reports on management problems at the agency.

At times it appeared as if the agency was "bleeding billions" on major cost overruns. There are many who say that NASA has come to stand for "Never A Straight Answer." Based upon its interface with the Commerce Committee, I say there is, unfortunately, some truth to it.

I have written to the agency about incomplete and inaccurate information provided to the Committee. The important point to be realized today is for NASA to understand that accurate and complete information is critical for the Congress to be able to develop effective legislation. They, of any agency, should understand the virtues of sound decisionmaking processes.

The recent Young Report, which I hope all Members of the Committee will read, has highlighted several management issues on the most visible program at NASA, the International Space Station. I'd like to mention just a few of the findings from the Report. The program's technical achievements to date are extraordinary. The existing program plan is not credible, according to the Young Commission.

Existing deficiencies in management structure, institutional culture, cost estimating, and program control must be acknowledged and corrected in order for the program to move forward. Cost estimates for the U.S.-funded enhancements are not sufficiently developed to assess credibility, and there are opportunities to maximize research on the core station program with modest cost impact.

I think these findings do a good job of describing the current condition of the program. Based on this Committee's work over the past years, I feel that many of these findings would also be applicable to many other programs at NASA. The Young Report cites the need for major decisions to be made. Delaying these decisions will only cost the taxpayers more money. I believe that we, the Congress, and the Administration, need to make a conscientious decision on the future of the Space Station. I am willing to work with you and other Members of the Committee and the Administration to develop a plan within the next 120 days for the future of the Station.

I propose that Mr. O'Keefe lead this effort. The choice is whether we want to continue spending \$100 billion of taxpayer funds and receive 20 hours per week of research in return, or do we want to invest additional funds and get a more functional research facility in return. If the latter is the preference, we will require additional program controls. Finding the funding for additional work won't be easy. Priorities must be established and followed.

Members of this Committee are concerned about the other areas at NASA as well. Space science, earth science, space transportation and aeronautics are all important to NASA, as well as the Nation. After the events of September 11th, the Nation is in need of immediate advancements in the aeronautical science arena. This is an opportunity for NASA to really put its research on display before the world. I know the Science, Technology, and Space Subcommittee is considering additional hearings in this area, and I applaud them for doing so.

A coherent vision for the agency is also important. I look forward to working with this outstanding nominee to define and refine the agency's vision, however, we also know that vision without a strategy is just an illusion. Again, I look forward to working with the nominee to develop the appropriate strategy for this provision.

In light of the problems and concerns I have just mentioned and many others, I feel that Mr. O'Keefe makes an excellent nominee as an excellent Administrator of NASA. I think he has the right skills and capabilities at the right time to fully restore the meaning of NASA. I fully support this nomination.

Thank you, Mr. Chairman, for holding this hearing. I look forward to quick action on this nominee.

[The prepared statement of Senator McCain follows:]

PREPARED STATEMENT OF SENATOR JOHN MCCAIN

Mr. Chairman, I want to thank you and Chairman Hollings for calling this hearing today. Mr. O'Keefe's nomination comes at an important juncture for the National Aeronautics and Space Administration (NASA). I appreciate your willingness to work with myself and others on the Committee to give consideration to this important nomination in such a timely manner.

Mr. O'Keefe, currently the Deputy Director of OMB, has a history of taking on major challenges. He took over as Secretary of the Navy at a very demanding and stressful time for that branch of our services. The challenge of leading NASA appears to be equally demanding. The agency is currently at a major point in its history.

When I was Chairman of this Committee, I was amazed as much as anyone by the many reports on the management problems at the agency. At times, it appeared as if the agency was "bleeding billions" on major cost overruns.

There are many who say that NASA has come to stand for "Never A Straight Answer." Based upon on its interface with the Commerce Committee, I say there is, unfortunately, some truth to it. I have written to the agency about incomplete and inaccurate information provided to the Committee. I think the important point to be realized here today is for NASA to understand that accurate and complete information is critical for the Congress to be able to develop effective legislation. They, of any agency, should understand the virtues of good and sound information in the decisionmaking process.

The recent Young Report has highlighted several management issues on the most visible program at NASA, the International Space Station. I would like to mention just a few of the findings from the report:

- The program's technical achievements to date are extraordinary;
- The existing program plan is not credible;
- Existing deficiencies in management structure, institutional culture, cost estimating, and program control must be acknowledged and corrected for the program to move forward;
- Cost estimates for the U.S.-funded enhancements are not sufficiently developed to assess credibility; and
- There are opportunities to maximize research on the core station program with modest cost impact.

These findings do a good job of describing the current condition of the program. Mr. Chairman, based on this Committee's work over the past years, I feel that many of these findings would also be applicable to many other programs at NASA.

The Young Report cites the need for major decisions to be made. Delaying these decisions will only cost the taxpayers more money. Mr. Chairman, I believe that we, the Congress, and the Administration need to make a conscientious decision on the future of the Space Station. I am willing to work with you and the other Members of this Committee and the Administration to develop a plan within the next 120 days for the future of the Station.

I propose that Mr. O'Keefe, if confirmed, lead this effort. The choice is whether we want to continue spending \$100 billion of taxpayers funds and receive 20 hours per week of research in return or do we want to invest additional funds and a get more functional research facility in return.

If the latter is the preference, we will require additional program controls. Finding the funding for this additional work will not be easy. Priorities must be established and followed.

Members of this Committee are concerned about the other areas at NASA as well. Space science, earth science, space transportation, and aeronautics are all important to NASA, as well as the Nation.

After the events of September 11, the Nation is in immediate need of advancements in the aeronautical science arena. This is an opportunity for NASA to really put its research on display before the world. I know the Science, Technology, and Space Subcommittee is considering additional hearings in this area and I applaud them for doing so.

A coherent vision for the agency is also important. I look forward to working with this outstanding nominee to define and refine the agency's vision. However, we also know that vision without a strategy is just an illusion. Again, I look forward to working with the nominee to develop the appropriate strategy for that new vision.

Mr. Chairman, in light of the problems and concerns that I have just mentioned and many others, I feel that Mr. O'Keefe makes an excellent nominee as the next Administrator of NASA. I think that he has the right skills and capabilities at the right time to fully restore the meaning of NASA as the National Aeronautics and Space Administration. I fully support this nomination.

Again, thank you Mr. Chairman for holding this hearing and I look forward to working you and Chairman Hollings in moving this nomination.

Senator WYDEN. I thank the Senator from Arizona.

**STATEMENT OF HON. BYRON DORGAN,
U.S. SENATOR FROM NORTH DAKOTA**

Senator DORGAN. Mr. Chairman, thank you very much. I am pleased to support Mr. O'Keefe. I think the President has chosen well. I think, as some have suggested, NASA faces some very unique challenges at this moment, and Mr. O'Keefe's particular talent fits well with the opportunity to meet those challenges. But let me say despite all of these issues that have been raised, and I think they are appropriately raised, I deeply admire the men and women of NASA who are America's finest explorers of our universe. I have long believed that a society that stops exploring is a society that stops progressing.

All of us very much want NASA to succeed. This is an important and exciting set of missions on behalf of our country, and I believe all of us want success for NASA, so Mr. O'Keefe is offered to us by President Bush as his nominee.

Mr. O'Keefe and I met yesterday, and I am very pleased to support this nomination. I think the President has chosen well.

Senator WYDEN. Senator Hutchison.

**STATEMENT OF HON. KAY BAILEY HUTCHISON,
U.S. SENATOR FROM TEXAS**

Senator HUTCHISON. Thank you, Mr. Chairman, and I thank you and Chairman Hollings and Senator McCain for having this hearing early. I think it is so important that we have firm leadership at NASA for the long-term future. I am supporting Mr. O'Keefe. He came to see me right after his nomination, which I appreciate.

I have to say, I have reservations, not because of anything particular with you, but because I am concerned about the OMB actions toward NASA, since the first of this year. I think OMB has focused on budget cutting and I don't think the leader of NASA can be just a budget cutter. I think the leader of NASA must look at the big picture. I think the leader of NASA must change the problems at NASA which are budget related, but they are leadership related as well, and we have been in limbo for too long, and I want to have a firm leader. For that reason, I am going to ask for confirmation before we leave in December so that you can take firm control and hopefully prove that you have a vision for NASA that will be a long-term vision.

Most particularly, Mr. O'Keefe and I discussed the Young Report, and Mr. O'Keefe suggested that this would be the backbone of his beginning to grapple with the problems at NASA. In the Young Report, I thought the most important red flag was the issue of the core complete 3-person crew that would be in the Space Station, and whether that would be a permanent situation or whether the goal would be to achieve core complete 3-person crew and then move beyond that to the 7-person crew.

It is said in the Young Report, and confirmed by others that I consulted, that it takes about 2½ crew members just to operate the Space Station, thus leaving only half a person worth of man hours

to conduct research. If we expend all of the station efforts on operating the station, I think we will lose the forest among the trees. We will lose the big picture and we will lose what is uniquely NASA's mission, which is to go beyond operating and have the capability to do the innovative research that only the Space Station can do, such as with the microgravity conditions. So I would like to ask Mr. O'Keefe if he is committed to moving beyond core complete into the capability to have more scientists be able to conduct the research.

I think this also has an impact on our international relations. Our international partners are not interested in just operating a station. They are interested in the research that they are going to get for their investment. I think it would otherwise be an abrogation of our agreements. In spirit with our international partners, we should seek to learn enough that is new and creative in the medical field, as well as the scientific field, that we will all be able to then create the industries and the improvements in quality of life that that research will bring.

I don't think you can precisely budget a war, and I don't think you can precisely budget innovative research. By its nature, when you are pushing the envelope, you are going to have mistakes. You are going to have miscalculations, you are going to learn from those and create your final product. So I am going to hope that there is more than a budget cutting mentality and a vision along with a common sense budget mentality.

I have great faith in the President of the United States' commitment to NASA. I believe that he believes, along with Vice President Cheney, that NASA is one of the economic engines of America. It is what has given us the leadership in the world for creative and very valuable satellite information and quality of life improvements, and I think we can do more if you have the capability to produce the vision that will assure we stay in the forefront.

So I will be your biggest booster if I see that in you. You have said that the Young Report will be your basic guideline. I think the Young Report is quite sound, and if you can create the infrastructure that will allow us to go forward with that vision, then NASA will get its feet back on the ground and we will have the same kind of creativity and spirit at NASA that has inspired the American people to be supportive and has created a basis for new scientists and an inspiration to the young people of our country that science is a very important component of entrepreneurship and creativity in our country.

I do support the nomination. I will be working with you hand and glove. I want you to produce, and I want you to show more than an OMB mentality. I thank you. I hope that we can give him the opportunity to be the leader at a very early chance, and I think before we leave, we should confirm this nominee so that he can take the next 2 months when we are not in session to put his team together and begin to offer us the plans that would show that there is a new day and a new vision and a new spirit for NASA.

Senator WYDEN. I thank my colleague.

Here's how we are going to proceed at this point, because we have a vote on the floor of the Senate. We have the distinguished Minority leader here with us, Senator Lott and his schedule is very

tight. At this point, I want to recognize Senator Lott. We will then break for the vote. When we return, we will recognize Senator Nelson, who was here next, and then Senator Allen and Senator Burns.

Senator Lott, welcome.

**STATEMENT OF HON. TRENT LOTT,
U.S. SENATOR FROM MISSISSIPPI**

Senator LOTT. Thank you. I thank my colleagues for giving me this courtesy. I just wanted to be here and congratulate Sean O'Keefe on being nominated for NASA Administrator. I think NASA has an important role for our country, but I think NASA has been wandering around for the last several years without a real vision for the future without the type of leadership really needed and frankly, in many instances, in certain programs without sufficient money to do the job properly. Then in other areas, Congress has forced money on NASA for programs that probably are not of sufficient value. So I hope that your experience at the Department of Management and Budget, and your knowledge of Congress will help you in trying to get NASA headed in the right direction.

I have felt like in recent years that commitments were made by NASA that weren't kept, and that particularly unnerves me when I have the feel that the leadership of an agency is not being square with you or honest with you. And I hope that as certain people have said why you need budget responsibility and your strengths, that you are not going there to just phase it out or phase it down. If it is a core agency, focus on getting the work done where it needs to be done.

If you are going to NASA just for a BRACC type arrangement, you are going to meet a lot of resistance from a lot of us here in this room. I personally have been supportive of NASA over the years and disappointed at various times, but it is doing a lot of innovative things. Vehicle manufacturing has a lot of potential that will be useful for NASA, but also in the commercial area.

One area that I am particularly interested in is the Landsat data continuity mission, which I think will yield a lot of that, and it will be useful in the private sector. Once again, it looks to me like NASA is moving toward NASA owning a single satellite and minimizing the value of this program, as opposed to using the commercial, the private area to get the maximum bang for the buck and to make sure that there is competition and that this is not just a government-run program.

You have a lot of private issues to get involved in. Let me just ask you that in particular. For years, I have urged NASA, by the way, to get the information you have, the technology you get, the science that you benefit from into the private sector, and that has not been easy.

We made a little progress in this Landsat area. Are you committed to that type approach, as opposed to just a government-run and operated program?

Mr. O'KEEFE. Yes, sir. Absolutely.

Senator LOTT. Well, I could ask a whole lot of questions.

Senator WYDEN. We are going to invite you right after the break to join us if you can. As you can see, Mr. O'Keefe, our colleagues

have strong minds on these issues. I am going to break for 10 minutes and as you can see, we are going to have a vigorous debate this morning and we will start with Mr. Boehlert when we return.

[Recess.]

Senator WYDEN. The hearing will come to order. We are very pleased to have Sherry Boehlert here. Please proceed to introduce the nominee.

**STATEMENT OF HON. SHERWOOD L. BOEHLERT,
U.S. REPRESENTATIVE FROM NEW YORK**

Representative BOEHLERT. Thank you for the opportunity to speak in support of the nomination of Mr. Sean O’Keefe to serve as Administrator of the National Aeronautics and Space Administration. I hope that the Senate will follow your example by moving quickly to confirm this nomination. Sean O’Keefe is a dedicated public servant who has never shirked difficult challenges.

He served as Comptroller and Chief Financial Officer of the Department of Defense, later as Secretary of the Navy and earlier this year was confirmed by the Senate to serve as Deputy Director of the Office of Management and Budget. By their nature, these are not jobs that earn you many friends, but Sean has earned a reputation for being a talented manager, fair and open-minded while being absolutely committed to ensuring that the agencies he manages are adaptable, efficient and mission focused. That is exactly what NASA needs today.

I have not been impressed by the criticism of Sean sometimes offered that Sean is “a budgeteer, not a rocketeer.” Well, guess what, Sean is not going to NASA to personally design rockets. But he knows enough about rockets to know that they burn cash, just as assuredly as they burn fuel, and that both propellers are finite. It won’t hurt NASA to have someone who can husband the agency’s resources. But the criticism is not only less damning than intended, it is also unfair.

Sean is indeed a skilled manager who wants to make sure that taxpayer dollars are spent effectively, but that doesn’t make him any less of a thinker. Like any good manager, Mr. O’Keefe is not just interested in how many dollars are spent, but on what they are spent for. And I know from our conversations that he is excited intellectually by the challenge of working to design the space program that will increase our understanding of both Earth and outer space, hone our Nation’s technological edge, and add to our economic strength.

NASA has accomplished that in the past, and it should in the future. That is why I, like most Americans, am a strong supporter of NASA and the manned and unmanned space programs.

I remember the thrill of watching the first landing on the Moon. My fear and the faith of the crew of Apollo 13 and the unforgettable horror of Challenger. I have marvelled at unmanned probes to the outer reaches of our solar system and at the technological achievement that is represented by the International Space Station. Nonetheless, NASA is an agency that has lost its way.

The cost trajectory of its marquee program, the Space Station, is unsustainable. This is truer today than ever in this time of vanishing surpluses and pressing national security and redevelopment

needs. We can no longer afford to manage large technical programs without any real regard for costs.

The question, of course, is how we proceed from here.

At the current rate, we will have pumped more than \$30 billion more into the station, enough money to fund the National Science Foundation for almost a decade and we need to salvage that investment. We need to complete the core elements of the station within the existing budget. We need to ensure that the cost of building the Space Station does not eat into other programs and prevent NASA from pursuing its other scientific missions, and as we do this, we need to look at options to ensure that the station is capable of fulfilling its primary mission, science.

The Young Task Force stated that NASA must undergo radical reforms if it is to restore credibility to the Space Station program. That was a biting critique of the way this program has been managed. But it also marked the path, albeit painful, that NASA must travel if it is to restore its credibility and generate broad public support for future missions. I believe that Sean O’Keefe is prepared for this challenge and that he is dedicated to restoring NASA to its place as the crown jewel of American technology and ingenuity.

This will require established a new vision of the future of the agency and restoring the sense of mission that NASA has lacked since the race to put a man on the Moon. It will also require management reforms and changes to the way NASA conducts its business.

I am confident that Sean O’Keefe has the toughness, the intellect and the dedication to meet this challenge. I urge you to favorably report his nomination out and hope that he will be confirmed before we leave for the holidays, and may I also submit, Mr. Chairman, for the record, a strong letter of endorsement from Chairman Dana Rohrabacher of the House Subcommittee on Space and Aeronautics.

[The prepared statement of Hon. Sherwood Boehlert follows:]

PREPARED STATEMENT OF REPRESENTATIVE SHERWOOD BOEHLERT

Mr. Chairman, Members of the Committee, thank you for the opportunity speak in support of the nomination of Mr. Sean O’Keefe to serve as Administrator of the National Aeronautics and Space Administration. I hope that the Senate will follow your example by moving quickly to confirm his nomination.

Sean O’Keefe is a dedicated public servant who has never shirked difficult challenges. He served as Comptroller and Chief Financial Officer of the Department of Defense, later as Secretary of the Navy, and earlier this year was confirmed by the Senate to serve as Deputy Director of the Office of Management and Budget. By their nature, these are not jobs that win you many friends. But Sean has earned a reputation for being a talented manager—fair and open minded—while being absolutely committed to ensuring that the agencies he manages are adaptable, efficient and mission focused.

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challenge of working to design a space program that will increase our understanding of both Earth and outer space, hone our Nation's technological edge, and add to our economic strength.

NASA has accomplished that in the past, and should in the future. That's why I, like most Americans, am a strong supporter of NASA and the manned and unmanned space programs. I remember the thrill of watching the first landing on the Moon, my fear for the fate of the crew of Apollo 13, and the unforgettable horror of Challenger. I have marveled at unmanned probes to the outer reaches of our solar system and at the technological achievement that is represented by the International Space Station.

Nonetheless, NASA is an agency that has lost its way. The cost trajectory of its marquee program—the Space Station—is unsustainable. This is truer today than ever in this time of vanishing surpluses and pressing national security and redevelopment needs. We can no longer afford to manage large technical programs without any real regard for cost.

The question, of course, is how we proceed from here.

At the current rate, we will have pumped more than \$30 billion into the station—enough money to fund the National Science Foundation for almost a decade—and we need to salvage that investment. We need to complete the core elements of the station within the existing budget. We need to ensure that the costs of building the Space Station do not eat into other programs and prevent NASA from pursuing its other scientific missions. And, as we do this, we need to look at options to ensure that the station is capable of fulfilling its primary mission—science.

The Young Task Force stated that NASA must undergo radical reforms if it is to restore credibility to the Space Station program. This was a biting critique of the way this program has been managed. But it is also marks the path, albeit painful, that NASA must travel if it is to restore its credibility and generate broad public support for future missions.

I believe that Sean O'Keefe is prepared for this challenge and that he is dedicated to restoring NASA to its place as the crown jewel of American technology and ingenuity. This will require establishing a new vision of the future of the agency and restoring the sense of mission that NASA has lacked since the race to put a man on the Moon. It will also require management reforms and changes to the way NASA conducts its business.

I am confident that Sean has the toughness, the intellect, and the dedication to meet this challenge. I urge you to favorably report his nomination out and hope that he will be confirmed before we leave for the holidays.

Thank you.

Senator WYDEN. Without objection. Chairman Boehlert we very much appreciate you coming over here to offer a statement. You are always welcome here. Thank you for an excellent statement. The nominee is lucky to have you in his corner, and we will excuse you at this time.

Next in the order of appearance, our colleague from Florida, Senator Nelson.

**STATEMENT OF HON. BILL NELSON,
U.S. SENATOR FROM FLORIDA**

Senator NELSON. Congressman Boehlert, it is getting to be a regular occasion that you are coming, as you were here yesterday and your testimony was eloquent then. Under—I might say—withering questioning and you were excellent and you are again today.

Representative BOEHLERT. Thank you very much, sir.

Senator NELSON. A pleasure to have you as a friend and a colleague.

Mr. Chairman, I am delighted, I had the privilege of talking with Mr. O'Keefe for a couple of hours yesterday, and I want to follow up in detail. I would just say by way of introductory comments that some of the concerns that Senator Hutchison of Texas has expressed, I would echo some of those concerns.

Here we have a little agency that is the symbol of America's technological prowess. And so much of the hopes and the dreams of America, particularly our youth, are summed up in the success of this little agency. And this little agency needs a leader, and a strong leader. It needs a leader in the mold of Jim Webb, the leader that in the glory days of NASA, took us to the Moon and safely to return.

That is a tall order for Mr. O'Keefe to handle. One of the questions that I asked him yesterday that I would like for him to expand on today is his vision for NASA. This morning's *Orlando Sentinel* has a story that says that America's European partners in the International Space Station Thursday threatened to pull out of the deal because of a U.S. proposal to scale back the orbiting lab. That just adds another complication to the enormous complexity that we have.

The political component of this is a very important component. That is our relationship with other nations because we have a common ground, upon which adversaries and former enemies can come together as was so aptly demonstrated in the Cold War when an American and Soviet spacecraft wound up in space and for 9 days those cosmonauts and astronauts did it together. Commander Tom Stafford is one of the people that I have reached out to in preparation for this hearing today.

I tell you that story simply to say that there is so much riding on the success of this little agency called NASA. And I believe that through 3 Administrations, including the present one, that they have targeted it for cuts that you just cannot keep cutting without paying the price. And when you and I sat here at this table in the first week of September for that day-long hearing on Space Shuttle safety. Of course that is one of the concerns that I have, that the cuts are ultimately going to end up where the Space Shuttle safety upgrades are not made, that they are stretched out, and will cause us to have another accident. And if that occurs, and it is always possible. There are 1,500 critical parts on Space Shuttle. Any one of which fails, that is it.

And if that happens, then the entire manned space program is in jeopardy. Now, there is a lot more at stake here. Because after you and I had the hearing, the very next Tuesday, the great tragedy occurred, and now we know as we go after these terrorists all over the world that we have got to have the assets up there for the signal intelligence as well as the extremely important human intelligence.

And Lord forbid that, thank goodness we have got the Florida National Guard flying F-15s right now over the Cape, and they did so on heightened alert at the time of the launch 2 days ago. But there are a lot of other pads out there, and were we to be denied access to space with expendable booster rockets, the only thing left to have assured access to space is the Space Shuttle, so that is another reason we have got to have this as a functioning reliable system, and all of this is going to come in on NASA. NASA's success, in large part, Mr. O'Keefe, is going to be on whether or not the leader of NASA gives it the leadership in order for its entrepreneurial creativity to blossom. And so I am really looking forward to this hearing.

Senator WYDEN. I thank my colleague.
The Senator from Montana.

**STATEMENT OF HON. CONRAD BURNS,
U.S. SENATOR FROM MONTANA**

Senator BURNS. Thank you very much. Senator Nelson, I am in awe of your passion for this, but I also know from which it comes. We were talking about those years of attempted cuts. There was some of us who sort of stood our ground and made sure that the money was there. I have a higher opinion of the tenure of Dan Goldin, because he has done some things that allowed us to build a very positive support base in every community across this country.

We talk about the value of the Space Station. We talk about the value of pushing the envelope, and doing those things that we can do now. But we also, we tend to forget about the work that was done to broaden the support of NASA, because no other single entity that this government does so stimulates the curiosity of young people, and edges them toward the sciences and the mathematics and the physics that it is going to take to survive in this world in the days ahead.

Take into account the financial constraints and other limitations, I am very pleased with Mr. Goldin, although the public was quick to criticize NASA for failed missions, it was the successes and the advancements in the work with students that occurred with little fanfare that the media did not pick up. Space exploration is risky at best. And it is also an unknown business.

But I would say to a Nation today that once we are lulled or numbed into a society that shrinks and does not push the envelope and continues to reach out and to explore the unknown, then we will be a shrinking society that will fade from the face of the earth. 150 NASA launches since 1952, and only 10 on record that I have said they were failed missions.

That is pretty good when you are dealing in the unknown. And developing new technologies in order to accomplish the mission that is ahead.

Furthermore, the successes of NASA goes way beyond exploration. In my little State of Montana, 950,000 people, many of our State University researchers are working on NASA with several initiatives so far with very satisfactory results. The University of Montana is a NASA partner on Earth observations systems or the OES program. The university has promoted interests in science, engineering and technologies to all ages from the young to the elderly.

Montana State University and NASA officials recently participated in a conference on astrobiology. How did we get here and evolve and what is the destiny of life on Earth and what it means to us were some of the questions they asked. MSU scientists are playing a role in searching for life in extreme environments. The Institute of Thermal Biology hosted a meeting with key researchers and NASA top management in an overview to finding the search for life in those environments.

Previously unknown life forms have been discovered in Yellowstone National Park under very, very difficult environments, and

also in the gold mines of South Africa desert that has never received a drop of water. So NASA's Earth sciences program is dedicated to transferring the knowledge that we know by looking down on Earth to the resources that can be utilized to our Nation's agriculture and food and fiber production, to our people who utilize our national renewable resources, our land planners, and our health organizations.

During the meeting I had with Mr. O'Keefe, and I will say speaking as a Scotsman, turning this over to an Irishman makes me a bit uncomfortable there, but I was very encouraged by his desire to reach out to students in educational institutions, and that is the key to the NASA success.

I also want to draw one parallel here. There was a time we lagged behind Russia in space technology. And to compare the two societies is almost like comparing day and night. The Russians took their technology and they would not share it with anybody. They stuck it in a safe away from the rest of the world and especially to their own people. Where NASA took the technology that we developed and set up technology transfer centers and got it out into the public sector where every one of us in this room, we drive automobiles, our new composites, our computer systems was a result of that technology transfer. And all of society, we are all benefactors of this program.

We continue to grow and to lead the world with not only this agency, but also all of America in various ways. Our friends in Russia are gone. That is a stark difference. But it is like Senator Nelson said, this is a spirit of America, and we are going to have failures, because we are dealing with pushing the envelope, and like I said, nobody has to sell me on the merits of this program, because I am a disciple. You see, I do not have a college degree. I am not proud of that.

A lot of folks that work at NASA have a lot of letters behind their names. Behind my name is NDBBA, "No Degree, But Boss Anyway." But I think that we have to have a vision to dream and we have to make sure that this continues for my children and grandchildren and generations to come that will prosper in this great country and the spirit that it has. I kind of got off on a little tangent here. But I really believe this is one of the most important appointments that this Administration will make and it is one of the most important missions that this Committee has under its jurisdiction in its support of the future. I thank the Chairman.

Senator WYDEN. I thank my colleague.

The Senator from Virginia.

**STATEMENT OF HON. GEORGE ALLEN,
U.S. SENATOR FROM VIRGINIA**

Senator ALLEN. Thank you, Mr. Chairman. I thank you for holding this hearing and I want to associate myself with the remarks that you made at the outset of this hearing, as well as those of Senator McCain, Senator Hutchison, and I did not hear Senator Nelson, but Senator Burns hit the nail right on the head. I join my colleagues, Mr. O'Keefe, in welcoming you here to this Committee. I look forward to listening to your vision, your views as to where

NASA needs to go and to the future and also working with you in the future.

In my opinion, NASA is just a uniquely wonderful government organization. It is one that is made up with brilliant people, some of whom are dreamers. They are intellectuals, and just some truly topnotch scientists as well. In terms of leadership in the scientific community, NASA is just one of the very top in the entire world, not just this country, but all over the world. In its scientific research that has direct benefits clearly to our national security and national defense, but also to our economy, and tangibly over the years, has improved the lives of Americans and people all over the world.

Americans, I think, should be and are proud of the historic accomplishments of NASA. But we are not here to talk about the past. We are here to talk about the future. And there is a lot of talk about the way things have been in the last few years. It is important to look at past record and where it can be improved, but what I am most interested in is really what was alluded to by Senator Hutchison and Senator Burns, and that is the core guiding principles that will mark your leadership. Leaders are to lead, to motivate, to inspire, and to get others to join in that cause.

I think that the guiding principles here need to be held in equal esteem. No. 1, it should be continued scientific excellence for the competitive leadership of America in aeronautics and space, and the second principle should be, of course, fiscal responsibility with the taxpayers' dollars. Those are two equally important principles and goals.

Now, from what I have read in the newspapers and discern through answers that you have had, Mr. O'Keefe, to the Committee questionnaires, I see that these objectives seem to be your objectives.

Now, folks have talked about the Space Station at length. I want to focus on the first A of NASA, which is aeronautics.

That is scientific excellence that we need to focus on, because it is an important responsibility of NASA. Back when I was Chairman of the subcommittee, before Senator Wyden was Chairman of the Science, Technology, and Space Subcommittee, back in April, we held a hearing on aeronautics in our country. We heard about Europe's serious plan to dominate the skies in the future. At the same time, we heard about a lack of attention given to the U.S. programs for advancements in this vital area of aeronautics.

The question is for all of us and you as Administrator, Mr. O'Keefe, what does the United States intend to do about this? What do we intend to do and how are we going to respond to this challenge? If we are going to respond to this challenge, which I think Americans would want us to do, when, and how? And in that hearing, it was made abundantly clear that aviation-related manufacturing as far as jobs in this country is the next exporter in our economy and so if we lose this preeminence, that means a loss of some outstanding jobs and capabilities here in our country. A study by the National Research Council stated that the continued reductions in funding for aeronautics research and development may have irreversible consequences.

Back in the 1970s and 1980s, where our main competition may have been the Soviet Union, America was still alone at the top in the field of aeronautics research. No other country in the world could boast what we had then. But since early 1990s, the U.S. position in this field has steadily declined and now the very existence of our U.S. entry in this field is being threatened by better funded European initiatives. Once the United States loses this leadership position, it will be extremely difficult to regain that leadership role given the difficulty of reassembling the infrastructure, the scientists, the engineers, the highly skilled people in the investment capital that is needed. It is not as if you just find people who have those capabilities or the facilities.

I think in addition to this international challenge, we have a national challenge, Mr. O'Keefe, and that has to do with better security. We have seen it since September 11th.

I think advancements in aeronautics can help with security as well as better transportation system through the skies and this is going to depend on new technologies, the need is both short-term and long-term. We need to pursue both evolutionary and revolutionary advances, but the key to it is clearly human capital.

We need to make sure that more and more youngsters or younger people are studying in our colleges and universities. The age of those who are in the aeronautics field are older people, more likely to retire. You'll find that within the NASA organization. We have to reverse this trend by first increasing our efforts at aeronautics research at NASA, as well as the private sector.

I was very pleased to read in one of the answers to your questionnaires that the use of colleges and universities in that effort and partnership, it doesn't need all to be NASA.

Our colleges and universities can help whatever the mission may be on that particular project, but also encourage youngsters or people who are being educated to get an education in aeronautics. There are many funding matters.

There are many important missions in NASA. Aeronautics needs to be equally there at the top. We must inspire to improve the lives of people in the future and innovate, as well as make sure our economy is strong and make sure we have security in our skies. I look forward to working alongside of you in the future for America's future.

Thank you, Mr. Chairman.

Senator WYDEN. I thank my colleague for an excellent statement. I am sure, Mr. O'Keefe, you are excited that you can begin now. We welcome you and I understand the O'Keefe starting five is here, your family. Perhaps you could introduce them at this point to all of us.

Mr. O'KEEFE. My wife Laura is here, daughter Lindsay, son Kevin and son Jonathan.

Senator WYDEN. Welcome to all of you. It is an exciting day for the O'Keefe family. Despite all the speeches, I want to note for the record that everybody will vote for you. We will enter your prepared remarks in their entirety into the record. Please proceed with your opening statement as you choose.

**STATEMENT OF HON. SEAN O'KEEFE, DEPUTY DIRECTOR OF
THE OFFICE OF MANAGEMENT AND BUDGET, NOMINEE TO
BE ADMINISTRATOR OF NATIONAL AERONAUTICS AND
SPACE ADMINISTRATION**

Mr. O'KEEFE. Mr. Chairman and Members of the Committee, it is a pleasure to be here this morning. I am most honored to be the President's nominee to be Administrator of National Aeronautics and Space Administration. It has been a particular honor to enjoy the sponsorship of the distinguished House Science Committee Chairman, Congressman Sherry Boehlert and my long-time friend and mentor, Senator Ted Stevens. I am honored by their support and deeply appreciate their kind introductions.

Should the Senate confirm the President's nomination, I expect that service as a NASA Administrator will be a daunting challenge, but I have been overwhelmed by the willingness of the Members of this Committee and counterparts in the House to offer invaluable advice and counsel on how these challenges should be addressed. It speaks volumes about the prospect of a strong constructive working relationship with this panel and with Mr. Boehlert's Committee colleagues if I am confirmed.

I am most excited by this opportunity and am privileged that the President has entrusted his confidence by his nomination. NASA is an unparalleled preeminent institution dedicated to world class technology research and development with a storied history known to all Americans. We all take great pride in remarkable achievements and the dedication of the amazing professionals our Nation has been fortunate to attract to the agency's important mission.

The President and the Vice President have charged me with the task of capitalizing on this impressive legacy, and reinvigorating that entrepreneurial spirit that has characterized this fabled institution since its beginning in 1958. Their expectation is that NASA will press the edge of the technology envelope and develop science-driven enterprises and applications in the finest traditions of this institution.

Now, to accomplish this task, I'd like to say that I bring the full range of experience and capability that anyone would hope to have as an Administrator. But I must be honest with this Committee and with myself that I do not embody all the characteristics I think would be desirable. For such challenges, I would like to be a lot more like my dad—educated at the United States Naval Academy, Notre Dame, Tulane, Naval Postgraduate school, he is one of the original elite corps of Rickover-trained engineers. He excelled in a range of industry challenges in the power generation business and shipbuilding. Now fully retired, and that is a euphemism, at the age of 75 he is attending Bowdoin College pursuing studies in astrophysics and German literature. He is the quintessential Renaissance man with a penchant for exasperating my mother.

Instead, the President's nominee before you is a public servant fortunate to have served in a range of Federal public institutions, academia, think tanks and private corporate pursuits. That has contributed to complexities of space-driven research projects and most important is the responsibility to support and continue developing the extraordinary professionals engaged in NASA's diverse and complex endeavors. My qualifications are that of a public ad-

ministrator, and I have developed a good sense not to attempt tasks which require the expertise of the chief engineer, but the skills to attract talent qualify to succeed technology.

The immediate challenge confronting NASA today are largely not scientific, technical or engineering in origin. Indeed, the history and achievement in these disciplines is legendary. Rather, the challenges are more aptly described in management terms. Problems aren't overwhelming, but they do require attention to fundamental management principles less they are to be assumed by process failures. The larger vision for NASA must include the essential leadership of NASA to develop leading technologies rather than success defined by linear incrementalism. Indeed, the creativity is there at NASA in the academic community, within the industry, and with our international partners. And this creativity can be channelled to achieve effective results and assure that the best ideas are pursued to get the most out of this impressive research enterprise. But, these are noble objectives. They can be pursued and achieved within a firm management framework.

I wish I possessed all of the range of talents that my dad embodies. But I regret the dominant genes he passed along mapped a path to a premature gray, receding hairline, and a persistent sinus condition. Those are the two most dominant traits he passed along, but the good news is that he is a very attentive and extremely available for solid advice and counsel. In my upbringing, he and my exceedingly tolerant mother, instilled in me a commitment to do my very best in everything I do.

That is an element of character I promise to employ, with my modest talents, my wife Laura and children can attest to the fact that it takes me a lot of time to accomplish my best. They have tolerated my penchant for the rigors of public service, a malady that every Member of this Committee endures for love of country. My unending gratitude and love for them can be not adequately expressed. They know the depth of my appreciation for their sacrifice.

Mr. Chairman, and Members of the Committee, thank you again for the consideration. I look forward to the prospect of working with you on this exciting portfolio should you and your colleagues find it appropriate to advise and consent on the President's nomination. I am prepared to respond to any questions that you may have.

[The prepared statement and biographical information of Hon. Sean O'Keefe follows:]

PREPARED STATEMENT OF HON. SEAN O'KEEFE

Mr. Chairman and Members of the Committee, it is a pleasure to be here this morning. I am most honored to be the President's nominee to be the Administrator of the National Aeronautics and Space Administration, and I am grateful for the Committee's expeditious consideration. It is a particular honor to enjoy the sponsorship of the distinguished House Science Committee Chairman, Congressman Sherwood Boehlert, and my long time friend and mentor, Senator Ted Stevens. I am honored by their support and deeply appreciate their kind introductions.

Should the Senate confirm the President's nomination, I expect that service as the NASA Administrator will be a daunting challenge. But, I have been overwhelmed by the willingness of the Members of this Committee and counterparts in the House to offer invaluable advice and counsel on how these challenges should be addressed. It speaks volumes about the prospect of a strong, constructive working relationship with this panel and with Chairman Boehlert's Committee colleagues, if I am con-

firmed. I am most excited about this opportunity and am privileged that the President has entrusted his confidence by his nomination.

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To accomplish this task, I'd like to say that I bring the full range of experience and capability any one could hope to have in an Administrator. I must be honest with the Committee and with myself, that I do not embody all the characteristics I think would be desirable. For such challenges I'd like to be more like my Dad—educated at the Naval Academy, Notre Dame, Tulane and the Naval Postgraduate School, he is one of the original, elite corps of Rickover-trained nuclear engineers. After a distinguished naval service career, he excelled at a range of industry challenges in the power generation business and ship construction. Now fully retired at age 75, he's attending Bowdoin College pursuing studies in astrophysics and German literature—conducted in the language. My father is the quintessential renaissance man with a persistent quest for knowledge—and a penchant for exasperating my mother.

Instead, the President's nominee before you is a public servant fortunate to have served in a range of Federal public management opportunities, academia, think tanks and private corporate pursuits. These experiences contribute to a working understanding of the complexities of managing a technology-driven enterprise with program responsibilities as varied as large scale systems integration to dynamic aerospace operations to science-driven research projects. Most important is the responsibility to support and continue developing the extraordinary professionals engaged in NASA's diverse and complex endeavors. My qualifications are that of a public administrator, and I've developed the good sense not to attempt tasks which require the expertise of the chief engineer, and the skills to attract talent qualified to succeed at harnessing technology.

The immediate challenges confronting NASA today are, largely, not scientific, technical or engineering in origin. Indeed the history of achievement in these disciplines is legendary. Rather, the challenges are more aptly described in management terms—financial, contractual and personnel focused. The problems are not overwhelming, but do require attention to fundamental management principles lest the important science and technology-driven enterprises be subsumed by process failures. The larger vision for NASA must include the essential element of leadership to establish strategic goals for developing leap ahead technologies rather than successes defined by linear incrementalism. Indeed, the creativity is there at NASA, in the academic community, within the industry, and with our international partners. And this creativity can be channeled to achieve effective results and assure that the best ideas are being pursued to get the most out of this impressive research enterprise. These are noble objectives. They can be pursued and achieved within a firm management framework.

I wish I possessed the full range of talents my Dad embodies, but regret the dominant genes he passed along mapped a path to a premature grey, receding hairline and a persistent sinus condition. The good news is that he is very attentive and available for solid advice and counsel. And in my upbringing, he and my unceasingly tolerant mother, instilled in me a commitment to do my best in everything I do. That's an element of character that I promise to employ—and with my modest talents, my wife Laura and children, Lindsey, Jonathan and Kevin can attest to the fact that it takes me a lot of time to accomplish my best. They have tolerated my penchant for the rigors of public service—a malady that every Member of this Committee endures for love of country. My unending gratitude and love for them can not be adequately expressed, but they know the depth of my appreciation for their sacrifice.

Mr. Chairman, Members of the Committee, thank you for your consideration and I look forward to the prospect of working with you on this exciting portfolio should you and your colleagues find it appropriate to advise and consent on the President's nomination. I am prepared to respond to any questions the Committee may have.

A. BIOGRAPHICAL INFORMATION

1. Name: Sean O'Keefe (middle name, Charles).
2. Position to which nominated: Administrator, National Aeronautics and Space Administration.
3. Date of nomination: November 27, 2001.
4. Address: Home: Information not released to the public; Office: 1252 Eisenhower Executive Office Building, Washington, DC 20503.
5. Date and place of birth: January 27, 1956; Monterey, California.
6. Marital status: Married to Laura O'Keefe (formerly Laura McCarthy).
7. Names and ages of children: Lindsey SeYeon O'Keefe, Age: 15; Jonathan JungSoo O'Keefe, Age: 12; Kevin Sean O'Keefe, Age: 10.
8. Education: Master of Public Administration, The Maxwell School of Citizenship and Public Affairs at Syracuse University, 1978; Bachelor of Arts, Loyola University, New Orleans, Louisiana, 1977; Program in National Security and International Affairs, Kennedy School of Government, Harvard University, Cambridge, Massachusetts, 1985.
9. Employment record: Deputy Director, Office of Management and Budget, March 2001-Present; Louis A. Bantle Professor of Business & Government Policy, and Director, Maxwell-SAIS National Security Studies, Maxwell School of Citizenship & Public Affairs; Syracuse University, Syracuse, New York, 1996-March 2001; Professor of Business Administration and Special Assistant to the Senior Vice President for Research and Dean of the Graduate School, Pennsylvania State University, University Park, Pennsylvania, 1993-1996; Adjunct Professor, Naval Postgraduate School, Monterey, California, 1993-March 2001; Secretary of the Navy, 1992-1993; Comptroller and Chief Financial Officer; Department of Defense, 1989-1992; Staff Director, U.S. Senate Committee on Appropriations, Defense Subcommittee, 1986-1989; Professional Staff Member, 1981-1989; Budget Analyst, Naval Sea Systems Command, Department of the Navy, 1980-1981; Presidential Management Intern, inaugural class of 1978-1980.
10. Government experience: Advisor to the Director, Congressional Budget Office, 1999-March 2001; Chair of the Secretary of the Navy's Personnel Task Force, 1999-2000; Counselor to the Secretary Defense Quality of Life Commission, 1995; Vice Chair of Pennsylvania Governor Tom Ridge's Base Closure and Realignment Advisory Committee, 1995-1996; Staff Member to the Louisiana State Senate Committee on Highways, Transportation and Public Works, 1977.
11. Business relationships: Member of the Board of Trustees, The CNA Corporation, 1995-March 2, 2001; Member of the Board of Directors, Tesoro Petroleum Corporation, 2000-March 2, 2001; Applied Research Laboratory, Pennsylvania State University, 1994-March 2, 2001; Chairman, 1999-March 2, 2001; Member of the Raytheon Company Strategy Advisory Board, 1999-March 2, 2001; Member of the Northrop Grumman Corporation Advisory Board for the Integrated Systems and Aerostructures Sector, 2000-March 2, 2001; Member of the Sensis Corporation Board of Directors, 2000-March 2, 2001; Member of the Board of Directors, J. Ray McDermott, S.A. 1997-1999; Consultant, Textron Corporation 1993-1995; Member, Advisory Board, DSR Corporation 1995-1997; Member of the Board of Directors, GKI, Inc. 1993-1994.
12. Memberships: Member of the Information Technology Commission, Center for Strategic & International Studies, 2000-March 2, 2001; Member of the Naval Postgraduate School Advisory Board, 1993-1995; Honorary Chairman, Marine Corps League Toys for Tots Campaign, Nittany Leathernecks Detachment, 1995; Member of the Defense Acquisition University Board of Visitors, 1996-2000; Chair, Military Investigative Practices Study, National Academy of Public Administration, 1999-2000; National Academy of Public Administration Fellow, 1996-present; Member of the Bohemian Club of San Francisco, 1996-present.
13. Political affiliations and activities: (a) List all offices with a political party which you have held or any public office for which you have been a candidate. Registered Republican, RNC.
 (b) List all memberships and offices held in and services rendered to all political parties or election committees during the last 10 years. Member of the Central Pennsylvania Republican Party 1993-1996; Member of the Eastern New York Republican Party, Onondaga County 1996-present; National Policy Forum, 1994-1995; Republican National Committee 1981-present.
 (c) Itemize all political contributions to any individual, campaign organization, political party, political action committee, or similar entity of \$500 or more for the past 10 years. Senator Chafee Committee (PAC) 1994, \$100; George W. Bush for Governor Committee 1994, \$500; Republican National Committee, 1994, \$250; Alliance for American Leadership (Dick Cheney PAC) 1994, \$2,000; Santorum 1994 (Senator

Santorum campaign) \$250; Ted Stevens for Senate (campaign) 1996, \$2,000*; Joe McDade Legal Defense Fund 1995, \$250; Peggy Wilson for City Council (campaign) 1997, \$500; Bob Livingston for Congress (campaign) 1994, \$1,000; George W. Bush Exploratory Committee, 1999, \$2,000*; George W. Bush for President, 2000, \$2,000*

14. Honors and awards: Distinguished Public Service Award presented by President George Bush and Defense Secretary Dick Cheney, January 1993; Fellow of the National Academy of Public Administration, elected 1996; Visiting Scholar, Wolfson College, University of Cambridge, UK, 1994; Visiting Lecture, Strategic Studies Program, Pembroke College, Oxford University, UK, July 1994; Honorary PhD, Wheeling Jesuit University (to be conferred May 2002).

15. Published writings: *Keeping the Edge: Managing Defense for the Future*, contributing author, edited by Ashton B. Carter and John P. White. MIT Press, October 2000; *The Defense Industry in the Post-Cold War Era; Corporate Strategies and Public Policy Perspectives*, with Dr. Gerald Susman, Elsevier Science. Oxford, UK, January 1999; *Breaking the Market or Preventing Market Breakdown: The Technology Reinvestment Program*, with Dr. Volker Franke. Maxwell-SAIS National Security Studies Case number 1197-05, November 1997; *An Analysis of the Technology Reinvestment Program as a Method of Defense Conversion and Industrial Policy and its Affect on Shareholder Wealth*, Smeal College of Business Administration, Pennsylvania State University, April 1996; *The Orange County Financial Crisis: The Maxwell School of Citizenship and Public Affairs*, Syracuse University, case file, October 1997; *A World Lit by Lightning*, Proceedings, Naval Institute Press, Annapolis, Maryland, January 1995; *Planning Without a Plan: A Review of the Fiscal Year 1994 Clinton Defense Budget*, American Defense Annual, Mershon Center Ohio State University, Lexington, Books, New York, New York, February 1994; *Clinton's Stealth Weapon: The Federal Budget*, *The Los Angeles Times*, Los Angeles, California, February 21, 1994; *The Alpha and the Omega, Vital Speeches of the Day*, Volume LIX, No. 11, Random House Publishing, New York, New York, March 15, 1993; *On Tailhook, Drop the Other Shoe*, *The Los Angeles Times*, Los Angeles, California, March 1, 1993; *Despite Tailhook, Navy on Path to Gender-Neutrality*, *The Times Picayune*, New Orleans, Louisiana, April 27, 1993; *The Port of Heaven, Vital Speeches of the Day*, Volume LIX, No. 2, Random House Publishing, New York, NY, November 1, 1992; *From the Sea: Preparing the Naval Service for the 21st Century*, Proceedings, Naval Institute Press, Annapolis, Maryland, November 1992.

16. Speeches: Testimony before the House Appropriations Committee, April 2001, on the fiscal year 2002 NASA Budget request and before the House Science Committee, November 2001, on the report of the International Space Station Independence Cost and Management Task Force.

17. Selection: (a) Do you know why you were chosen for this nomination by the President? Yes. Based on my previous Federal experience and understanding of the President's and Vice President's policy agenda, I am Honored by the President's confidence to be entrusted with this important management portfolio should the Senate advise and consent affirmatively in the President's nomination.

(b) What do you believe in your background or employment experience affirmatively qualifies you for this particular appointment? While NASA is a preeminent technical, engineering and scientific exploration agency, the challenges to be confronted are management oriented—management of large scale systems integration projects, high-tech infrastructure and complex research and development projects, and leadership of high technology professionals are the primary areas which should demand the NASA Administrator's attention. My prior experience at the Defense Department, particularly as Secretary of the Navy, and practical as well as academic research into the challenges of technology management are most preparatory for the NASA post. My current capacity at the Office of Management and Budget provides a close familiarity with the President's Management Agenda which can and should be implemented at NASA at the earliest opportunity.

B. FUTURE EMPLOYMENT RELATIONSHIPS

1. Will you sever all connections with your present employers, business firms, business associations or business organizations if you are confirmed by the Senate? Yes, all business relationships have been severed. However, I have been granted a leave of absence from the Maxwell School of Citizenship and Public Affairs at Syracuse University as the Louis A. Bantle Professor of Business and Government Policy which I may resume at the conclusion of my public service.

* Contributions by myself and my wife, Laura O'Keefe.

2. Do you have any plans, commitments or agreements to pursue outside employment, with or without compensation, during your service with the government? If so, explain. No.

3. Do you have any plans, commitments or agreements after completing government service to resume employment, affiliation or practice with your previous employer, business firm, association or organization? Yes. I have been granted a leave of absence from the Syracuse University Maxwell School to resume a faculty appointment as the Louis A. Bantle Professor of Business and Government Policy upon conclusion of public service.

4. Has anybody made a commitment to employ your services in any capacity after you leave government service? No, aside from the aforementioned leave of absence from Syracuse University.

5. If confirmed, do you expect to serve out your full term or until the next Presidential election, whichever is applicable? Presidential appointment orders specifically qualify service at the pleasure of the President "for the time being." As such, the President's preference will determine the duration of my service should I be confirmed.

C. POTENTIAL CONFLICTS OF INTEREST

1. Describe all financial arrangements, deferred compensation agreements, and other continuing dealings with business associates, clients or customers. None.

2. Indicate any investments, obligations, liabilities, or other relationships which could involve potential conflicts of interest in the position to which you have been nominated. None that I am aware of.

3. Describe any business relationship, dealing, or financial transaction which you have had during the last 10 years, whether for yourself, on behalf of a client, or acting as an agent, that could in any way constitute or result in a possible conflict of interest in the position to which you have been nominated. In my official public service capacity as Comptroller and Chief Financial Officer of the Department of Defense, Secretary of the Navy, and currently OMB Deputy Director, I have been routinely involved in the disposition of legislation affecting the administration and execution of public policy.

Since departing the public service in 1993, I had no material involvement in the disposition of legislation. In the part-time public service capacity as Counselor to the Secretary of Defense Commission on Quality of Life and as Vice Chair of the Base Closure and Realignment-Pennsylvania Action Committee (previously listed) my involvement in such matters has been peripheral and indirect.

In my capacity as the Chairman of the National Academy of Public Administration study of Military Investigative Practices, the panel recommended, among other things, a change of law to permit arrest authority to officers of the military criminal investigative organizations. I had several discussions with members of the House Armed Services Committee who requested further information on the panel's findings in this regard. The fiscal year 2001 Defense Authorization Act included the expanded arrest authority provision. To the best of my knowledge, this is not likely to pose a conflict of interest.

In my capacity as a member of the Board of Directors or consultant to corporations, I did not represent their interests before any Federal agency or department officials and know of now conflict of interest.

To my knowledge, there have been no issues which have posed a conflict of interest during my tenure as Deputy Director of the Office of Management and Budget.

4. Describe any activity during the past 10 years in which you have engaged for the purpose of directly or indirectly influencing the passage, defeat or modification of any legislation or affecting the administration and execution of law or public policy. None, other than in previously aforementioned public service capacities.

5. Explain how you will resolve any potential conflict of interest, including any that may be disclosed by your responses to the above items. (Please provide a copy of any trust or other agreements.) I do not anticipate the requirement to resolve conflicts of interest, but to the extent that any matter were to emerge which may call into question my objectivity, I would recuse myself from consideration and decision of any alternatives or options which could affect the outcome of the issue and delegate the matter to the next level of management responsibility. This was routinely my practice in each public service capacity I was privileged to hold previously. The Department of Defense General Counsel has retained all previous correspondence to this effect in my prior capacities, and the General Counsel at OMB has current recusal correspondence.

6. Do you agree to have written opinions provided to the Committee by the designated agency ethics officer of the agency to which you are nominated and by the

Office of Government Ethics concerning; potential conflicts of interest or any legal impediments to your serving in this position? Yes.

D. LEGAL MATTERS

1. Have you ever been disciplined or cited for a breach of ethics for unprofessional conduct by, or been the subject of a complaint to any court, administrative agency, professional association, disciplinary committee, or other professional group? If so, provide details. I have never been disciplined or cited and have not been the subject of a complaint to the best of my knowledge.

2. Have you ever been investigated, arrested, charged or held by any Federal, State, or other law enforcement authority for violation of any Federal, State, county, or municipal law, regulation or ordinance, other than a minor traffic offense? If so, provide details. Yes. In July 1977, I was arrested in New Orleans, Louisiana outside a neighborhood tavern, along with a dozen others, for violating a local ordinance against "obstructing a sidewalk." I was released within hours, the charge was dropped a few days later, the case never raised before the municipal judicial authorities, and no fine levied or rendered. This incident has been detailed in every security clearance, personal background investigation, and appointment background review I have ever completed over the past 24 years!

3. Have you or any business of which you are or were an officer ever been involved as a party in interest in an administrative agency proceeding or civil litigation? If so, provide details. As an outside, non-management Director of J. Ray McDermott, S.A., I was named in a class action suit of investors/shareholders of the company attendant to a proposal to merge J. Ray McDermott, S.A. with another company. The merger was completed in August 1999 and the civil action was dropped with no further action or settlement required.

4. Have you ever been convicted (including pleas of guilty or *nolo contendere*) of any criminal violation other than a minor traffic offense? No.

5. Please advise the Committee of any additional information, favorable or unfavorable, which you feel should be considered in connection with your nomination. None.

E. RELATIONSHIP WITH COMMITTEE

1. Will you ensure that your department/agency complies with deadlines set by congressional committees for information? Yes.

2. Will you ensure that your department/agency does whatever it can to protect congressional witnesses and whistleblowers from reprisal for their testimony and disclosures? Yes.

3. Will you cooperate in providing the committee with requested witnesses, to include technical experts and career employees with firsthand knowledge of matters of interest to the committee? Yes.

4. Please explain how you will review regulations issued by your department/agency, and work closely with Congress, to ensure that such regulations comply with the spirit of the laws passed by Congress. Regulations are the means to implement the administrative expression of statutory objectives. As such, regulations should capture the legislative intent in the ideal circumstances. It is with this philosophy that I would endeavor to promulgate applicable regulations, if confirmed by the Senate.

5. Describe your department/agency's current mission, major programs, and major operational objectives. Preparation of advice and options attendant to the development of the annual President's budget; promulgation of general management policy and procedures; and review of administrative regulations on behalf of the Executive Office of the President.

6. Are you willing to appear and testify before any duly constituted committee of the Congress on such occasions as you may be reasonably requested to do so? Yes.

F. GENERAL QUALIFICATIONS AND VIEWS

1. How have your previous professional experience and education qualifies you for the position for which you have been nominated. My previous service as Secretary of the Navy and prior to that, as the Comptroller and Chief Financial Officer of the Department of Defense provided experience in managing larger organizations with strong internal cultures, as well as dealing with complex budgetary and financial management systems.

My current capacity as OMB Deputy Director provides a government-wide perspective and understanding of the President's Management Agenda which will be implemented at NASA as well as other agencies and departments.

Previous academic postings, most recently as a Professor of Business and Government Policy at Syracuse University provided opportunities to reflect on managing innovation and professionals in high-technology enterprises.

2. Why do you wish to serve in the position, for which you have been nominated? The challenge of leading NASA at this point in its extraordinary history is one of instilling management excellence worthy of its technical excellence and of helping NASA regain a reputation for credible cost control and risk management to enable it to take on future challenges as well as complete its current tasks. This is an opportunity of a lifetime.

3. What goals have you established for your first 2 years in this position, if confirmed? As an overall vision for NASA, two elements are dominant: program operations at NASA must be science-driven; and programs should enable human exploration beyond Earth orbit and the Solar System.

But first, we must reform and strengthen NASA to be able to take on new challenges after the International Space Station and the Shuttle.

We must also: Ensure a sound financial management system and supporting culture for the International Space Station program that enables it to be a world-class research facility with strong international participation; Ensure that NASA enterprises are truly science-driven and that science requirements are established and used as the basis for making sometimes difficult budgetary choices; Move toward reducing the magnitude of fixed costs, such as institutional overhead, in the NASA budget and increase the amount of discretionary funds available for pursuing scientific opportunity; Seek to establish closer cooperation with the Department of Defense and civil agencies to enhance the public benefits of NASA research programs.

4. What skills do you believe you may be lacking which may be necessary to successfully carry out this position? What steps can be taken to obtain those skills? It is most important to reinforce a strong technical and aerospace engineering staff to assist in the day-to-day operations. NASA has a strong internal culture and persons of integrity to help reform and strengthen NASA will be required.

In my past professional experience, I have often had to draw on wide sources of expertise to deal with complex technical and management problems. I am comfortable working in new, rapidly changing environments and believe I will be able to find and attract persons with the skills needed to be effective.

5. Who are the stakeholders in the work of this agency? The ultimate stakeholders in NASA are the American people, and we, as citizens deserve the very best effort to explore the reaches of cutting edge aeronautical engineering and the reaches of space.

As an agency of the Executive Branch, NASA's principal stakeholders are the President and the Vice President who have the responsibility and authority to provide NASA's guidance and direction, and to whom the Agency must be ultimately accountable. The Congressional representatives of the people serve to reflect and focus their interests in the course of authorizations, oversight and appropriations of NASA's programs and budget, as requested by the President. Members of Congress—especially those on the committee jurisdiction, have a particular oversight responsibility for NASA programs and activities on behalf of the American people.

Additional important stakeholders are the communities in which NASA Centers are located and their Federal, State and local elected and community leadership who have interests and concerns in local viability.

Equally important stakeholders are the employees of NASA and their families, who have a direct stake in the success of NASA, its mission and programs. NASA conducts the bulk of its programmatic work through contractors who also have a stake in NASA programs. There are numerous private organizations that have a particular focus on aspects of space exploration, and express their views through a variety of venues, including conferences and member communications directed to the President and Vice President, Members of Congress, and NASA officials as well as others in the Administration.

6. What is the proper relationship between your position, if confirmed, and the stakeholders identified in question No. 10? The NASA Administrator must first be accountable to the President and responsive to his guidance and direction. The Administrator must be able to provide input to the President on NASA's needs and programmatic alternatives, through consultation and through the budget submission process. The Congress should also expect accountability from the NASA Administrator. The Senate, of course, must advise and consent to the nomination of the Administrator, and the Congress as a whole has the ultimate responsibility to determine NASA's budget and to oversee how that budget is put to use by the Agency. It is essential that the appropriate information about NASA programs and activities be given to both the President and the Congress in the most complete and accurate manner to inform their respective decisionmaking processes.

The Administrator must be accessible to hear the concerns and views of all of the Agency's stakeholders, and to take them into account in making decisions that impact their interests, whether they be individual Members of Congress, State and local officials and community leaders, Agency employees, contractor representatives or interested organizations. Having received inputs from interested parties, the Administrator must then be responsible for making those decisions within the purview of the office and, when appropriate, forwarding recommendations to the President for consideration and decision or, as necessary, as proposals by the Administration to the Congress.

7. The Chief Financial Officers Act requires all government departments and agencies to develop sound financial management practices similar to those practiced in the private sector. (a) What do you believe are your responsibilities, if confirmed, to ensure that your agency has proper management and accounting controls? Financial management controls that link budgets and expenditures to results are fundamental to the ability of the Administrator to manage. It is essential that the financial system improvements currently underway are brought on line at the earliest possible opportunity. Since the Administrator is, quite rightly, held accountable for the performance of the agency, he is directly responsible for ensuring the agency has proper management and accounting controls to support decisionmaking. In particular, this responsibility includes ensuring the selection of an outstanding Chief Financial Officer and a Comptroller. They, in turn, are tasked with ensuring NASA enterprises are held financially accountable, that major decisions are brought to the Administrator in a timely manner, and that they all have reliable facts to work with.

(b) What experience do you have in managing a large organization? I am currently Deputy Director of the Office of Management and Budget and previously served as Secretary of the Navy after serving as the Comptroller and Chief Financial Officer of the Department of Defense. During my faculty tenure at Syracuse University's Maxwell School, I also served on boards of directors of corporations which managed complex programs. Collectively, these experiences have provided a perspective on managing large, complex organizations which frequently conduct large-scale systems integration work.

8. The Government Performance and Results Act requires all government departments and agencies to identify measurable performance goals and to report to Congress on their success in achieving these goals. (a) Please discuss what you believe to be the benefits of identifying performance goals and reporting on your progress in achieving those goals. The President's Management Agenda seeks to implement the tools of GPRA to establish performance goals and expected outcomes for all Federal programs. NASA programs lend themselves to measurement against such goal oriented management techniques.

In refining the NASA goals and expected outcomes in accord with the President's management objectives, three points should be emphasized: goals need to be quantified against a known baseline; goals need to be subject to independent review; goals drive management decisionmaking at all levels of the organization to improve accountability.

(b) What steps should Congress consider taking when an agency fails to achieve its performance goals? Should these steps include the elimination, privatization, downsizing or consolidation of departments and/or programs? These management techniques should not be used as "punishment"—rather each of these methods have merit depending on the mission and goals of the agency. Such steps are means to achieve a desired outcome; not ends in themselves. The NASA Administrator should be able to use these tools to meet performance, cost, and risk goals with the support of the Administration and Congress.

(c) What performance goals do you believe should be applicable to your personal performance, if confirmed? I would judge myself against this criteria: Safety is the No. 1 priority for all human spaceflight activities; A financial management system and culture must be established within NASA to produce reliable information for the President and the Administrator to make informed decisions and to permit necessary Congressional oversight; NASA enterprises should be truly science-driven; The agency must have a balanced portfolio of cutting-edge, peer-reviewed scientific research and technological accomplishment; NASA must rationalize the institutional infrastructure and endeavor to increase the research opportunities with a wider range of university and industry communities; Other agencies should have such high confidence that they often turn to NASA for technical leadership in areas of core competencies.

9. Please describe your philosophy of supervisor/employee relationships. Generally, what supervisory model do you follow? Have any employee complaints been brought against you? In a high-technology organization such as NASA, there needs

to be a focus on its strategic goals, and the organizational integrity and cohesion expected of a Federal agency. At the same time, NASA's missions require adaptability and flexibility.

To achieve these objectives, decisionmaking should be as close as possible to sources of uncertainty and interdependence which therefore augers in favor of a very collaborative management relationship. As such, management should promote an atmosphere of creativity, specify broad performance goals, and maintain a broad based portfolio strategy.

In my current and previous professional experiences, no employee complaints have been brought against me that I am aware of.

10. Describe your working relationship, if any, with the Congress. Does your professional experience include working with committees of Congress? If yes, please describe. In my current capacity, I have testified before the Congress on several occasions, and have maintained frequent communications and dialog with Committees and Members of Congress regarding budgetary and general Federal management matters. In my previous positions within the Department of Defense, I maintained extensive interaction with the Congress and testified on numerous occasions before Committees of the Congress. In addition to my experience in dealing with and appearing before the Congress, my professional experience includes service for 8 years on the Senate Committee on Appropriations staff.

11. Please explain what you believe to be the proper relationship between yourself, if confirmed, and the Inspector General of your department/agency. I believe it is important that the Inspector General retain ultimate independence in examining NASA activities for waste, fraud and abuse, as prescribed in the enabling legislation creating Inspectors General. The identification of areas of needed reform and improvement is a goal that both the Administrator and Inspector General should share. I believe honest and open communications, except where proscribed by investigative activities, should be the rule in the relationship between these two statutory officials.

12. Please explain how you will work with this Committee and other stakeholders to ensure that regulations issued by your department/agency comply with the spirit of the laws passed by Congress. Fundamental to the internal review of proposed regulations, or any other policy-implementing instrument, should be a review of both legislative language and legislative intent. I will ensure that such reviews are thorough and exhaustive and when questions or uncertainties arise, seek to determine the Congressional intent through communications with the cognizant Committees, Members and staff.

13. In the areas under, the department/agency's jurisdiction, what legislative action(s) should Congress consider as priorities? Please state your personal views. There are a number of possible legislative initiatives within the realm of NASA's activities that, in my view, should be considered priorities. The first among those are the President's "Freedom to Manage" legislative proposals: These initiatives address, across the Federal Government, a number of issues that are of particular importance to NASA. Principal among them are the personnel authorities the President seeks to export "best practices" across the Federal spectrum. NASA has spent most of the past 8 years under a hiring freeze, and has undertaken several "buy-out" initiatives to reduce its workforce. Unfortunately, such measures have an unpredictable impact on the agency's skill mix. NASA has serious workforce-related issues that need to be addressed, and the legislative authority, requested by the President will effectively address some of these pressing challenges.

Another area of potential legislative action revolves around the President's initiative to competitively select sources for commercial activities. David Walker, the Comptroller General of the United States, has convened a panel charged by Congress to streamline government performance and contracting for commercial activities. The results of the panel effort is expected by spring 2002. These tools to improve commercial practices could have substantial bearing on NASA programs. Legislative proposals may emerge from this initiative.

14. Within your area of control, will you pledge to develop and implement a system that allocates discretionary spending based on national priorities determined in an open fashion on a set of established criteria? If not, please state why. If yes, please state what steps you intend to take and a timeframe for their implementation. Yes. The President's budget development and Congress' consideration thereof, is the primary system to allocate discretionary spending based on national priorities determined in an open fashion on a set of established criteria. If confirmed, I would plan to be an active participant in this process.

Senator WYDEN. Mr. O'Keefe, thank you. As you know, our colleagues will have a number of questions.

Mr. O'Keefe, let me begin by saying that whether it is misspent dollars or layers of bureaucracy fat at NASA, is not protective padding. That waste takes precious resources away from the scientific breakthroughs that the American people feel so strongly about and that you have heard my colleagues speak passionately about this morning. So my first question to you is how long is it going to take to drain the financial and managerial swamp at NASA, and what measures will you use to determine when the job is done?

Mr. O'KEEFE. Well sir, I think there are two factors that have to be considered in trying to reach a conclusion about how soon can we get the visibility that you are referring to. First one is that there is, I am told, a financial system that has been begun to be employed at NASA over the course of the last year-and-a-half. This is a third attempt, as I gather, to modernize the financial systems there and this one, by all accounts by some of the best talent that I know in this town, financial management arena have declared this to be the best chance that the agency has of finally establishing a total cost visibility. That is due to be online here within the next 6 months and phased in over the next several years.

My objective will be to achieve that at the earliest possible opportunities. Until we know that, until we have some confidence in what the total cost is of projects that have that kind of cost visibility, I do not know how to answer your questions in terms of what the long-term prospects are.

The earliest phase that we can have this particular effort introduced and the financial systems overall employed and online we will be able to respond to that I think more accurately.

Second factor, though, that I mentioned is the development, I think of a larger strategic set of objectives. As soon as we can begin the process of following what some of the Young Commission reports suggested of trying to line up what the science-driven objectives and technology-driven enterprises should be organizationally. I think they are referred to more specifically as it pertained to the Space Station, but certainly has applications across the entire agency. We will soon begin to prioritize those enterprises and objectives. That is going to be able to respond to the question more accurately, because you can then scope what the size and magnitude of the financial resources, as well as other assets, people, capabilities may require in order to achieve those objectives.

Senator WYDEN. Your reputation is one of being a strong fiscal watchdog. I and others have said we are not looking for sound financial management as an end in itself. It is really the underpinning for NASA to use the existing Federal funds to get back to its original goals: research and scientific exploration of space. So we would very much like to see you lay out your scientific vision for NASA, and particularly with regard to the agency's science and exploration goals.

Mr. O'KEEFE. I appreciate that. That is among the very first orders of business should I be fortunate enough to be confirmed and appointed to the position would be to organize that particular effort. I talked to Tom Young very specifically about reassembling elements of his Commission that were representatives, or Nobel laureates and science advisors, that were very helpful to him who has part of their recommendations as pertained in the Space Sta-

tion, but again to identify what those priorities should be and get some advice from them, but ask each of the 10 directors as well as the range of technical and engineering professionals throughout the organization to begin to line up what those priorities ought to be. It ought to be, the agenda, overall strategic objectives of the organization should be driven by science as well as technology enterprise.

Senator WYDEN. What would be your research priority?

Mr. O'KEEFE. I guess in a larger context I would say that which reaches back to the origins, the beginnings of the agency itself, which is to be entrepreneurial, to focus on the far edge of the technology, to press that envelope as far as we can go, and to take the risks that would otherwise be not easy for many other institutions to even contemplate now. Not because there is not considered to be a potential payoff there, but because there is not a capacity to take on those kinds of challenges after all. This is really a unique institution, one which really if it is not performed and aptly summarized by Members of the Committee here, if NASA doesn't take on some of these challenges, they won't be approached.

As a consequence of that, research agenda should be as far leading edge as we can reach it and focus more on that objective and focusing on the capability to perform those tasks.

Senator WYDEN. Your predecessor, Mr. Goldin, was at NASA for nearly 10 years and led the call for what was known as the faster, better, cheaper approach at NASA. How will the Sean O'Keefe era differ from the Dan Goldin era at NASA?

Mr. O'KEEFE. I guess first and foremost, I think, I hope it will be characterized in the very near term is let us get back to basics. Let us get back to fundamentals of what it takes to manage an extraordinary research enterprise that has the capacity to do things that simply would not be attainable anywhere else were it not for the amazing capabilities at NASA. Get back to those fundamentals.

Second is to reinvigorate again the entrepreneurial spirit that motivated the greatness of the organization from its very beginning days, to think very specifically about what those technology-driven enterprises ought to be and to be focused about how we go about those tasks. And that we infuse, as far as that first objective as well, prudent management in order to take on selectively those tasks with the hopes of success, but at the same time recognizing the risks are going to be significant. So that is what I would hope would be at least the early characterization.

Senator WYDEN. We are going to have several rounds of questioning given the interest of Senators.

I want to recognize next Senator Allen.

Senator ALLEN. Mr. O'Keefe, I would very much like the final answer that you were giving to the Chairman here. The efforts of NASA, in particular in aeronautics, has always been for NASA to be involved in some of these high-risk research ventures. Some of those that the private sector could never do, but in collaboration with the government, it is very important. And let me first ask you, do you consider aeronautics research still a core function of NASA?

Mr. O'KEEFE. Sure. Absolutely.

Senator ALLEN. Do you believe that investment in aeronautics in the future, you are talking about entrepreneurial spirit, do you think that investments in that research will produce positive re-

sults for our country and aeronautics generally? In commercial aviation as well as military sectors?

Mr. O'KEEFE. It has certainly been the history of the technology within the aerospace technology so far and I have no reason to expect it will be limited in the future.

Senator ALLEN. Now, during this period of declining funding for NASA, and I have mentioned this in my opening statement, our European competitors, as well as the Japanese, have been increasing their aeronautics research and development funding, and the European Commissions announced a new plan to significantly further increase their government funding for aeronautical research. They have estimated funding, public and private that could exceed \$100 billion U.S. dollars over the next 2 decades.

In spite of this, there have been proposed significant reductions in NASA's aeronautical research budget in fiscal year 2002. Now, I know this is argumentative question, but I want to hear what your principles are, but do you believe that it is in our best interests as a Nation to allow our aeronautical and aviation capabilities to wither in the face of this competition, or if you say that we can have a huge positive impact in the future, how do we turn that around and face that competition?

Mr. O'KEEFE. Senator, I appreciate the spirit of the question, and intend to look at the technology overall and again to expand on the risk that should be assumed in these kinds of circumstances given this capability in large measure wouldn't be faced otherwise. Having said that, I guess my bias is that there is a mindset in every Federal program that if there is more money the year later, then that is definitionally good. If there is less, it is definitionally bad. It becomes an incremental argument.

Success is driven by single digits as in less than the number on one hand of an increase, and that has been celebrated. Reductions of the same magnitude is a colossal disaster of the time. I think what the President's commitment has been, what I find most challenging about the opportunity and I am looking forward to is the opportunity to implement the President's management agenda at an organization like NASA, which is frankly not a little agency. This is an organization that is 4 times the size of the EPA, and the largest single independent agency of the Federal Government, and so as a consequence the opportunity to do some things that focus on President's management agenda, emphasizing performance, looking at outcomes, and determining not necessarily percentages of increase or decrease, but what's the best solution set of an option to pursue that gain the maximum return.

That is what we are going to be about, I hope, at NASA, and that is going to be the focus that I think could be emphasized in a way that would respond to your question, intent, and the spirit of it as a reinvigoration of our involvement and that of partnering with industry to expand the edges of what we could do in the aeronautics business in a way that has not so far been achieved as well, because we have been focused on increments, not only objectives of performance.

In the end, that is not a specific answer that says yes, there will be an increase or decrease, but one that I hope is an expression of commitment to you that I'd like to be able to demonstrate after

some period of time in tenure—if I am fortunate enough to be confirmed—that demonstrates indeed there is a quantum performance improvement that we can lend in this particular enterprise.

Senator ALLEN. Let me follow up on specifics. I thank you for the intent expressed in that answer. The NASA aeronautical research centers work closely with FAA and policies affecting flight safety or the airline system capacity which everyone on this Committee knows has to be done and it is a wonderment that everyone knows it needs to be done. But we are not going to do it now and we are going to wait a few years. NASA works in partnership with the Department of Defense as far as military aviation. Do you see NASA expanding in these particular collaborative partnerships with other government agencies. Have you had a chance to review those particular ones?

Mr. O'KEEFE. Yes, sir. I think we all come to capacities in whatever it is we endeavor. We simply cannot afford to maintain a chance for severability between the civil and national security related operations that have centered upon them. I hope to emphasize, to seek out those opportunities of greater collaboration with capacity and the Defense Department arena, to have resident and in NASA could partner.

Senator WYDEN. The time of my colleague has expired.

The Senator from Florida.

Senator NELSON. Thank you, Mr. Chairman.

Mr. O'Keefe, I enjoyed our in-depth discussion yesterday.

Mr. O'KEEFE. As did I, Senator.

Senator NELSON. Thank you for your time. What I would like to do today is to expand that discussion, and there will be some repetition, because I would like to get it as part of the record, but I would like to give you an opportunity for expanding and expounding your ideas.

First of all, let us talk about the Young Report. It is my understanding from your comment yesterday that you support the Young Report.

Mr. O'KEEFE. Yes, sir.

Senator NELSON. Are there any particular parts of the Young Report that you disagree with?

Mr. O'KEEFE. Again, as we discussed, I view as a good strategic framework that an extraordinary group of very diverse professionals that I am still stunned that Tom Young is able to get to concur in any single set of objectives yet did it in a way that was concise and I think very straightforward, that as we approach those strategic frameworks, there are going to be implementation issues, as we discussed and the very specifics of each of those implementation issues I would like to defer the opportunity to be more elaborative on at this stage until such time we can figure out what's going to take these particular elements. I think he is right on the mark, focused on the problems. The Commission focused on the problems that are most essential.

As a template and a blueprint, that is the first start, and between that and the President's management, those are the two documents that will be, I hope, viewed as required reading throughout the organization.

Senator NELSON. I too think that one of the great public servants, particularly in the aerospace field, has been Tom Young. There are troubling parts to me of Young, one of which we discussed yesterday, that because of NASA's financial situation that you would possibly lower the number of annual launches of the Space Shuttle to four. That has some enormous consequences, because if we suddenly then had to robustly increase and a lot of all of this expertise had been laid off in the process, then in having to rehire, you lose a lot of that corporate memory that has been so valuable to NASA, why do not you comment on that?

Mr. O'KEEFE. I do not know what the exact number of flights should be. I think it first and foremost—and I am sure I am very hopeful, Senator, that you would concur on this view—that it ought to be driven largely by payload requirements, the science driven objectives, the technology enterprises that we seek to launch that will be conducted in that unique atmosphere literally or environment that the Space Shuttle provides and its linkage with our International Space Station. That ought to be a facing factor. I concur with you that in and of itself an artificial limitation based on some notional view of what numbers of dollars ought to be appropriate is not convincing either, so I do not know what that number ought to be. I think what the Young Commission did that was extremely helpful was they stayed within a parameter.

They did not venture off and say let us assume that resources are unlimited, which would be the propensity of many Commissions faced with the same charge they were. Instead, they were realistic and were of the mind that suggested no, let us take the tougher task. What if we restricted to where we are, because I think everyone has an idea how to build the Endeavor, how to expand the skill of a project or program.

I have never found anybody with difficulty trying to find difficulty how to add money to this town. That is very unique. What is difficult, and I think Tom Young and his membership took over, was the difficult challenge of trying to figure out how to maintain within a limited parameter and therefore what would be those tradeoffs, so I will have to take those as one of the consequences that he would assess and one of the impacts that we live with that underlying assumption and I am not sure that that underlying assumption is going to absolutely come to pass, so over time, we will determine what the right answer is going to be driven by those other objectives that I like to think that you and I agree to which are the science driven and technology driven enterprise and to the extent that you have the capability to achieve that, that is the point. That is the larger objective.

Senator NELSON. This is just a beginning, so whenever you want me to stop and pass it on, I am just going to continue as you will permit. Let me, before we send it on to Senator Burns, say that the Young Commission report in and of itself is a good document. But when you put it into the context that NASA has been a bad boy, and that NASA must be punished, and so that we are going to find a way to redirect funds within NASA, that is when I start to get concerned.

Now, no less a space giant than Chris Kraft has written a letter, an open letter concerning the recent report of the task force chaired

by Tom Young. This is what Chris Kraft says. He says: "First it is difficult to perceive that such a formidable group"—talking about the Young Commission—"would present such a narrow view. You would think that many members of the task force knew the past history of NASA Space Station activity and given that premise had to realize that today's financial status was almost preordained.

"The overruns—or more poignantly, the total cost of the ISS—resulted from a continuous change in direction of the program which was beyond the control of those who were required to build the Space Station." He continues, "if you take into account the sordid history of the Space Station, you will find that the people in NASA who were saddled with making a program work which was almost unmanageable in the first place, have done a miraculous job to bring the program to the point it is at today for the money that they had to do it with.

"As usual, the working level people get blamed for the horrible mess created by the people who did not have to do the job." And he concludes, "the Space Station has been through at least five different phases since its inception. Each phase caused increases in schedule, cost, and complexity."

To then take that sordid history of which has produced some remarkable technology that has been a symbol with remarkable adaptability to make it work, and it is. It is an incredible structure up there that is working. We have got to make it better. I do not want us to focus just on what went wrong. I want us to get that corrected, but I do not want to use that as an excuse to punish NASA, to penalize the people, to knock the Space Shuttle program down to almost nothing, and then not have a talented capable workforce that when we need to surge in the future, and thereby a time to surge in the future, then all of that base is gone.

Senator WYDEN. The time of my colleague on this round has expired. I know my colleague has strong views on these matters. We are going to have a number of rounds of questioning. We want to make sure all our colleagues get a chance to respond.

Mr. O'Keefe, why do not you respond to the Senator from Florida and we will recognize Mr. Burns.

Mr. O'KEEFE. Thank you. Senator, since January 20th, the President has directed us to view all matters as looking forward. Do not look past. Look behind us. What was the origin. And as a consequence, he was very correct about this.

This is no exception. Nothing since that time has been punitive or intended to punish anything. My intent is not to begin—if I am fortunate enough to be confirmed and have the opportunity to take on this leadership challenge—my intent will not be to try to unearth what led to the circumstance or where we are today. It is where we are. As a consequence, one of the points in responding to Senator Allen is get back to basics.

Let us start there and move ahead on how we are going to define the requirements for the overall objectives and mission of NASA, how do we use this extraordinary capability that you and I concur is a technological marvel. It rivals the most elaborate, most difficult, most complex systems integration endeavor I ever saw in my experience in the defense establishment or any other corporate ac-

tivity that I was involved in thereafter. This is really quite amazing.

So as a consequence, I am going to build on what's there.

Put the baseline in place so that we can expand and utilize that capability to its greatest extent possible driven by the technology-driven enterprise and the science objectives that should be the principal mission of this extraordinary research institution that is NASA, and proceed from there. Do not look behind. Let us move forward and figure out how we can press on that. I think on that point we are in agreement.

Senator WYDEN. The Senator from Montana.

Senator BURNS. My staff informs me I have said since 1952—1992. Or 1972, it should be.

Mr. O'KEEFE. One of the three I am sure, Senator.

Senator BURNS. Actually, at this point it is multiple choice. You all are better at figures than I am.

Senator WYDEN. I am not going to get into this.

Mr. O'KEEFE. I am not really much of a numbers guy.

Senator BURNS. I am going to leave that to you. Us auctioneers, we can count money. And rather rapidly. Mr. O'Keefe, there are two areas of which I am specifically interested, probably three areas. The outreach on EPSCOR. It has been a launchpad for many smaller universities and colleges in their research and R&D work that has allowed them to participate in the national agenda of NASA, and some good things have come from that by the way that they weren't all found at MITs and this type thing.

Also, the commercialization. I think it is one of those ongoing things that we have to strive for a little imagination for the entrepreneurial community and how they can participate in this and derive benefits from it that benefit us all, and then I think when we look at the infrastructure and our mission ahead and into the vision of things and dealing with dollars to complete those missions, I think we shouldn't shortchange the work that has been done and the work yet to do on unmanned reusables.

We are talking about the Shuttle and the orbiter that we have now that is getting along in years, no doubt about it. Going to have to be some thought for the future there, but some of these trips could be made by unmanned reusables at a cost savings. And I think we should continue to explore the challenges that we have in developing a single launch, a vehicle, in other words. It is just a vehicle that can get into orbit and deliver the goods and then come back to earth without a pilot, to move some of the material that we are going to have to move in space.

I was interested in your comments of R&D as far as it is to the aeronautics industry. If there is one thing that we have in this government right now that we have 2 or 3 agencies that are doing the same thing. Redundancy does not serve us well, and when we start talking about a limited amount of funds that we have to use.

Some of the work that is being done at NASA is also being done in the FAA, and other areas, and I think it is time to take a look on how we can bring those programs together and maybe streamline that and not have the redundancy that seems like it occurs. I am always struck by the work that goes on at NIH, and I am also struck by the amount of money that we spend in the Veterans Ad-

ministration to do some of the things that NIH does, and I do not know why everybody has to have their own turf or whatever in R&D.

So those are the areas where I will generally be interested and we will visit about that. I do not have any specific questions this morning. I am really impressed with this appointment. Not to diminish the job that the previous director did, because I think he has done a lot of things in unseen places that was of little notice, but had high impact as far as the support of what we do in space. We know that it is going to be a long time before everything that we do and all the benefits is realized by the society that pays the bills, but nonetheless, I think right now, NASA doesn't owe this society a lot right now. I think we have profited in many, many ways that are untold and they are not the sexy above-the-fold type issues.

So those are the areas that I continue to be very much interested in, and I think the reusables is just one of those areas where we have to take a very serious look at that and how we maneuver and how we will move materiel in space to complete the infrastructure for the mission that is ahead.

I thank the Chairman for this hearing. I will support you wholeheartedly and I am sure we will have discussions and conversations in the future, and a very pleasant holiday to you and your family.

Mr. O'KEEFE. Thank you, sir. Appreciate your comments.

If I could just comment very briefly on a couple of points.

As we discussed, education is one of the areas that you and Dan Goldin I think did an extraordinary job emphasizing what kind of capacity and capability could be brought to bear in the education field at NASA and had resident right in the organization. I would view that as one of the primary areas we need to look at harder, how we could effortlessly make that available to members of institutions. I have three members of my home board sitting behind me.

My strongest critics are my three kids looking at the website saying why is not it more interesting than this. The second one, I agree it is an objective you can reach back to the founding of the organization and say that is one of the real points that led to its development as early as the vision that was created.

Having said that, what we need to do is develop a means within the capacity within NASA I think to become as agile as the industry is today. If you do not have a semiconductor chip that is ready for introduction at the same time you were introducing or beginning the development of another one, in 18 months, the company will be out of business. That is the cycle we are on right now. Electronics, it is no more than a half-life of 18 to 24 months. In the oil and gas business, exploration is a tenth of what it used to be 15 years ago.

These are the kinds of trends we see in technology that we are not of exactly the same agility, we are not adding to that potential commercialization. If anything, we may be drawing it behind, and so as a consequence, that is a real objective to keep up with.

How do you stay in that cutting edge? How do you take the risk of those opportunities that will in turn produce those spinoff commercial activities? And the last point that you made I agree with

you entirely of looking at things like unmanned vehicles, is an opportunity to really collaborate extensively with the Defense Department in ways that could be very constructive for civil aviation, as well as military use.

I think you have hit on three critical points and ones that wholeheartedly agree with.

Senator BURNS. There have been three inventions that have completely changed our lives, and it changed the way we think and the way we do business. And those three inventions were the silicon chip, before that, think what the invention of the transistor has done. It has been absolutely revolutionary as far as electronics are concerned, and of course, the jet engine. They all changed our lives, the way we look at things.

I got a big kick of sitting next to a guy on an airplane and we were 5 minutes late getting into Minneapolis and the only thing he could do is complain about being late and here we are whipping through the air at 550 miles an hour and he is worried about 5 minutes. My gosh. Unbelievable.

But those things have revolutionized the way we think and how we do things. And it is very important, so again, thank you very much and thank you for this hearing.

Senator WYDEN. The gentleman's 5 minutes has expired.

I recognize the Senator from Texas.

Senator HUTCHISON. Thank you, Mr. Chairman. I apologize for having to leave, but I wanted to return, because I wanted to ask you to address the issue of the 3-member crew as a long-term permanent goal, or is your long-term permanent goal to increase the number in the crew so that we can do the research and how you plan to make the changes that would allow that to happen if it is your goal.

Mr. O'KEEFE. As it pertains to, again this International Space Station core complete objective now is to achieve that 3-person astronaut capacity. Over time, I think with the Young Report, what it laid out was a path that suggests as a strategic objective to get that right, get the fundamentals correct, make sure that we understand what that is going to take in order to do that properly day in-and day-out, and then in turn, look at what the expansion opportunities may be, and at the end, that will dictate what the number will be, whether 6, 7, 5, whatever the number is that is going to be driven by what the science agenda, the science priorities as well as the technology driven enterprise will demonstrate as being the necessity for that case then we will have to sort through it.

As soon as we get the basics of what we have right now in place and being able to cover it responsibly in terms of all resources, people, assets, as well as dollars, that is going to be the first objective and then let us look at the expansion opportunities. We are going to do that. The strategic objectives or at least the larger glide path of the Young Commission laid out was something that really requires that we make that assessment within the next 12 to 24 months.

It is going to be an ambitious agenda. I hope to come back to you to say yes, that expansion is feasible, because we have gotten that house in order and there is the following opportunities that would support that goal.

Senator HUTCHISON. Is it your goal to have something beyond core complete for the long-term future?

Mr. O'KEEFE. I think to maintain what we have right now is an absolute bare minimum and calls to question what the point is. So as a consequence, it would be my fondest hope that we would expand beyond that, but only after such time as we demonstrate that we can do what we have in place right now.

And I am not satisfied that is the case yet based on the data and the information we have all received from that Commission and also the forecast in estimating the costs we do not know. We just do not know.

Senator HUTCHISON. I am reminded of an old series called "Yes, Minister," that was on BBC, and one of the series was about a wonderful new hospital and the Prime Minister visited the hospital and he was shown around and this new hospital had all of the state-of-the-art equipment and it was a fabulous hospital. And the Prime Minister said, "this is wonderful. But where are the patients?" And the answer was, "Patients? Well, we do not have patients. That would just mess everything up."

Now, when I am talking to you about NASA, and all the money in the Shuttle program and 3-member crew at the station, 2½ of whom are necessary to do the running of the station, I am left with the feeling that we are going to have an operation that is there to service the operation. And that we could lose sight of the purpose of all of this, which is science and the research.

So tell me that you are committed to making sure that we do not get into a situation where patients are just an extraneous luxury.

Mr. O'KEEFE. Yes, Senator.

Absolutely. You are absolutely right. It is a case, what worries me more than anything else. I think just looking at the numbers and the way this has all rolled out in the past year, is if we are not careful, the capability costs, the infrastructure costs of the institution that is NASA will become the primary purpose. And that will be a tragedy.

That doesn't fulfill what I think the President and Vice President's objectives are which is to really have a leading edge research, technology-driven enterprise that will take the risks necessary to carry out these extraordinary capabilities.

So my view is that that is unacceptable condition if what we have at the end of the day is nothing more than the capability to demonstrate that we continue to have the capability. It becomes operations to support themselves as a self-sustaining purpose. That is not the point.

If anything, looking at the overall, and this is just kind of a rough order of magnitude, I would say roughly two-thirds of everything, every dollar that is dedicated to NASA now is designed to support infrastructure and capability.

The other third at most goes toward the science-driven objectives, the technology-driven objectives. As a percentage, that doesn't overwhelm me. It is not wildly off the mark, because in the electronics business, in the aerospace business, those direct, indirect ratios are not terribly off.

It costs the aerospace industry about half of their expense to actually maintain capacity and capability to conduct business, and

the balance of it is the cost of actual production of assets and things that are for sale.

In this context, it is a little more than that, but uncomfortably so, because I can't look at those numbers and say that is an exacting percentage of it, but it is at least that two-thirds, at least, and that is something that grows beyond that. We have got real problems. In my mind, I want to be able to come back to you and say no, indeed, we are not going to be in a situation in which the infrastructure ends up consuming everything that is the resource.

Senator HUTCHISON. If I could just say, I think you have gotten the message from everyone that I have heard speak this morning that we are looking to you to be the person who has the capability to implement a program that assures that the science and technology and experimentation is preserved and enhanced for NASA. I will look forward to working with you. I know all of us are going to be vitally interested in this, because we believe that NASA is a premiere success story for America, and it is the place where our new scientists have a capability to create. It is a huge task and if you are successful, you will be my hero. And if not, I will be all over you.

Senator WYDEN. You knew this job wouldn't be for the faint-hearted.

Mr. O'KEEFE. Aspiration at least for the former.

Senator WYDEN. We are going to have a number of additional rounds, because of the interest of my colleagues.

The Senator from Florida asked if he could ask a question then we will go back to the regular order.

Senator NELSON. As a follow-up to the Senator from Texas, and again my hat is off to you for offering yourself to public service in this capacity, because it is a very tough assignment. And the fact that you have a personal relationship with the Vice President is considerably to your advantage, as well as to the advantage of NASA. So that you would have a direct pipeline to the White House. That is a strength that I think is substantial.

But I want to follow up Senator Hutchison's question, because the answer that you gave did not sound like the answer that you gave on November 7th to the House Science Committee, in which you said that you did not favor a 10 to 15 percent increase in ISS funding to enable a 7 person crew until the cost considered as read credibility is regained. Yet you agree that you want an increased level of scientific productivity that could be accomplished later in the decade. I do not see how if you keep a 3 person crew today, and that will stay with us at least through 2006, how that is not going to severely limit—as Senator Hutchison has suggested, for the immediate future—that is another 4 years, the scientific activity on the station. Then once you regain the cost credibility that you are looking for, then it is going to take another 4-5 years to develop a 7-person crew return vehicle, and so the concern that I have as a follow-up is doesn't that push us off until about 2010 in order to get any significant science up there on the Space Station?

Mr. O'KEEFE. Senator, I do not have the transcript before me of what was said on November 7th, but my recollection of the debate and discussion of Mr. Boehlert's Committee that day was that I do not, the fundamental premise, fundamental matter I think imme-

diately before or immediately after that commentary was I do not have any reliability or confidence that 10 or 15 percent is it either. I do not know what that number is. Not a clue. The mere factor over the course of the last 12 to 14 months that the estimates for the program, and again, I think many Members have said this very aptly, this is a high-tech program for which anyone who thinks or pretends that there is a precision in cost estimating for something of this complex nature is kidding themselves to begin with. This mirrors just the very most high end systems integration program that I have ever seen. You are absolutely right. There is just no question. That is a fiction. But to be off by an order of magnitude of 20 to 25 percent over the last year after maintaining a consistent position over the course of the last 5 years that was attested to, this is going to be the cost for the program attempted to speak some level of certainty that was never present. Therefore, I do not know that number 10, working assumption of the question that you extracted is that you would have certainty to achieve an expanded capability for International Space Station with a 10 to 15 percent increase. I do not know that working assumption to be true.

Senator NELSON. What about the crew?

Senator WYDEN. I think we want to have multiple rounds of questions and have a chance to pursue this with each Senator getting 5 minutes. If you want to ask one additional question at this point, then we will go back to the regular order.

Senator NELSON. I will do it however you want, but I do not want to break a train of thought, Mr. Chairman. So my question was what do you think about the 3-man crew and how can you do the science and when do you want to change that 3-man crew?

Mr. O'KEEFE. I want to remain consistent with the commentary, because I positively do not want to suggest there is a different thought in looking at this a month ago to now.

Again, it is the same proposition which is let us get the house in order, the basics in order, let us get the fundamental baseline for International Space Station and we will submit that is an unknown. I concur entirely with Senator Hutchison's view, and the view you and I expressed separately when we were meeting yesterday. In and of itself to maintain capacity as core complete as we just discussed, you and I discussed yesterday that in and of itself to maintain just the operational capacity demonstrates that you have the operational capacity is not the objective. It is not what we had in mind when we started this program, and not what I think our understandings are with international partners involved.

As a consequence, my fondest hope would be we could establish the fundamentals here, get this rebaseline, get the basics down and then start talking ambitiously about what the larger capabilities are going to have to be in order to make this the useful objectives we had when we started down this road years ago.

Senator WYDEN. Let me tell my colleagues again, there will be plenty of rounds of questions.

Mr. O'Keefe, I want to note for the record, I think Senator Hutchison wasn't here, you basically said in 6 months, you are going to be in a position to have your arms around some of the tough financial issue. We do not have the 10-year kind of period. Mr. Goldin was there a long time, and this is going to be important

that you get your arms around these financial issues to be able to respond to the questions that my colleagues are asking and that is why I asked it at the outset and I appreciate your candor.

Let me ask you a question that has been central to this debate about how you strike a balance between pruning the fat and waste and at the same time, having scientific breakthroughs. If you look at the histories of the agency, it is often asserted when somebody comes in and goes after the financial and managerial mismanagement, it is asserted that you are threatening safety. That this is going to put at risk lives and that people will be hurt. Nobody wants that. That is why I said in my opening statement that I do not happen to believe that ensuring safety and shortening the timelines and having the breakthrough research that the country wants, I don't believe those things are mutually exclusive. I would be interested in your reaction to that comment that I have made, and how you would go about putting a focus at the agency on ensuring the research and maintaining safety.

Mr. O'KEEFE. Thank you, Mr. Chairman, for that very thoughtful question. I concur entirely with your assessment that they are not mutually exclusive objectives indeed. They can become very compatible. My bias, we are all a victim of whatever our institutional upbringing or backgrounds are.

Mine is in having been raised by a nuclear engineer, I have been hearing about these issues since sitting around the dinner table to the point I have been wrestling with these questions as Secretary of the Navy with nuclear Navy concerns, that is a record of achievement that is flawless. In the course of 50 years, a remarkable capacity to not only maintain perfect safety standards, but also to stretch the technology from the earliest Nautilus days in which a reactor half-life was 18 months to the point now where every single reactor that goes to sea on a brand new ship is the size of a trash can and never needs to be refueled. That is a remarkable technological achievement in the power generation business. Absolutely stunning.

As a result, in the same time, it maintained zealots, absolute complete zealots over the proposition of maintaining a perfect safety record and had done so. This can be a mutually compatible reinforcing set of objectives and it is one I think we could take some lessons not only from the experiences NASA has learned so painfully since 1986, but also to develop that cooperative kind of partnering arrangement, Defense Department in this deal as well. That is a bias I hoped you would bring to it.

Senator WYDEN. For this round I am going to ask one question about the Space Station, core complete design eliminates habitation model and crew rescue vehicle making our astronauts dependent on Russian partners for critical needs. How can NASA effectively manage its work on the Space Station given dependence on international partners?

Mr. O'KEEFE. Again, I think in the dialog with Senator Hutchison we have to move from just simply capacity or to demonstrate our operational capacity or to continue the operational capacity. Where we are at this point and I think our international allies expect, that there will be some understanding of what the original capability is going to be.

We need to assure them, though, that we need to continue this program in a way that is responsible from a safety standpoint, from management standpoint, from fiscal standpoint and indeed we can establish the larger operational capacity and capabilities that were envisioned when these programs came down the road.

Until then, the international alliance partnership will be looking for answers to those. I expect we have to provide them those solutions. In the meantime, my understanding from Dan Goldin is the relationships have never been better in terms of understanding precisely what the risks are.

Senator WYDEN. You believe we will comply with our international agreements?

Mr. O'KEEFE. My intention will be to work very closely with Secretary Powell, and to work with them to assure that we very carefully respond to those international alliance agreements and that we work together mutually between NASA and the State Department to assure we reach the complete alliance that we have had all along.

Senator WYDEN. When you are confirmed, and I am going to assure there is a rapid confirmation, when will you go to NASA and assume your administrative duties? I will tell you why.

There is a great deal of speculation that when you are confirmed, you go through another budget round, people concerned about cuts will say "he is going to slash us then go on down." When you are confirmed, will you head over there immediately?

Mr. O'KEEFE. Again, I can't foresee what the action of the Senate will be. My commitment to the President is at the earliest opportunity to assume whatever responsibilities he appoints me to upon the advise and consent of the Senate, so my hope would be as soon or as close to the beginning of the next year, the new year that I can be there within a month, but that entirely turns on the willingness of the U.S. Senate and your colleagues to consider the matter expeditiously and I will refer you jointly on that matter.

Senator WYDEN. I asked it that way for a reason. I am very impressed with your credentials. When you assume your duties, that in a sense may send a message.

Senator Allen.

Senator ALLEN. Thank you, Mr. Chairman.

Mr. O'Keefe, NASA is currently working on a number of technologies, and some of the things we are talking about are important. You were talking about the commercial application of some of these technologies and this research and development. And some of these technologies certainly could help improve either the safety or the efficiency of aviation, including, for example, an economically viable and environmentally friendly supersonic airliner which would be used in transoceanic flights.

They are working on advanced flight cockpits with synthetic vision which would enable pilots to fly in fog conditions or for safety in the darkness. They have improvements in air traffic management systems. All of these things are being developed, being researched. How would you see us working with you and those who have been formulating and actually getting these ideas into place that could actually have some commercial application? It is wonderful to have all these ideas and have these wonderful aircraft or

these cockpits or these better systems for safety or efficiency. How would you envision us, let us say a Senator in the house, working with you so that we can benefit from them?

Mr. O'KEEFE. Again, my sense of the challenges of technology transfer which is really what this is about, because in the end of the day, if there is any opportunity for commercial enterprise, to develop any asset, any capability, anything that they think can be sold for profit, then we certainly should do everything we possibly can to encourage the industry to do that, and not just simply to perform it.

In this context, it is a technology transfer policy that I think ought to dominate by the notion we talked about a little bit earlier, which is that the sooner we adopt the same view in the public sector, and within research institutions, again, an asset elsewhere, defense, research, projects, as an absolute core that we are at least going to parallel, if not exceed, the technology advances that have characterized the aerospace and electronics industry in recent decades, last 10 years. Until that time where we consider that as an absolute, we are not going to have much to transfer, or to the extent we had a transfer, we looked at it saying it is mighty fine previous generation assets or capabilities. I think that is essentially one of the problems that your point raised is we have had such a recent technology regime or framework as a policy that typically what's occurred is about time we are prepared to release it, the industry has moved past it and it no longer has the ability to have drawn that much from it.

The philosophy where we can work together most in the area of technology transfer is try to break down those barriers that would otherwise be in place that would impede the transfer of technology at the earliest possible opportunity to the extent it is cutting edge and desirable on the part of the aerospace electronics industry.

Senator ALLEN. These ones that I specifically mentioned are far ahead of where they are at this moment and we are going to have to find ways for them to upgrade. Obviously some of those decisions by the commercial sector will be determined by their own bottom lines and what they can do to upgrade their own systems and how it makes a difference in their bottom line as far as more passengers or greater safety for their planes.

I just wanted to conclude, Mr. O'Keefe by saying I have enjoyed listening to you and hearing your ideas. I think the best thing that I have learned from this hearing which you cannot read from answering questionnaires or reading articles, is that you have a sense of humor. I always think it is important for people to have common sense and that they keep their promises, but it is also important in addition to having thick skin and a sense of humor. You are going to be needing that sense of humor. I hope, Mr. Chairman, we act on this nomination as soon as possible. This is an agency that has been led by Mr. Goldin for many years. I think an agency like this needs leadership. Lapses in leadership do not help.

All that does is create uncertainty amongst this dedicated group we have across the country. I look forward to working with you in the years to come.

Mr. O'KEEFE. Thank you.

Senator WYDEN. The Senator from Florida.

Senator NELSON. Thank you, Mr. Chairman. I certainly yield to the Senator from Texas. Please. You go ahead.

Senator WYDEN. The gentleman is completing his second round, then we will go to you.

Senator NELSON. If you are in a time constraint, please feel free.

Senator HUTCHISON. If I could, I appreciate that so much.

Senator NELSON. Absolutely.

Senator HUTCHISON. I wanted to follow up on a couple of questions that the Chairman asked. First, on the Russian vehicle as a lifeboat. The Chairman pointed out that that is our lifeboat and we are relying on the Russian Soyuz today.

NASA has had plans for its own rescue vehicle which would require us going beyond core complete, and I want to ask you how important a priority it is for you to determine how safe it is and, to rely on the Russian Soyuz and to determine if we need to move forward on our own crew rescue vehicle as a top priority?

Mr. O'KEEFE. I appreciate that, Senator. I think that is going to be among the first order of magnitude questions that really have to be wrestled to the ground. Once again, International Space Station program fundamentals are restored or re-baselined. I think that is a real tough one. I do not know the answer to that question. I am not sure exactly.

Senator HUTCHISON. But it will be a priority for you to get right to it, because if you determined that it needs to be a priority moved up, then you can put that in your budget submissions and, because it is important to me to know that you have looked at that and made the determination here to go forward with our own crew rescue vehicle or that Soyuz is safe for the time being.

I just wanted to follow up again on the Chairman's point and then I will let Senator Nelson go forward, because I appreciate his deference. I wanted to clarify your answer to the Chairman on when you would take control of NASA once the Senate has confirmed you. Did you say that it would be no longer than 1 month after confirmation that you would expect to be at the helm of NASA?

Mr. O'KEEFE. No. It would be my fondest hope that I would be there as soon after the new year as conceivably possible. The board of directors sitting behind me, I have an expectation of leaving town between Christmas and New Year's and anticipating the Senate action.

Senator HUTCHISON. If the Senate acted before we leave next week and you have a well-deserved family vacation, then would it be your intention to immediately go to NASA and take control?

Mr. O'KEEFE. Yes, Senator.

Senator HUTCHISON. Thank you very much.

Thank you, Mr. Chairman. Thank you, Senator Nelson.

Senator NELSON. I want to follow up Senator Hutchison's questions about the lifeboat of the Soyuz, and there is some talk that in doing the delays on an American lifeboat that you might employ the Soyuz. What's your thinking on that?

Mr. O'KEEFE. I don't know, sir. It again, has to be among the top things we have to consider in the applications after we get back to basics and the fundamentals of the International Space Station already established.

Senator NELSON. What about this report in the *Orlando Sentinel* that they are threatening to pull out, because of the propensity to scale back the lab. They are obviously being put in a very difficult situation, so what is your thinking at this point about how we go about assuring our international partners that they will have the full utilization and at the same time to handle all in your management of cost?

Mr. O'KEEFE. My first order of business on this very question is to consult with Secretary Powell, and my good friend, Deputy Secretary Armitage and to determine what our appropriate alliance response to be to them in working through this. But beyond that, just running aground this latest development, which I am not familiar with the details of, other than having read the press reports or heard them as well, and find out what the nuance of them are all about. I would not want to do this in isolation from the very sound judgment that I am certain my friend Secretary Powell and the Deputy Secretary use.

Senator NELSON. This report is the latest reflection of considerable agitation among our international partners, of which there has been circulated in the NASA community a letter from the Canadian government, which is at least a month old, stating that the United States has breached its agreement. How do you, other than conferring with Secretary Powell and Secretary Armitage, how do you go about solving a problem if you have not got room for them to get up there on the station unless, in fact, you move to develop the technology to allow to you have more than 3 on a station?

Mr. O'KEEFE. Thank you for that very thoughtful question, Senator. Beyond the opportunity to consult with those seasoned diplomats which you have just now dismissed as an opportunity I have got to start with, but I do intend to agree with that. I have got to be careful how we work our way through this. Because my understanding of the international agreement says that we sought to establish a set of objectives to be achieved by the year, I believe, 2006.

Now, if that is the essence of it, and that is a challenge, and I think we need to take it on, that over the next 5 years to achieve those results that we signed up to as I understand it, and that is a limited understanding of those complex international agreements, I have really got to be guided by diplomatic counsel from those two folks I trust a lot in these matters, and I think they understand those in a way that I do not. I do not want to give you a misleading response to that. I have given you the barest fundamentals of my appreciate and would not want to be construed as committing beyond anything I am just not aware of at this point. Thank you for the question, Senator.

Senator NELSON. Since our role constitutionally is to advise before we consent, may I respectfully advise you that the two gentlemen that you mention happen to be two of the finest appointments in the Administration. I have had the capacity as a member of the Foreign Relations Committee to get to know them. I have enormous respect for them, but they are not going to answer your question.

The question is going to have to be answered as a management decision by NASA. Of whether or not you are going to move to a

position of whether you can have more than 3 and set a goal of when it is going to be and then work it out with your international partners. That is going to be the solution to the international partners' agitation. And that is why I asked you the question about whether or not as an interim solution do you buy a second Soyuz and try to fix it some way up there where it is docked if you cannot spend the money to do the 7-man lifeboat. So those are hard choices you are going to have to make.

Mr. Chairman.

Senator WYDEN. I thank my colleague. A few additional areas that I want to focus on. One that I think we just need to be a bit clearer on is the research agenda and how it is going to be determined. What are the processes, the structure that you are going to follow for making decisions about the research agenda, for example, who are you going to seek input from with respect to research. We have touched on it throughout the morning, but I would like to come back to that and have you set out clearly how you are going to pursue this.

Mr. O'KEEFE. In the very near term, the two primary sources, I think, of advice or what that research initiative should look like or what its priorities should be proposed of will first and foremost come from a review that is ongoing and is about to be completed here in the early part of the next calendar year. That is going to summarize, I think, the objectives and understandings of the 10 centers of excellence that have focused their research priorities in ways that are being accomplished today, as well as future aspiration.

Second one again is, I really want to take advantage—to be blunt about it—the opportunity to avail ourselves to the public of the expertise of the Nobel laureates that Tom Young amazingly managed to attract to his Commission. And they have been willing and volunteered to make themselves available to opine and offer thoughts about what the priorities and the feasibility, as well as the practical capacity of the research agenda and what those priorities are going to look like to us in that context. I am hopeful to take both of those institutional and more formal arrangement as well as a more informal one.

I am confident there are going to be more foreign intrigues that will be offered as well. Those are the two I can think of, though.

Senator WYDEN. Human space flight is certainly the most visible of the programs. Obviously, there are other programs in science and technology and aeronautics. How would you go about striking the balance between human space flight and the other responsibilities at NASA?

Mr. O'KEEFE. I think the difficulty that I see right now is that decision may be preordained if we are not careful in the management of the current programs, because as the continued efforts on International Space Station and the increases unfold, to the extent that there is not a commensurate resource adjustment either by adding resources which are scarce, or within the capabilities of the overall scientific agenda that the national agenda pursues, we can end up with a preordained conclusion of what that is and that won't be all that valuable to what would occur if the increases per system as we regard continues to consume a larger and larger per-

centage than what's involved. So we will end up with a mathematical result that is not guided by any management choice, but more by consequence. That is the area I fear most.

On my fondest hope, Mr. Chairman, is the opportunity to come back to you at some stage in the very near future and be able to say yes, we think we have got some fix on what the overall resource demands are of all dimensions of the NASA portfolio, and now let us talk about what that priority distribution ought to be. Until then I kind of feel like we are getting driven or riding the crest of this wave that we have no control over at this point.

Senator WYDEN. I am not completely clear, either where you believe human biological science fits as part of the Space Station project either. Could you set out clearly where you stand on that?

Mr. O'KEEFE. Again it is a hunch. It is not informed judgment or decision. Let me just offer again personal bias of what I think is capability here. The limited amount that I know and have read and understand to be some of the remarkable discoveries as a consequence of conduct of experiments of a medical nature and health focus, on Space Station and in that atmosphere, that unique environment that we could not feasibly do under any other circumstances were it not for the capacity we have, have been remarkable, astounding to those who are informed within that scientific community. And that is enough to impress the likes of people like me to say yes, indeed, that has to be then viewed as a focus or priority that if we can achieve those kinds of outcomes that can advance and provide the leap ahead breakthroughs in that field, that that is something you want to advance on, and it meets the criteria I talked about in the opening statement. You refer to it in your covenants, I think there has been a general consensus on that says that is where we are going to be focusing our attention as this leap ahead rather than linear incremental kind of advances that are in the corporate process.

Senator WYDEN. Let me ask you about one other area. I want to recognize my colleague. As you can see, he and I have a number of areas we want to explore, and I pledged that we wouldn't bring in the corn flakes for breakfast. We have a few more areas we want to look at.

One additional that is been important to me is understanding how the Bush Administration is going to approach overall space policy from the military, civil and commercial side of this discussion. The Administration has stated how important it views a space-based national missile defense, for example. President Eisenhower's desire to separate military and civilian space activities led to the creation of the agency, but the Defense Department retaining control over military space programs.

Tell us, if you would, what is the Administration's overall space policy for military, civil, and commercial space and who in the Administration is going to go about coordinating these various areas?

Mr. O'KEEFE. First of all, this is not going to be a news flash. I am not going to create new Administration policy. What I can tell you, though, and what I am committed to as a personal bias is a much closer collaboration of partnership with the Defense Department on the larger national security agendas in places in which we can utilize infrastructure that neither department would have to

duplicate. I don't see that as terribly efficient to have redundant capacity for this really unique set of capabilities, and there are ways I think we can capitalize on those advantages without breaching the spirit of the divisions that were fought in the Eisenhower era.

As far as how we are going to refine this, I have had the opportunity to talk with a good friend on the National Security Council staff where we lamented that, prior to September 11, we were heading toward a series of definitions of what the Administration space policy in this regard would be, commerce and military applications, it was completely short circuited as a consequence of 9/11 and held in abeyance. I have tremendous enthusiasm and great familiarity with the NSC staff, as well as principles involved in that to regenerate that, reinvigorate that debate, bring it to the floor, put it on the front burner as soon as we can as soon as we start working the day-in and day-out challenges.

Senator WYDEN. You said it is going to be a closer relationship. What do you think are the proper relationships between aerospace and defense?

Mr. O'KEEFE. In development it is essential in terms of working out requirements for capability and need that lift capacity. I think you and I talked a little bit privately the other day about the history that I think I find really unsettling, of conflict between the Air Force and NASA that existed on the order of about 15 years ago, at the time the Shuttle was developing in a large way and viewed at that time as being a potentially commercially cost-efficient effort that would also be confounded and cost competitive with heavy lift as well as expendable launch vehicle capacity the Air Force maintained. It created an enormous rift between those two institutions as a consequence of modest design changes in order to avoid accommodating the other institution.

I found that to be really objectionable and something we ended up as taxpayers, I think, paying a lot more for redundant capacity that had there been a closer cooperation would not have been as attractable as it was. That is an area where we can avoid problems and do those things together, especially with the strategic launch initiative at NASA as well as comparable efforts at Defense in its formative phases right now.

Senator WYDEN. Do you foresee the Administration, Mr. O'Keefe, formally issuing a new space policy, and if the answer is yes, I would be interested, for example, on how that would differ from the Clinton Administration?

Mr. O'KEEFE. Again, I do not want to preordain that answer, because as I mentioned just very recently talking to very good long-time friend of mine from the National Security Council staff, as we mutually lamented the fact that prior to 9/11 we were heading toward resolution or at least debate of what would be the composition of such a policy. I think there is enthusiasm for putting that back on the front burner at the earliest opportunity, likely behind certain early summer or spring would be the period which the NSC, particularly through the deputy's committee which I have been privileged to be a part of for the past year or so to vet through these issues to determine what the essence of the space policy is. I do not want to forecast what that outcome would be, because I

frankly do not know how that is going to change in the aftermath of the events.

Senator WYDEN. I will have a few additional questions.

The Senator from Florida, you have been very patient.

Senator NELSON. Mr. Chairman, please continue on. It is just the two of us.

Mr. O'KEEFE. Senator Nelson, I am still here.

Senator NELSON. Please interrupt any time, and I welcome you to interrupt any time. Earlier, you said that you would consider as a result of the Young Report, the reduction of 4 flights a year. This is a considerable concern, because it was at this very table that in September we had a hearing on Space Shuttle safety and unanimously all of the participants in the hearing, which included both inside and outside NASA, said if you are going to fly the Space Shuttle, we are going to fly it safely and that was the No. 1 priority.

What I'd like to know is before you would make such a decision, will you come and report specifically to Congress and seek our advice?

Mr. O'KEEFE. Positively, Senator. Any opportunity to consult and discuss with you, your colleagues those that are interested in this program is always to the advantage of the program, the Administration, to you, and to me. I pledge to do that. That will be an objective on the regular basis to the point you will tolerate those inquiries.

Senator NELSON. And in making such a decision, will external independent groups or NASA conduct an analysis on the impact?

Mr. O'KEEFE. I think it certainly would be a likely condition. I do not know what barriers there would be to doing that, because every time I turn around, I am constantly astounded by the problems that it takes in bringing in external point of view in a variety of decisions like this, because what really is distinctive and I think you'll appreciate this about the Young Commission is they are looking in a larger strategic framework. Once you start getting into business case issues and the requirements for dealing with a business plan on how you would conduct something, the Competition Contracting Act, all kinds of neat things suddenly come into play, so I would not want to give you or mislead you unknowingly to what I think are real rigid administrative barriers for the use of external capabilities when you then start getting down to real implementation decisions that have contract implications. So that would be my intent, but be guided by what the legal limitations would be that typically guide such questions.

Senator NELSON. I just want to express as part of our constitutional role of advising, if you look at this decision and the Young Report through the prism of a mindset of OMB, there is going to be considerable risk to the space program, because such a decision, for example, on reducing to four flights per year means that there would be a considerable layoff of the workforce, particularly at the Cape, at the Kennedy Space Center, the finest launch team in the world. There was a period within 12 months that they launched 8 Shuttles. That is nothing short of miraculous and heroic. And such a financial decision to reduce the launches to 4 would mean a considerable layoff of that expertise and then when the time comes

and it surely will, that we start to ramp up, you lose a lot of that ability, and you have seen that kind of hurky-jerky kind of approach in the past has not served us well.

So as Senator Hutchison says, if you start moving in that direction, not only will she be all over you, but I will too. Because the bottom line is going to affect safety, and that is one of the most dangerous points of the whole Shuttle mission—the launch. There is no room for error, and when there was, we got caught. And we found out that the risk factor was 1-in-25. They say it is about 1-in-450 now. And if you will do Shuttle upgrades, they can move it up to 1-in-1,000, significantly increasing the safety factor, but you cannot do that if you start reducing your flight rate to 4.

One of the things that I think you ought to consider also in view of the war on terrorists is that you have to have this vehicle as reliable assured access to space to back up your expendables. An Atlas sits out there on the pad. Its weight is supported by its fuel. It is an easy target. And you could go on through a number of the other expendables and their launch pads that have to be operable, and so if you are looking at assured access to space, there cannot be any mistakes with regard to the Space Shuttle.

Mr. Chairman.

Senator WYDEN. I thank my colleague. Let me ask one other question with respect to the Space Shuttle, Mr. O'Keefe. What role do you see the Shuttle playing for future NASA space transportation needs? We have begun to look at balancing the need for safety upgrades versus the various other needs. I think it would be helpful to know what role you see Shuttle playing for future space transportation needs.

Mr. O'KEEFE. Again, I think the original objectives as Senator Nelson says, he is steeped and understands very clearly what the greatest aspirations at what point the Shuttle was conceived and developed and ultimately deployed was to provide a viable commercial alternative, an opportunity in a way that would provide the launch capacity for satellites and electronic systems and a lot of experimentation in a range of technology-driven enterprise and science-driven agendas, but again, it was envisioned to be a real serious alternative.

It hasn't achieved that objective for a variety of reasons. I think there is all kinds of logic that got us there, as well as the difficulties of operations that have motivated that, but I think anything you can do to maximize the utility of the Shuttle operation in its capacity which is really quite remarkable in and of itself is to be desired and to be pursued. So in that respect again, that is what augers in favor of the closer cooperation with Defense Department, with a range of different agency interests that would be involved there, and to look at some of the other potential commercial attributes that we could establish on a more cost efficient basis. As soon as we could get that on footing, the closer we are and the closer we will be to answering in a more affirmative way the question we posed.

Senator WYDEN. Let me turn now to the question of privatization, and particularly, privatizing the Shuttle. You, as I understand it, are on record as supporting the further privatization of the Shuttle and other programs.

Privatization means different things to different people. And it can mean contract consolidation. It can mean giving the Shuttle away to one or two companies. What are the limits in your view of privatization?

Mr. O'KEEFE. First of all, there are, in fact, wide ranging definitions, and my endorsement and enthusiasm for this is very much in the context of the President's management agenda, the 5 essential elements, competitive sourcing is one of those 5. And so the opportunity, any opportunity to achieve competitive sourcing alternative for government operations is an essential element of what he expects every department and agency to be pursuing.

Limitations I think you point to with BRACC are the industry configuration, how it is conducted, what you currently have is a series of important contractual commitments that are conducted through a partnering arrangement between corporations, how that all sorts out and what those limitations may portend, that is something I really have got to get greater or more in-depth legal advice in terms of what those applications may portend.

Similarly, there are capacities and capabilities that Senator Nelson very appropriately points to that are resonant within the science and technical community within the government as part of our public management team need to attain, so in that regard, try to sort out those two really important questions and a myriad of other secondary points or would lead to a more informed answer to what are the limits to privatization or more to competitive sourcing, but as a generic proposition, I am there and I think it needs to be pursued and it is not just a case of saying well, we will eventually get something that says it involves answers to those points, but I intend to be committed to pursuing that immediately.

Senator WYDEN. If the Shuttle is turned over to the private sector, how do you go about ensuring that NASA gets the things it needs at those prices?

Mr. O'KEEFE. The answers to the first questions will flow once you know the answers to the second part.

Senator WYDEN. What is your sense in the next few years with the Shuttle? What is likely to happen in the next few years on privatization in the Shuttle?

Mr. O'KEEFE. Again, I think we have to start this due diligence in the way that first looks at the legal implications of current contractual commitments between the partnering companies that would evolve specifically in current operations. The second is to look very specifically at what the implications are to the resonant in-house public scientific and technical community would retain. What alarms me very much in the spirit of Senator Nelson's observation, better than half of the science, engineering and technical staff at NASA throughout the organization will be eligible to retire within the next 3 to 5 years, better than that.

That tells me that we really need to be focused on the essential elements of the presence, management, agenda of those 5 is strategic management of human capital.

We need to do it here. It is a case where that whole generation, Apollo era, entrepreneurial, innovation and creativity is about to retire, or it is going to be eligible to fairly soon. As a consequence, trying to find out how you reinvigorate that spirit through the per-

sonnel management and resources objectives, is going to be that second order of magnitude. Once you get through those two issues, it gets to the larger points.

Senator WYDEN. One other international issue that is important to me. As you know, China successfully launched unmanned space ships in 1999 and 2001. It is our Subcommittee's understanding that China is going to send a manned craft in space before 2005, and preparation for a mission to the Moon is underway. Should Americans be concerned about our continued access to space? What is your opinion with respect to these developments in China and the space area?

Mr. O'KEEFE. I am not sure what the impact or the consequences are to the intelligence community, to the larger security. And so therefore to opine or offer any thought on what those implications would be would be either uninformed or misinformed at best.

Senator WYDEN. I have just a couple of additional questions.

Does the Senator from Florida have any others?

Senator NELSON. Yes, Mr. Chairman. I'd like to follow up on your questions about privatization. As part of our advice to you, the Shuttle is not an operational vehicle. It is still a research vehicle. Now, you say that you are in favor of privatization. I understand your general philosophy. Does that mean, for example, that the Shuttle would start launching commercial payloads?

Mr. O'KEEFE. Again, I really have to be consistent here, Senator, because you clearly demonstrated an interest in seeing that consistency, and failure to have transcripts in front of me, previous testimony, I am going to make absolutely certain I stay consistent, at least in this game. I have a clear understanding of what the President expects in his present management agenda as it pertains to competitive sourcing. I intend to pursue that in every degree of enthusiasm I have. This falls into that category as an example of how it may be pursued.

There is application across every Federal department and agency and this lends itself very neatly to those larger objectives. The specifics of your question is something I would need to sort out to understand the implications of the 2 facets I explained previously, which are what the contractual implications are for the partnering arrangements that exist under current Shuttle operations contracts, and they are not research vehicle operations. They are Shuttle operations contracts with independent companies that I do not know the legal implications of and I need to be better informed of.

Second, we need to be positively absolutely committed as part of the President's larger objectives to be sure we are focused on the strategic management of human capital and we know what the implications will be if we choose to remove or defer capabilities that are currently resonant within the technical and scientific engineering. Those two, I think, need to be consulted first before I could ever get to the stage of responding. But as a general philosophical matter, those are driving principles.

Senator NELSON. Well, so that as you would be trying to conclude that, let me put your initial consideration of this question of privatization in the context of what has happened in history. The Space Shuttle was developed to be the space transportation system. And

when Challenger exploded, we realized that the mistake was that we were trying to make it be too many things to too many people.

And thus the policy decision, and this was during the time of the Reagan Administration, was that the commercial payloads could best be launched on expendable booster rockets, and that you would save the Space Shuttle primarily where you did the human in the loop, thus the scientific experiments, space telescope, and therefore, on the manifest, any of those commercial payloads, they finished those, but they did not redo them. Likewise, on the DoD payloads, although there was still that capability as a back-up.

What I am afraid of is that there is this preference for privatization that does not apply to a scientific vehicle, and so I raise again the question that you will have to consider in the future, which you say you cannot address now, does privatization mean a return to commercial vehicles? If so, that is a tremendous change in policy for NASA. Does it mean just commercialized research payloads?

And if you move to the so-called privatization, well, what about all the ground infrastructure? Does it all get privatized?

There is a substantial amount of expense of all of that stuff that goes along the space program, some of which by the way we have been trying to address and some of these appropriations bills, you know, the VAB has panels peeling off of it, Lord help us if a hurricane comes through there. We have gotten a lot of that corrosion that is going on down there in the Cape from years of salt spray and so forth. How is a private company that is going to be incentivized to redo all of that under a contract that they have to operate under specific cost, so I want you to arch your eyebrow as you approach what the President has given you as marching orders when you are dealing with a research vehicle and a research program like this, you may not have gotten this through your lens at OMB.

I suspect that you would have gotten some of this from your experience as controller of DoD, and as Secretary of the Navy. And I think you are going to have to put on some different glasses.

Mr. Chairman.

Senator WYDEN. I thank my colleague. A recent press report, Mr. O'Keefe said, and I will just quote here: "NASA also hopes to land two unmanned spacecraft on Mars, launch a number of Earth observing satellites and a new space telescope in the next couple of years." Sounds awfully good. Awful lot of us science fans and Americans. Pick each one of them?

Mr. O'KEEFE. First of all, as a method of fundamental management, hope is not a method. Planning on this as expectations is just I think we have got to demonstrate to ourselves, satisfy ourselves indeed these are achievable objectives and given the circumstances right now, I think everything has to get back to basics. We really have to look at the fundamentals. Again, this is not an overwhelming challenge. This is not something beyond the scope or without parallel in any other circumstance.

There are models here. There are a variety of approaches that can be followed. There are management methods and approaches that can yield results we are looking for, but they have to be attended to and so as a consequence, they would achieve the kind of forecast that you are talking about, that I know is part of the

fondest expectation is something I think once we look at fundamentals, get back to the basics, and determine whether or not we can do all of this, that will then inform what approaches we will take for this portfolio.

My fondest hope is that we get there.

Senator WYDEN. I have one last question. I am struck that as we look at the scientific possibilities, the excitement always come back to showing that you can liberate funds from areas that are either low priority or administratively inefficient, and that debate certainly starts with the Space Station, but there are a lot of other parts to it. Perhaps what symbolizes it for me is when you came as Deputy Director of OMB, you told the House Appropriations Committee that there would be a cost overrun of \$4 billion on the Space Station and then a few days after the hearing, NASA came back and said the figure was more than \$800 million or more than that, and I assume actually would like to have you comment on, I assume that one of your top priorities is going to try to restore the credibility of NASA with respect to estimating these future cost questions.

Mr. O'KEEFE. Lest there be a view that there is group think that exists at OMB, I regret to advise that shortly after that increase, after having just testified to what was the scope of the increase a matter of weeks before, it was referred to in rather indirect terms as the "O'Keefe bump," which was not the most amusing element of my career experience.

That is for sure. But it was, in the context of saying and reminding us that we shouldn't have any more confidence in this set of rules than the ones that preceded them.

That is the part that really concerns me most, because it is, I think, all of our fondest hope that this is it. Having said that, there is nothing that raises my confidence now that suggests that is something we can take to the bank. As a consequence, I do not want to rely on that as a management informed decision until we can really assert to that with any confidence that we can suggest we should. So that is it.

I think what that translates to in parallel we talked about a little earlier of again just kind of a thumbnail sketch of what constitutes roughly two-thirds of the current resource configuration dedicated to indirect costs, maintenance of capable infrastructure capacity and the other third, at most, is dedicated toward the pursuit of projects of excellence of technology-driven enterprise.

If those numbers change, those percentages become more and more consumptive on the indirect side as a consequence of newer discoveries of what may be the latest estimate on overruns for the station. That consumes the other part of this equation, because last I checked, there is not an awful lot of enthusiasm here, any element of Congress saying here's the blank check, spend it like you think you need it. That would be irresponsible on the part of Congress. The President certainly doesn't endorse that. That is not a position we have adopted or would we encourage be adopted.

Senator WYDEN. Well, and clearly to make the case of additional funds, you are going to have to show that you are making better use of current dollars, given they are citing one inefficiency after another.

Mr. O'KEEFE. I consider that an enormous challenge.

Senator WYDEN. I know Chairman Hollings feels very strongly. We are going to get you confirmed as quickly as we can. I think you have the potential to really be a man for the times and to show that by cutting some of the massive overhead and the inefficiency that you can help the agency reach the stars. I am excited about the possibilities on your watch. As you can see from my colleagues today, we had a spirited debate this morning. It is not close to what you are going to have when—

Mr. O'KEEFE. Once I get there.

Senator WYDEN. It is not close to what you are going to have as you try to make what I call the transition back to the agency's original mission. I think that is what this is all about is to take out the original charter for a science and research-driven kind of mission and then as you have described it, go out to the Senators and scientists and various communities that are directly affected by this, and then bring to Congress an agenda that we can rally and promoting a kind of development to breakthrough technologies and historical scientific developments that are so important.

Mr. O'KEEFE. I take this very much as a preview of coming attractions. There is no doubt about it. The expectations are very high. I think that is a great challenge, one that I look forward to. But I take solace in Senator Nelson's opening statement, as a matter of fact, a few hours ago that there was one of the greatest administrators of our history, storied fabled historic place was James Webb and I concur entirely. I think he was just a remarkable fellow who wrestled with exactly the kind of issues we are dealing with here and I hope that the parallel that has greatest resonance is that he served as Truman's Director of the Bureau of the Budget, predecessor at OMB from 1946 to 1949. I see his picture every single day. As a consequence, that is a constant reminder to me that there are messages and methods in management process that can be employed here. If I do this a fraction as well as his incredible legacy, that will be a notable achievement and it is one that I take as a charge, Mr. Chairman, your commentary on how to go about doing that. I am hopeful as well.

Senator WYDEN. Before I turn this over to Senator Nelson, let me also recognize that we have had a terrific fellow come over from the NIST agency, Kevin Kimball. I hope his folks are watching this from C-SPAN. He has just done a terrific job for the Subcommittee, particularly on getting us ready for today's hearing. I am going to turn this over to Senator Nelson and also thank him for all his expertise. I think the Senator knows, I am going to work very closely with them and we are going to get on these issues and put the kind of focus on it that allows us to promote the kind of science that the Senator from Florida is advocating.

I thank you again, Mr. O'Keefe. We look forward to your rapid confirmation.

Let me turn the hearing over to Senator Nelson.

The Senator from Florida.

Senator NELSON. We will wrap this up pretty quick, Mr. Chairman.

Just to comment going back about the Young Report and 4 flights a year. Not only would it have the affects of what I was

talking about in all of the layoffs, but it would also have the affect of very likely moth-balling at least 1 of the 4 orbiters, and that is going backwards. That is not going forwards.

Let me talk to you briefly about the space launch initiative. We discussed this last night in our conversation. The Shuttle upgrades funding has been minimized, and under the present plan will no longer be funded after 2005 based on NASA's current plan to shelve the orbiter fleet by 2012, because in NASA's budget plan we have about \$5 billion for this thing called space launch initiative, which is really a development now of technology, so tell us what you believe about this space launch initiative as it's currently planned and funded. Do you think it is going to result in the replacement of the Shuttle by 2012?

Mr. O'KEEFE. First of all, they are going to get a lot more informed of the mechanics of the Space Shuttle. In its earliest stages of development, this is again a golden opportunity to reach a very close collaborative and cooperative arrangement with the Air Force specifically, with the Defense Department over how we could look at what those objectives are. I think your commentary as well, you recognize that the goals and objectives we had in mind as Americans for Shuttle and pre-1986 and for all the reasons I concur were not realized that you have assessed, this is a good time to go back and revisit some of those things, to think seriously about the kinds of important questions you have laid out of commercial applications, as well as a range of other alternative uses. They do not want to inform what it is we are really driving toward and it ought to be the objectives.

So I think that is rather than articulating some bombastic vision of what I would hope it would be born of nothing more than fantasy, I need to give you a more informed view after looking at what those questions are, as well as looking back again to the period of time that kind of revisits what we had in mind for the Shuttle that we thought was an informed view and see if we can do better.

This is the kind of maturation process, again I am sure you are experienced with as well, that typically goes on with any large scale systems integration activity. It is complex.

Shuttling of itself is an amazing achievement of aerospace capacity in to look at how do we look at something that is a leap ahead from there ought to be part of our objective and it is going to take as long as you suggest through 2012 to really be thinking, and it would not be out of the ordinary with any other aerospace maturation that I have ever seen or been associated with in the Defense Department days.

So as a consequence how we define this ought to be informed by the very important questions you have raised that asks what's the objective you are really after and what technologies can you employ that will leap ahead.

Senator NELSON. Let me give you a little of our advice.

Mr. O'KEEFE. Always most appreciative, too, as I had all morning for that opportunity. Yes.

Senator NELSON. I fully appreciate the fact that you cannot come to the table knowledgeable about all of this. That is part of getting on the job and starting to learn. But here is the nub of the coconut. Basically we are going to have a system that was going to replace

the Space Shuttle. It did not happen. But they still have \$5 billion in the budget over the next several years to develop a technology and, because of that, they are still postponing a lot of the upgrades that will directly affect the safety of the Space Shuttle, so if we are not going to have a replacement vehicle by 2012, which we are not, we got to keep the present horse in good condition to get us where we need to get. So as I suggested to you last night, one of the things that you may look at since this space launch initiative is more toward the development of technology, see if you can get the Department of Defense as a partner in sharing the cost of that, because it would directly affect the Department of Defense giving you a little more breathing room in the NASA budget to go on and keep doing the Space Shuttle safety upgrades, because we just cannot afford to lose that vehicle as a reliable assured access to space.

And then I would ask for you to consider, because this is much more technical stuff of RDT&E, research development testing and evaluation in NASA's hardware procurements. You probably had some experience with this over in your position as controller in DoD. Do you have any particular DoD experience, by the way, that might be applicable to your ideas about procurement reform at NASA?

Mr. O'KEEFE. Yes. Having served at the department during the time that Don Atwood was the Deputy Secretary there, his primary charge to me and the organization was to develop the management review at that time and as a consequence, pursue the series of procurement reform initiatives, as well as larger management of infrastructure kinds of directives, logistics and arrange personnel and other activities that have direct applicability in this context.

Fast-forward in that timeframe you have looked at a range of academic pursuit, a whole series of various performed initiatives, which approach do you use in those areas, specific areas of reform or more generically toward process innovations and I have seen, I think, the application of a number of them during the course of development of the presence management agenda this year.

So having worked with as a direct context, as well as having thought through what some of the implications are, I think I would like to take the opportunity to employ best practices that fit for this kind of agency and test drive them, see how they work, see what we can come up with, but certainly is not the lack of familiarity with the variations of which approaches to use.

Senator NELSON. Before we conclude the hearing, I'd like to give you an opportunity to lay out for the record what is your vision?

Mr. O'KEEFE. I think first and foremost is a reinvigoration, re-instilling the entrepreneurial system and spirit that is quintessential in definition of what has made NASA what it is today and characterizes its extraordinary successes, so how to go about establishing that to press the edges of what the technology can do, if we are looking at things that are again incremental improvements, we wonder why, and I am going to think more in terms of how do we do things in a leap ahead consideration, because if this institution doesn't do it, it likely won't occur in any span of time is going to be reasonable.

And that entrepreneurial spirit is essential, and in its earliest phases, instills that sense of entrepreneurship over time will be

more process-focused, more infrastructure-focused, more capability-focused and less about considering things like the term sum cost, which in the public environment means we have already got money invested, so we better use it until it finally dies versus the term sum costs in a business context, which means you invested it, it did not work, write it off, do not let it be an anchor on the way you do business in the future.

Sum term can be defined different ways. First and foremost is vision to reinstill that entrepreneurial spirit so we can stretch the envelope in a way that works well for information and technology enterprise and science-driven agenda as opposed to capability.

Second, there would be, I think, a focus on prudent management principles that can inform and guide and motivate us to be selective about what those areas are because you cannot do it all, as much as we all would like to see lots of things pursued.

The third element would be to establish and instill a close cooperation with all other elements of this incredible Federal expanse that we have available in the field of research and development to be sure that we maximize that collaboration synergy and not duplicate efforts in that regard.

The fourth element of the vision I think would be also to pick up I guess on a very important theme that you have talked about a lot in a very passionate and very thoughtful way, which is to be mindful constantly of the safety considerations that the risks involved in this endeavor, while they are important and that it certainly is a noble mission objective, the risks nonetheless are higher and have to be considered as paramounts of objectives and to take a page from this history.

Navy nuclear experience that I have a familiarity with by virtue of superior parental review, as well as management opportunity that I have dealt with which is that you can achieve remarkable improvements in the technology and employ those improvements while at the same time sustaining enviable and perfect safety record. There is a pattern there. There is a process set of informed issues that are part of that history that we would be extremely well served to take a page from that I would like to have the opportunity to instill and I think those basic points and elements of the vision would put us in a position I think to take advantage of NASA at the crossroads at this stage as it redefines and looks at the new mission and strategy. I am very excited about this opportunity.

Senator NELSON. I am grateful that you are excited about it, and I would only conclude the hearing by saying that as part of that vision, that this one Senator's vision is that we are a Nation of explorers and adventurers, and we always had a frontier. That frontier used to be westward, now that frontier is upward and inward. And if we ever abandon trying to challenge that frontier, we will become a second-rate Nation. But we won't, because of little agencies like NASA that keep that vision alive to fulfill the character of the American people as adventurers and explorers.

And that is my wish for you in saying Godspeed on a very important leadership post for the United States of America.

The hearing is adjourned. We will keep the record open for a week for any further comments to be entered by our colleagues.
[The hearing adjourned at 12:50 p.m.]

APPENDIX

PREPARED STATEMENT OF HON. SAM BROWNBACK,
U.S. SENATOR FROM KANSAS

Thank you, Mr. Chairman, for holding this hearing for this very important nominee. The constitutional role of advise and consent is one of the most important duties we have as a body.

Today the Senate Commerce Committee reviews the President's nomination of Mr. Sean O'Keefe as Administrator of the National Aeronautics and Space Administration (NASA). While I have not had the opportunity to meet Mr. O'Keefe, I am confident that his past experience will serve him well as he embarks upon the important mission of leading NASA into the 21st century. Mr. O'Keefe is clearly qualified to fulfill the responsibilities of this position; and I look forward to him taking office as soon as possible.

Mr. O'Keefe's experience clearly demonstrates his unique ability to live up to the responsibility of his new office. His experience at the Office of Management and Budget, as well as his extensive background in public service will serve him well in the effort to bring responsibility to NASA's budget. NASA has a history of space science research aimed at benefiting life on Earth. However, the challenges facing the agency today, are more terrestrial. In order to strengthen the scientific research at NASA, the financial and budgetary issues must be addressed. Not only must they continue with their scientific research, but NASA must also do so in a fiscally responsible manner. This will be a difficult balancing act which I am confident Mr. O'Keefe, a former Deputy Director of the Office of Management and Budget, can achieve.

I look forward to working with Mr. O'Keefe once he is confirmed. As I am sure he is aware, NASA is currently in an interesting position to engage foreign countries in space science research. As the United States continues to pursue the war on terrorism, it is increasingly important to foster strong working relationships with our allies. Recently, I sent a letter to the President encouraging him to look into the work that NASA is pursuing with India, specifically with regard to projects that were set aside due to sanctions which have now been lifted. I encourage Mr. O'Keefe to pursue new cooperation between NASA and India.

Finally, I would like to point out to the nominee one of his predecessor's most important accomplishments. During his tenure as NASA Administrator, Dan Goldin joined me in a tour of Kansas. I take this opportunity to invite Mr. O'Keefe to follow in the footsteps of his predecessor and join me in Kansas.

Again, I am looking forward to the experience and perspective that Mr. O'Keefe will bring to NASA. I congratulate Mr. O'Keefe on his nomination and look forward to expeditiously getting him into office.

PREPARED STATEMENT OF HON. ERNEST F. HOLLINGS,
U.S. SENATOR FROM SOUTH CAROLINA

We have before us Mr. Sean O'Keefe who is nominated to be the next Administrator of the National Aeronautics and Space Administration. The President has sent us a fine nominee—Mr. O'Keefe currently serves as Deputy Director of the Office of Management and Budget and has previously been confirmed by the Senate three times.

Thank you, Mr. O'Keefe for being willing to take on the challenges at NASA—and there are challenges, not the least of which is the International Space Station. NASA started the Station in 1984, redesigned it in 1993, and is on the verge of re-designing to “core complete” now. We were promised that the station would cost only \$17.4 billion to develop but now are told that the original design could cost as much as \$30 billion.

Earlier this year, the General Accounting Office (GAO) issued a report on NASA's fiscal management of the Space Station. In its report, GAO stated that NASA was

unable to provide obligation-based cost information on the Space Station nor was it able to provide support for the actual cost of completed Space Station elements and subsystems. The question I pose is: If NASA is unable to account for costs that have already incurred, how are we to believe its estimates for future costs?

At the same time, we are being told that to fix the problems, we need to eliminate crew and scientific research. So in the end, the Station—that was sold to the Congress as a world class research facility—will only be able to accomplish 20 hours of research a week. So we were sold a bill of goods on which NASA failed to deliver.

Mr. O'Keefe, as Administrator, I urge you to get NASA back to basics. The Space Shuttle itself is a world class research facility, and I fully support that program. NASA also has opportunities in Space Science and Earth Science to explore our universe and to help us more fully understand the Earth.

I look forward to hearing from the nominee and expect his swift confirmation.

RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. TRENT LOTT
TO SEAN O'KEEFE

Question 1. Based on the RFP, NASA's Landsat Data Continuity Mission procurement seems headed toward yielding a satellite providing minimally useful data for a single customer—the government. This result would provide the least value for the most cost to the government. As NASA Administrator, will you ensure that the Landsat data procurement, as well as future remote sensing procurements, maximize the benefits and minimize the cost by sharing the cost and risk of the data acquisition with commercial users of remote sensing data?

Answer: It is important to ensure that the Landsat data procurement, as well as future remote sensing procurements, seek to minimize costs and maximize benefits by partnering with commercial providers and uses of remote sensing data and products wherever possible. One of the key principles underlying the President's vision of government reform is that it be market-based and actively promote innovation through competition. Meeting government needs from competitive, commercial sources is one of the most effective means of accomplishing this. In order for the LDCM to be of greatest value, private sector firms must have the full freedom to offer data and data products, beyond those needed to fulfill the strict terms of Landsat data continuity, to a broader global market.

Question 2. Do you agree that NASA's remote sensing data needs should be fulfilled, to the greatest extent possible, through commercial data buys, and not through the construction and operation of Government-use only satellites? Wouldn't a FAR Part 12 procurement be better suited for such data buys than a Part 15 procurement?

Answer: Purchase of commercial data can be competitive and preferable to the construction and operation of government-only satellites where there is a market for such data beyond the government. NASA needs to continually engage in extensive dialog with the scientific community and industry to determine whether there are prospects for U.S.-based commercial data products. In some cases, e.g., planetary exploration, the prospects for commercial data products may be negligible in the near term due to the capital costs and risks involved. In other cases, such as land remote-sensing, there are already some commercial data products that are used by NASA. The FAR Part 12 and the portion of the Commercial Space Act dealing with remote sensing assume the availability of commercial products. I would like to ensure that NASA engages with industry in constructive ways to enable more, rather than fewer, viable commercial procurements in the future. Whether use of FAR Part 12 would be superior to the use of FAR Part 15 would depend on the specific facts of a particular case.

Question 3. Many of NASA's facilities associated with the human space flight program, including the Stennis Space Center's rocket engine test facilities, were established and built 30-40 years ago, and are showing their age. While NASA's budget requests have focused on direct mission expenditures, its investment in maintaining and updating its facilities and equipment has lagged. As NASA Administrator, will you ensure that NASA's budget requests include adequate investments in maintaining and upgrading its facilities?

Answer: The high performance that we expect from the human space flight programs requires great facilities as well as great people. However, currently approximately two-thirds of NASA's annual budget is spent on indirect and overhead activities, which include facilities and equipment, while only one-third goes to the actual conduct of scientific research and technology development. The President's Management Agenda calls for greater use of competitive sourcing across the Federal Government. As part of this agenda, NASA has undertaken a Strategic Requirements

Review to assess opportunities for outsourcing, streamlining and consolidation. I have not personally gone over the details of NASA's review yet, but I expect the review to identify actions that can significantly reduce NASA's institutional and overhead burden. If such actions are successful, more resources will be available to direct toward science, technology and exploration activities at NASA and to address NASA's high-priority institutional needs like facility modernization. I would ask for your help in getting NASA back to basics and rebalancing the ratio of research to institution at NASA.

Question 4. You will need to take full advantage of a range of available budgetary tools if you are going to move NASA forward. Throughout this past year, you had the opportunity to reacquaint your self with how many of these tools, such as advanced procurement, forward funding, and advance appropriations, are, or are not, being used by various agencies and departments. Do you believe that the use of advance procurement, forward funding, or advance appropriations would be appropriate for NASA?

Answer: The Administration supports careful and selective use of advance appropriations, advance procurement, and forward funding in high-priority areas where such funding mechanisms can provide managerial benefits or cost savings. However, the Administration does not support widespread use of these funding mechanisms across the Federal Government, especially when they are used to circumvent normal budgetary controls. For example, for a small number of large capital development projects, advance appropriations may be appropriate to give incentives to managers to better control costs. Similarly, for certain projects, advance procurements may be appropriate if cost savings can be achieved. I will need to review NASA's programs to see if any of these funding mechanisms would benefit high-priority NASA programs. Under any circumstances, great care must be exercised in using any of these approaches lest we lose total cost visibility. The recent cost overrun revelations on International Space Station serves as a stark example of the hazards of incremental funding methods.

Question 5. We have talked at length about budgetary alternatives for other issues of great importance to our Nation. The one in particular that I view with the greatest concern is the continued decline of our Navy's fleet. Since 1990, we have watched our Navy fleet shrink from 550 ships to the 317 ships it has today, and we've been told in numerous hearings that we haven't seen the bottom yet. The significance of this decline is compounded when one considers how critical a capable Navy is to our Nation's ability to respond to threats such as those we are currently dealing with in Afghanistan. Can budgetary tools such as those we have discussed be used to bolster our shrinking Navy fleet? Do you support the use of advanced appropriations for large capital projects, including shipbuilding, provided such proposals include contractual provisions that yield cost savings for such projects?

Answer: By letter of December 11, to Leader Lott, I described the OMB position on the applicability of advance appropriation principles for Navy shipbuilding. I'd be happy to elaborate on these comments should Senator Lott desire.

RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. JOHN MCCAIN
TO SEAN O'KEEFE

Question 1. One of the issues highlighted in the Young Report was that the final Station cost estimate at completion has not been a management criterion within NASA. The Station cap that the Congress established was on the overall development costs for the Station along with the use of the Space Shuttle. Can you elaborate on this finding and comment as how you would propose to deal with the issue?

Answer: I believe the Independent Cost and Management Evaluation (IMCE) task force assessment is accurate in its finding that the strong focus of the ISS management on living within annual costs was a major factor in the development of the total ISS cost problem revealed in early 2001. There are a number of other contributing factors, however, that must also be addressed. I understand that NASA is now preparing a proposed set of management and accounting changes that address the IMCE findings. If confirmed, I will, of course, examine those proposals and the assumptions on which future cost estimates are based. In addition, it would be my intention to initiate needed changes in fiscal management for ISS—and all other NASA programs—to improve cost estimation, tracking and oversight procedures based on a total cost concept which will better account for both current and out-year expenditures. (See also my response to question 2, below.)

Question 2. The Young Report stated that a technical baseline must be developed that can be used as the basis for a formal cost estimate. It recommended using the Department of Defense cost assessment approach as model and develop a full Space

Station cost estimate. Do you agree with using the Department of Defense cost assessment approach?

Answer: I believe that NASA has a good deal more to learn from the DOD cost assessment approach. That will be among several tools that I intend to bring to bear in reforming NASA's cost estimating capability.

Question 3. The Young Report stated that financial and project control functions needs to be strengthened significantly in the Space Station program office and NASA Headquarters. What are your thoughts on the current control systems and how would you propose to strengthen them?

Answer: I believe the IMCE findings about financial and project control functions are among the most important in the report. Strengthening these systems is a very high priority, and I will initiate a systematic review of NASA's current practices with a view to identifying and implementing necessary changes.

Question 4. I recognize that the Strategic Resources Review is still underway. However, that review may recommend some significant changes to the NASA centers. Are you prepared to implement the recommendations from the review process?

Answer: NASA's Strategic Resources Review is a key element of the Administration's management reform agenda. By reducing NASA's institutional burden and making greater use of capabilities in academia and industry, NASA intends to: promote innovation; open Government activities to competition; improve the depth and quality of R&D capabilities that NASA can call on; and increase NASA's responsiveness to future directions in science, technology and exploration. The SRR process is a very positive and necessary exercise for NASA, and I look forward to reviewing the recommendations of the SRR. Implementing significant changes in the activities and programs at NASA's Centers will be a difficult and challenging task, which will require close coordination and cooperation with the Congress to implement. It will be my intent to maintain a focus on the larger issue of a strong and vibrant national space program rather than the preservation of any specific localized status quo.

Question 5. Given all the discussion on research at NASA, I also want to ensure that the results of this research reach those who need it. NASA recently put together a draft commercialization plan for the International Space Station. We expressed some reservations with that plan.

(a) What are your thoughts on commercialization at NASA?

(b) Do you believe that NASA does a good job of working with American companies to find opportunities for the commercialization of space?

(c) The Department of Commerce has an Office of Space Commercialization. How do you believe that NASA should work with this office?

Answer: I am convinced that NASA's commercialization efforts can be expanded, by ensuring that: key technologies developed using American taxpayer dollars are made available to U.S. industry for commercial application; and NASA buys commercially available products and services whenever possible instead of replicating or maintaining industry capabilities at its field centers. As I stated during the Committee's hearing, one of my highest priority objectives is to regain a more entrepreneurial spirit within NASA, to seek immediate opportunities for transferring technology both into and out of NASA, as well as pursuing less obvious opportunities for commercialization. I expect that NASA will take advantage of all resources and knowledge throughout the Federal Government, including the Department of Commerce. I am prepared to work closely with you and the Committee to address your concerns and establish a unified approach to moving forward in this critically important area.

Question 6. International cooperation is the keystone of NASA's most ambitious space projects. The International Space Station and Mars exploration are but two examples. These and any future programs can only succeed if all involved governments adhere to their commitments. How do you plan to ensure that US obligations to these international partners are fully honored?

Answer: The United States, of course, takes its international commitments and obligations seriously and I believe they are an important and necessary feature of our nation's space program. At the same time, inherent in all international agreements is the determination that adherence to its terms is also in the best interest of each of the signatory nations. I agree that the ISS agreements, which were initiated by the United States, continue to be important and necessary to the success of the ISS. I view my task as implementing the kinds of efficiencies and management changes at NASA that ensures that the U.S. can meet both its international commitments and its responsibility to the American taxpayer.

Question 7. In light of the high level of retirement eligibility for NASA's civil service employees, what steps will you take to ensure that the agency is properly staffed?

Answer: NASA and OMB have conducted a joint workforce review to identify areas of concern in maintaining access to critical skills and human resources. A number of steps have been identified to address these concerns, which are currently being integrated as part of NASA's Strategic Resources Review. I view this as a very high priority for my attention as Administrator, if I am confirmed by the Senate. As these proposals mature I will consult with the Committees of the Congress to identify and chart a course which provides legislative authority where needed. Additionally, I will seek the Congress's counsel and support for administrative actions that are suggested to address the workforce challenges. In this spirit, Congress could enact the President's proposed "Managerial Flexibilities Act" which incorporates several personnel management authorities of great value to NASA. Creative application of these new authorities could help address the critical human talent challenges.

Question 8. Many major management decisions at NASA appear to be made without the benefit of establishing a program baseline, obtaining good cost estimates, and accomplishing defensible cost-benefit analyses. How would you change the way major program decisions are analyzed and made at NASA (and enforcement of the changes)?

Answer: Your characterization of the situation is accurate, and represents a clear statement of some of the major challenges facing NASA at this time. It is essential to establish and implement an integrated financial management plan and strong independent cost analysis functions to address these deficiencies and provide the means of oversight, verification, accountability and enforcement. I view the Office of the Chief Financial Officer as critical to this process and will work aggressively to fully establish and empower that function within the NASA structure. I will require strict management accountability at all levels and, where necessary, employ independent assessments and validations of program budgets and plans.

Question 9. NASA's Independent Program Assessment Office (IPAO) is currently located at NASA Langley. It was created to conduct independent evaluations of NASA programs and projects in order to keep senior management informed about whether programs are on schedule and within budget. The NASA Inspector General, building on earlier GAO reports and the 1990 Augustine Commission Report, has repeatedly recommended that the IPAO be made part of NASA HQ, and that it be used more proactively to provide senior NASA management with independent estimates of program cost and risk. Would you consider enhancing the IPAO's role and stature and locating it (at least organizationally) at NASA HQ?

Answer: If confirmed, I will carefully review the recommendations regarding the role and structure of the IPAO. As indicated previously, I believe a strong independent assessment capability, both within NASA and outside of NASA, is essential to identifying and resolving NASA's cost and management challenges.

Question 10. The Young Report also recommended that NASA should develop an independent cost estimate program for the International Space Station that should be started immediately for FY03 and be updated biennially by a group outside of the ISS program office.

(a) Do you intend to follow this recommendation?

(b) Do you believe that this independent cost estimate can be completed by the FY03 budget submission?

Answer: As I stated during the hearing on my nomination, with regard to the readiness of the independent cost estimate, it is scheduled to be completed by September 2002, in time for the enactment of the fiscal year 2003 appropriation and fiscal year 2004 budget formulation.

Question 11. NASA's financial management system is an infamous mess. As Deputy Director of OMB, you testified that NASA had you testify about a \$4 billion Space Station cost overrun based on a "conservative" estimate, and then you found out "within days" that the actual overrun was in fact \$4.8 billion. How do you intend to do reform NASA's financial system to better track costs, obtain better and timely cost information, and improve overall financial management?

Answer: I was deeply troubled by the pace at which the projected cost increases grew early in the year, and the fact that such a serious increase could have been identified so late. In my responses to questions 1-3, 6, and 9-10, above, I have indicated some of the early steps I intend to take, if confirmed, to address this most serious issue.

Question 12. On November 23, the Chinese government announced that it will start manned space flights missions in 2005, with the objective of reaching the Moon.

(a) How should NASA react to an energized Chinese space program?

(b) What strategic implications might this announcement have for U.S. national security?

Answer: NASA is continuing to work closely with the Administration concerning U.S. policy with regard to potential civil, space-related cooperation with China. The U.S. Government position remains that adherence to the MTCR and export controls is a prerequisite to increased civil space cooperation. Due to these continuing concerns, at the present time, NASA has very limited cooperation with China. Should enhanced cooperation become possible, NASA's primary interest would be to cooperate with China in the field of Earth Science. Potential future cooperation in Earth science would include low technology environmental studies to examine the oceans, air quality and land cover and land use. Successful implementation of such cooperation could potentially serve as a basis for future cooperation in other areas of mutual interest.

With regard to national security implications, I would defer to the National Security Council and the Department of Defense to evaluate, monitor and address those issues.

Question 13. According to a November 18, 2001, article in *Florida Today*, NASA's Consolidated Space Operations Contract has hit a \$500 million shortfall. The contract with Lockheed Martin was supposed to save NASA \$1.4 billion over 10 years. Now there has been some discussion of cutting NASA's Deep Space programs and even its mission to Mars in order to make up for this shortfall.

(a) What can be done to resolve this problem?

(b) Do you intend to cut any Deep Space programs in order to make up for this shortfall?

Answer: I am aware of the concerns with NASA's space operations consolidation efforts and very concerned that it may not be meeting the expectations for savings that were intended. If confirmed, I will carefully examine this situation, both with regard to the specifics of the contract performance and in the context of the broader issues of management and cost control discussed in my previous responses.

Question 14. An editorial in the December 3 issue of *Space News* chastised Congress for shirking its responsibilities "by approving a 2002 budget for NASA loaded down with too many pet projects designed to benefit the constituents of the Senators and Representatives most able to influence the budget." The editorial calculates that the 2002 NASA appropriations bill included 136 earmarks costing \$533 million, an increase of nearly 45 percent over last year. Could you please explain how this type of Congressional earmarking affects NASA's scientific and exploratory missions?

Answer: The Administration has expressed serious concerns about the dramatic growth in recent years in the number and cost of earmarks in NASA's budget. Unrequested projects have grown from six projects with a total cost of \$74 million in fiscal year 1997 to 136 projects with a total cost of \$533 million in fiscal year 2002. This practice has the effect of exacerbating funding demands for other authorized activities, as well as diminishing the NASA's ability to make resource decisions and allocations across its programs. Especially troublesome are earmarks that restore funding to projects that have been canceled due to dramatic cost growth, which greatly hinders NASA's ability to control costs and make sound management decisions. This also has an inevitable chilling effect on agency initiative and is especially detrimental to NASA, where innovation and initiative in exploration and advanced research and technology have been hallmarks of its past progress. This is a serious issue that I believe must be addressed in a cooperative manner with the Congress.

Question 15. Background: NASA has experienced significant cost growth problems in many of its major programs, including the Space Station and the second-generation reusable launch vehicle demonstration. Many of the problems could be attributed to poor planning and program management. NASA has now initiated work on its Space Launch Initiative, which aims to demonstrate technologies leading to replacement of the Space Shuttle. The program is currently estimated to cost about \$4.9 billion through fiscal year 2006.

(a) What role do you see the private sector having in the Space Launch Initiative?

(b) In light of NASA's problems in controlling costs on previous programs, what will you do to ensure that the agency adequately defines requirements, prepares accurate program cost estimates and manages the program within established cost guidelines?

I believe the private sector can and should play the fundamental role in pursuing the Space Launch Initiative (SLI). This program has been designed with the lessons of past spacecraft and launch system development activities in mind and with the goal of lowering cost, improving reliability, and buying launch services from com-

mercial launch providers for all of NASA's launch needs, including human space flight.

Although promising steps have been taken to ensure strong requirements and cost analysis on SLI, the SLI program can also be the beneficiary of the cost and management reforms growing out of the current effort to address ISS and Space Shuttle cost and management challenges, as discussed in previous responses.

Question 16. This summer the Committee was informed of a \$218 million gap in funding for the Space Shuttle program. Under Director Goldin, NASA had considered canceling and deferring safety upgrades to the Space Shuttle fleet.

(a) Should NASA delay or cancel safety upgrades to the Space Shuttle in order to mitigate this funding shortfall?

(b) What factors will you consider as you decide which upgrades to cancel or defer?

Answer: I believe that Shuttle upgrades that provide worthwhile safety improvements and can be implemented in a timely way should be continued. Efforts to directly improve safety in Shuttle operations should be continued, by addressing concerns in the ground infrastructure supporting operations as well as process improvements, investments in personnel and potential safety enhancements to flight systems. In an era of constrained resources, our first priority must be to sustain safe operations. The selection of, and funding allocated to, upgrades must not result in accepting risks in operational safety or foregoing other investments that yield greater safety gains.

Question 17. This Committee is concerned that not a great enough priority is put on the maintenance of infrastructure at NASA Centers. At a hearing before this Committee in September, witnesses testified that improper infrastructure maintenance was adversely affecting safety and performance of the Space Shuttle. Will infrastructure maintenance be a major focus of NASA under your tenure?

Answer: As a general rule, if confirmed, I will seek to spend less agency resources on infrastructure and more on science and technology. That said, I believe it is vital to preserve the Nation's investment in important national assets under NASA's stewardship, and doing so will be an important priority for me, if confirmed. Additional support for infrastructure maintenance is being considered in the fiscal year 2003 budget formulation. Any additional investments in infrastructure maintenance will be made in the context of the ongoing Strategic Resources Review, and will be consistent with future decisions on space launch.

Question 18. One general public complaint about NASA is that its "glory days" of discovery are over. The Apollo landings of the late 1960s and 1970s are considered the apex of NASA's achievements in exploration. Do you believe that NASA should develop a new bold strategy for manned space exploration that will re-ignite the public's interest?

Answer: I share the enthusiasm for exploration and discovery, and I believe that NASA can, and should be in the forefront of this nation's future space exploration. But NASA can only do so if it is able to deliver on its current programs and commitments. The immediate and sustained focus must be on demonstrating convincingly that NASA has the ability to effectively and efficiently meet its current challenges. From that success will emerge a coherent vision characterized by science-driven strategic objectives rather than events.

Question 19. NASA currently has planned an ambitious schedule to continue greater exploration of the planet Mars, including missions every other year culminating in a mission that will return to the Earth with Mars soil samples in 2011 or 2014.

(a) Do you believe that this program is an important asset to NASA's science mission?

(b) What management changes should be pursued to prevent the problems which occurred with the Mars Climate Orbiter and Mars Polar Lander missions?

Answer: Given recent important discoveries regarding the potential for life at Mars and elsewhere in the solar system, NASA's Mars Exploration Program is a clear priority. The success of the current Mars Odyssey mission reflects well on changes that have already been implemented following the failures of the Mars Climate Orbiter and Polar Lander missions. If confirmed, I will ensure the continued implementation of the management reforms in this area, as well as the application of overall cost and management reforms to ensure continued success and accountability in these important missions.

Question 20. Background: GAO has reported that NASA's contract management is a continuing area of high risk, because the agency lacks effective systems and processes for overseeing contractor activities. For example, in a recently issued report on International Space Station cost limits, GAO found that NASA was unable

to provide auditors with detailed, transaction-based data to support the dollars obligated for the Space Station, and did not have support for the actual cost of completed Space Station components—either in total or by subsystem or elements. As a result NASA is not able to re-examine its cost estimates for validity once costs have been realized. A key effort to address these weaknesses is the implementation of a new integrated financial management system. Implementation of the system and its integration with full cost accounting have been delayed for several years, however, because of significant development and implementation problems. NASA has started its third attempt at developing such a system, after having spent \$180 million over 12 years on two failed efforts. Until the new system is operational, performance assessments relying on cost data may be incomplete.

(a) After two failed attempts, what is your expectation for fully implementing the Integrated Financial Management System?

(b) What type of management attention would you provide to this effort?

(c) Will NASA's new financial management system fundamentally change the way in which NASA tracks and uses cost information for activities such as estimating and controlling costs, performance measurement and making economic tradeoff decisions?

(d) What other steps would you take to enhance oversight of contract management activities?

Answer: I believe that NASA can enhance the probability of successfully completing its missions and mandates on schedule and within budget by establishing an effective integrated financial management system. Such a system can and will be effectively implemented. My previous experience and background has engendered in me an unyielding commitment to meet cost and management challenges of the kind described in the GAO report, and it will be my highest priority if confirmed as NASA Administrator.

As indicated in previous responses, it would be my intention to fully empower and utilize the office of the Chief Financial Officer to improve NASA's oversight over contract cost and schedule management that underpins budget formulation activities. In addition, I will, if confirmed, employ enhanced independent assessment capabilities to ensure compliance, accountability and accuracy in program estimation and management.

Question 21. Background: In the early 1990s, NASA's Administrator challenged the agency to design and implement projects faster, better, and cheaper. The goal was to shorten program development times, reduce costs, and increase scientific return by flying more and smaller missions in less time. Although NASA maintained a high success rate under this approach, a few significant mission failures occurred—particularly the loss of the Mars Polar Lander and Climate Orbiter spacecraft. NASA investigations of these failures as well as other program reviews raised concern that lessons from past experiences were not being applied to current projects and programs.

(a) Do you envision continuing the faster, better, cheaper approach in light of past problems?

(b) What would you do differently to avoid failures like the two Mars probes?

(c) What steps would you take to ensure that effective lessons learning and knowledge sharing take place across the agency?

(d) Do you see a need for more integration of NASA's Centers as a means to foster knowledge sharing?

(e) What initiatives do you think are needed to address cultural barriers that may inhibit collaboration and knowledge sharing among agency staff?

(f) What would you do to retain the institutional knowledge gained from past mistakes, given that NASA anticipates significant retirements in the next 3 to 5 years?

Answer: I believe "Faster" "Better" and "Cheaper" are appropriate metrics in assessing the merits of NASA missions. However, these metrics must also be balanced against mission risk. For example, compressed schedules and reduced costs can increase risk to unacceptable levels if not carefully measured and monitored. Accountability for cost, schedule and performance commitments, reliability and mission success—as ensured by having a clear picture of risk—are goals I would focus on, if confirmed as NASA Administrator. Among the early activities I would undertake as Administrator would be an effort to become fully informed of the lessons learned from recent mission successes and failures and examine the means by which those lessons are communicated and applied to programs across the Agency. I firmly believe that there should be one NASA, with consistent principles and appropriate balance of risks across the separate programs and Centers, and that lessons learned in one area are applied wherever else in the Agency they may be appropriate. It would be my intention to examine new methods of ensuring the "cross-fertilization" of ideas and experience across the agency and undertake such steps as staff-sharing

and exchanging as a means of enhancing cooperation and communications across Enterprises and Centers. I further believe that an aggressive effort of successor planning and mentoring can help ensure that knowledge and experience is more institutionalized than personalized and available to succeeding generations of leadership.

Question 22. It was recently announced that the Consolidation Space Operations Contract (CSOC) was running about \$500 million short of expected savings. Can you comment on how you propose to deal with this shortfall?

Answer: (See response to question 13, above.)

Question 23. If there will be less time for science on the ISS, how do you plan to modify the occupancy plan with respect to the international partners?

Answer: This is an area of obvious concern to our international partners and one that I would expect to address early on if confirmed as Administrator. I believe there is time to reach a mutually acceptable and beneficial solution with our partners on this issue. The current situation does not significantly change the previous occupancy plan until 2006. It would be my intention to get acquainted with our partners' representatives and begin the dialog necessary to reach an accommodation of the interests and capabilities of all members of the international ISS partnership.

Question 24. If access to the ISS will be more limited than set forth in current international agreements, what plans are there for modifying scheduled visits for international partners?

Answer: See my answer to question 23, above.

Question 25. If it is the Administration policy, and the widely-held view in Congress, that the severe funding challenges in the Space Station program should not affect programs outside the Human Space Flight area, then do you believe this view can be maintained given the current fiscal realities?

Answer: I believe that both the ISS and Space Shuttle funding challenges can and should be addressed solely within the Human Space Flight area. NASA must maintain a balance among its respective program areas, and a lack of discipline or management failure in one area must not be allowed to negatively impact another.

Question 26. On the Mars program, there are international commitments for the joint exploration of Mars with partners, namely France and Italy. Last month, NASA confirmed the terms of this exploration with France. Can you comment on the likelihood that these agreements will be maintained?

Answer: I do not yet have sufficient information regarding the specifics of these commitments or the prospects for the specific program elements to which they refer. As a matter of principle, I feel strongly that the U.S. should maintain its international commitments, but also believe that such commitments should be made in a manner which supports the best interests of the United States and a realistic assessment of the U.S. capability to meet its obligations under any agreement.

Question 27. What is your position on the Mars exploration program beyond 2007, as these missions will require extensive planning and financial obligations by each agency involved?

Answer: Planning for Mars missions in the next decade is an important activity to understand what key investments in technology should be made today to maintain a wide set of options. However, given the uncertainty as to the scientific discoveries and technological advancements we will obtain from Mars missions and investments this decade, Mars planning for the next decade cannot be static and should consider a wide range of potential scientific strategies and mission options.

Question 28. Some recommendations to NASA from the General Accounting Office, the NASA Office of Inspector General, various NASA Advisory Council organizations, the Aerospace Safety Advisory Panel, and special commissions are agreed to but never implemented. What steps do you intend to take to ensure that agreed upon recommendations and action plans are properly tracked and implemented?

Answer: As part of the cost estimation and management reforms described in previous responses, the maintenance and tracking of externally developed findings and recommendations is essential. If confirmed, I would take steps to emphasize the necessity of utilizing the body of knowledge represented by the product of these reviews and couple that with assigning clear responsibility for the maintenance and dissemination of the material produced as the result of the reviews conducted by such reviewing entities.

Question 29. The California Institute of Technology (Caltech) has operated NASA's Jet Propulsion Laboratory as the sole-source contractor since 1959. Would you consider opening some or all of the contract to competition when it comes up for renewal in 2003?"

Answer: I am not yet conversant with the specific terms of the Caltech contract, and cannot respond with specific comment. As a matter of principle, I am strongly

in favor of competition as a means of minimizing cost to the government and would, if confirmed, carefully consider the potential for competitive offering of portions of that, or any other, contract.

Question 30. What are your views on contracting out and commercializing additional functions at NASA in light of the present high level of contracted activities in NASA, and the difficulties NASA has experienced in some of its high-profile outsourcing efforts (e.g., SFOC, CSOC)?

Answer: The Administration position is clear regarding the need to maximize the opportunity for greater competitive sourcing and partnering efforts in the management of NASA programs, and I am a strong advocate for that position. What is essential is to identify the causal factors of the difficulties in previous and on-going efforts and to implement refinements and improvements to the process that can guard against those difficulties. I am confident that means can be found to enhance the effectiveness of competitive sourcing for those activities, and if confirmed would aggressively pursue those means.

Question 31. In recent years, the Agency has at times (e.g., the proposed launch of the X-37 on the Shuttle) taken a very broad view of the Commercial Space Act of 1998's mandate that NASA fly payloads on commercial launch vehicles unless the Shuttle's unique capabilities are required. Under your watch, what steps would you take to uphold the Commercial Space Act's mandate?

Answer: I support the intent of the Commercial Space Act to expand the use of commercial launch vehicles and capabilities. Given the anticipated changes in Space Station assembly and utilization and, potentially, a concomitant reduction in the Space Shuttle annual flight rate, as has been proposed by the IMCE, I believe the goal outlined in the Act becomes even more important. If confirmed, I would undertake steps to make the maximum effective use of the Space Shuttle's unique capabilities. I believe a significant outcome of that effort will be an increasing focus on the use of commercial launch capabilities.

Question 32. NASA has outsourced the ownership and management of its desktop computers. As a result, the Agency lacks insight into the security of its information. How do you intend to balance the goals of outsourcing in the IT arena with the need to protect NASA systems and data?

Answer: Activities underway by the NASA Office of Inspector General and the new Office of Security are addressing the IT security concerns and requirements. I believe it will be possible to identify and effectively implement the means of maintaining adequate security protection and realizing the savings inherent in outsourcing that portion of NASA's IT environment that is appropriately managed through such an outsourcing arrangement. If confirmed, I will actively monitor that effort to ensure that both goals are being accomplished.

Question 33. The Japanese government has announced its intent to become a world leader in the aerospace sector, and is in final testing of its H-2A rocket. How a great a competitive challenge is Japan to the U.S. space launch industry?

Answer: The Japanese have an efficient national space agency and a strong commitment to the development of their space launch industry. To the extent they are willing to provide governmental assistance to their private industrial base, they have the potential to be a serious competitor to the U.S. for launches within the payload capability of their launch systems. The U.S. commercial launch industry, in partnership with NASA and other Federal licensing and regulatory entities, should continue to carefully monitor the potential competitive situation in the worldwide launch services industry. To the extent NASA can continue in its privatization efforts and new launch vehicle and technology development efforts, such as the Space Launch Initiative, the agency can make an important contribution to enhancing the U.S. competitive posture within that global industry.

Question 34. There are some that say sufficient technology exists to support cheaper access to space. NASA needs can be met by use of current technology to build a low cost 2-stage reusable launch vehicle. If this is indeed the case, what are the merits of the Space Launch Initiative (SLI)? What are the impacts of SLI on small commercial startup launch companies?

Answer: The SLI program, as currently constituted, is intended to address precisely the question of risk reduction by developing and demonstrating technological and systems integration capability. It is the purpose of the program to validate technologies and systems design concepts that can be eventually applied to advanced vehicle design and development. Once risks are at acceptable levels and costs are well understood, new systems will be developed to launch both humans and cargo to and from space. Some small commercial launch companies are already participating in the first round of SLI awardees, and it is anticipated that the number will grow as the program moves forward. It can also be expected that successful technology

developments within the SLI program will be available to enable small startup launch companies an opportunity to participate in the development of alternative low-cost launch capabilities.

