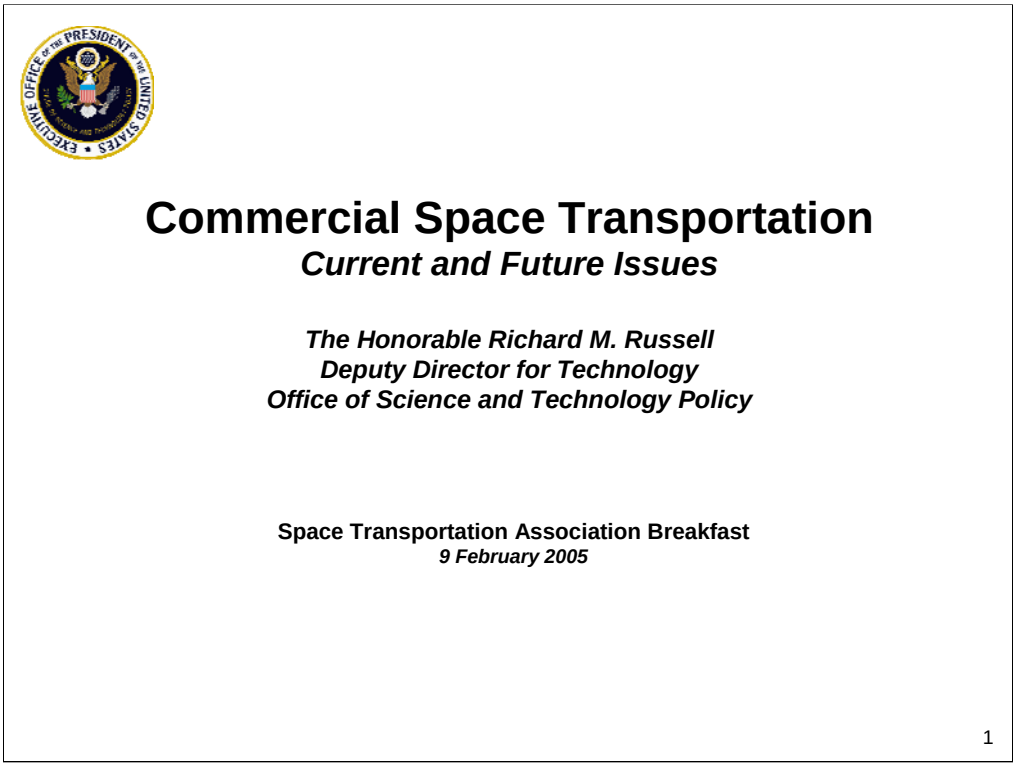
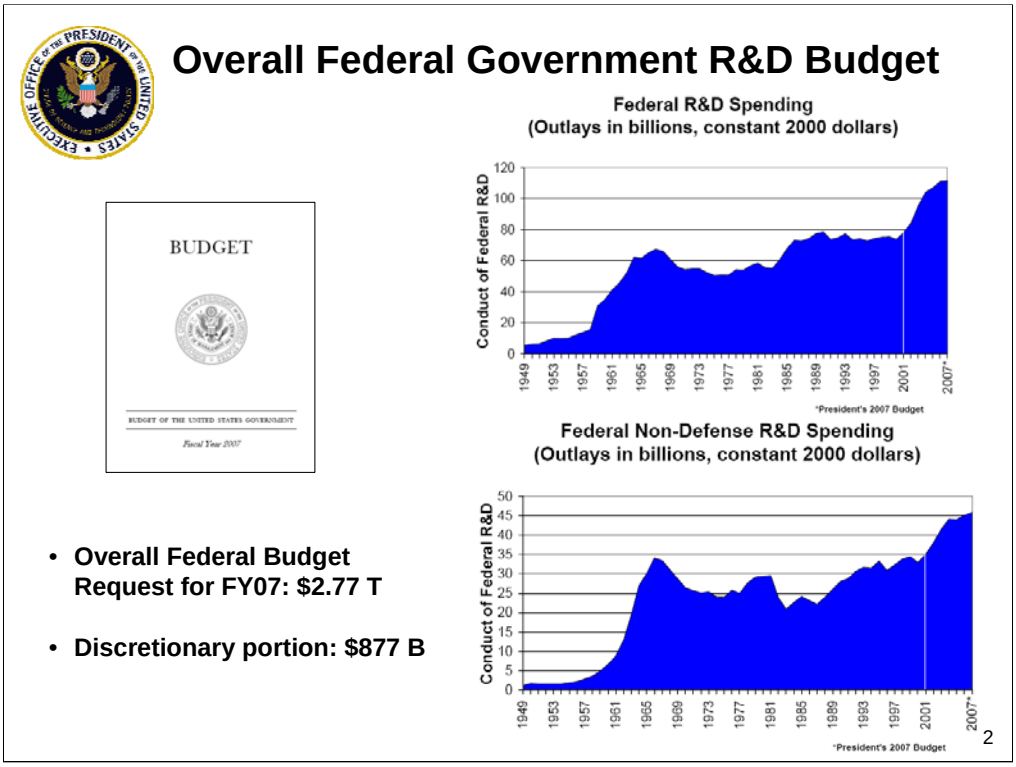
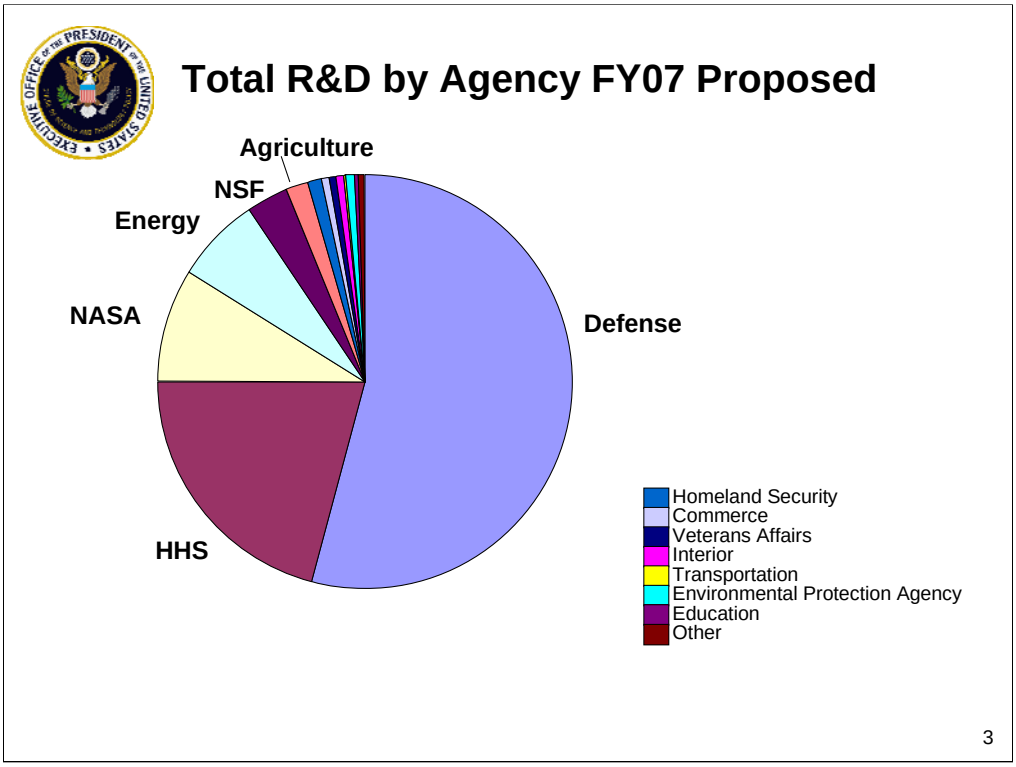


- I am very pleased to be here today, and I appreciate the invitation to speak to the Space Transportation Association. Much is happening in the commercial space transportation arena.
- As is well known to all of you, there has been an active commercial space launch industry in the U.S. for almost 20 years, producing benefits both for the economy and national security. But now we may be on the cusp of a new phase in this sector – including in the area of commercial human spaceflight activities.
- This is particularly notable in that the field of human spaceflight has historically been the realm of the government. However, due to a variety of factors (e.g., technology improvements, market demand, changes in law), exciting new developments are taking place that may enable this field – in some small fashion – to mirror the early developments in the field of aviation.
- But before discussing these new developments in commercial space transportation, I'd like to use this opportunity to update you on a few other developments of interest – namely the Federal budget, which was released this week. And I also would like to touch on some broader space policy issues.

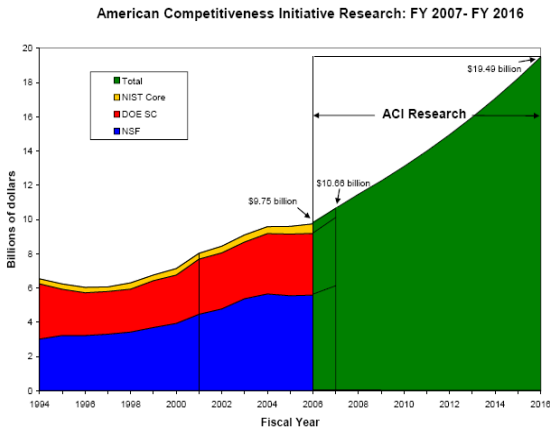


- First let's take a moment to discuss the proposed Federal budget.
- As you know, one of OSTP's principal roles is to advise the President on S&T issues, and to seek to ensure that the USG is pursuing sound policies in this area. Not surprisingly, a key area of interest for our office is the budget, and the emphasis it places on S&T activities.
- In this regard, the FY 2007 budget contains a great deal of good news.
- [Note $2.77 trillion for total budget - outlays]
- Of this total, the discretionary portion of the budget is $877 billion.
- Total federal R&D spending for FY07 is over $137 billion., a 50% increase from 2001. Also, this year's figure is up $3 billion compared to last year.
- "Mountain" charts are in constant 2000 dollars and reflect the "conduct of federal R&D" – meaning without funds for facilities. The upper chart includes DoD R&D, and the lower is without. In FY07 dollars, the FY07 budget requests $130.7 billion (upper chart), and $54 billion (lower chart).



- R&D budgets:
  - Defense is $74.2 billion
  - HHS is $28.7 billion
  - NASA is 12.2 billion
  - Energy is $9.2 billion
  - NSF is $4.5 billion
  - Agriculture is $2.0 billion
  - Homeland Security is $1.5 billion
  - Commerce is $1.1 billion
  - Others below $1 billion
- Total: $137.2 billion

Federal Government R&D Initiatives



- **The *American Competitiveness Initiative* commits $5.9 billion in FY 2007, and more than $136 billion over 10 years, to increase investments in research and development (R&D), strengthen education, and encourage entrepreneurship and innovation.**

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- In that context, I also would like to take a moment to highlight some important initiatives and efforts contained in this year's budget.
- For example, ***ACI:***
  - •$910 million (9.3%) increase in NSF, DoE Office of Science, and NIST core and $50 billion more over 10 years
  - •$86 billion in R&D tax credits over 10 years ($4.6 B in FY07)
  - •$380 million in new Federal support for education

Another important R&D funding area of interest to all of you is NASA's budget. This too is a very positive story. NASA's budget will grow 3.2 % in FY 2007 (not counting the emergency supplemental to address the effects of Hurricane Katrina) – to a total of $16.8 billion - in a very constrained budgetary climate for most agencies. And within that total, there is additional positive news.

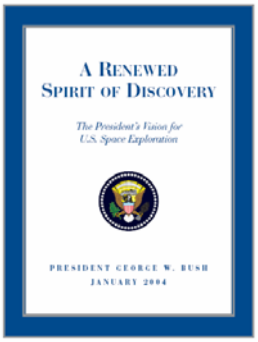
•Funding for NASA space science activities will grow 1.5 % in FY 2007 to $5.3 billion. This is an important point because space science remains a key element of NASA's overall program and an important objective for the Administration. 2005 witnessed several successful missions – Deep Impact and Stardust, as well as the launch of Pluto New Horizons – and more exciting missions are on the horizon.

•The budget also reflects $4 billion in funding to move forward energetically on exploration activities, including the development of the Crew Exploration Vehicle and other key architectural elements.

•And there is $6.2 billion in funds to continue assembling and operating the International Space Station, in a manner that meets the needs of our international partners and is useful for U.S. exploration objectives as well.

Space Policy Activities

- **Administration has been active on space policy**
- **President has released 4 space policies in the last 3 years**
  - **Commercial Remote Sensing**
  - **Vision for Space Exploration**
  - **Space-based Positioning, Navigation, and Timing**
  - **Space Transportation**



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• I mentioned earlier that I also wanted to summarize certain over-arching space policy activities.

• The main point I would stress today is that the last three years have been an extremely active period for the White House in terms of developing and releasing space policies. In that time frame the President has released sectoral policies on Commercial Remote Sensing (April 03); Space Exploration (Jan 04); Space-based Positioning, Navigation and Timing (Dec 04); and Space Transportation (Dec 04). And as you know, work continues on the development of an over-arching "National Space Policy" to replace the 1996 policy currently in place

•Implementing such policies is often as challenging as drafting them – if not more difficult – and much remains to be done in that area. Each of these policies lays out specific tasks and activities for agencies, and White House Offices are monitoring that process very closely.

• OSTP is deeply involved in the development and implementation of these policies. In that process we work very closely with a range of other key agencies and offices in the Executive Office of the President. It truly is a team effort, and one that I believe works very effectively.

Recent Presidential Policies Address Commercial Space Transportation

- **Space Transportation Policy (Dec. 2004):**
  - *"Encourage and facilitate the US commercial space transportation industry" to achieve various national objectives*
  - *"Secretaries of Commerce and Transportation shall encourage, facilitate, and promote US commercial space transportation activities, including commercial human space flight"*
  - *Other highlights – USG must purchase commercially available U.S. space transportation services as much as possible; need for timely and responsive regulatory environment, etc.*
- **President's Vision for US Space Exploration (Jan. 2004):**
  - *"Pursue commercial opportunities" for servicing the International Space Station and other missions*

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• These policies are of particular interest for this venue because they contain several specific provisions on the subject of commercial space transportation.

• For example -- the Space Transportation Policy notes the important goal of encouraging and facilitating commercial space transportation in support of U.S. national security, civil space, and economic interests.

•In addition, it requires USG agencies to purchase commercially available U.S. space transportation services as much as possible within the constraints of mission requirements and applicable law. It also addresses several other commercial issues, such as the need for a timely and responsive regulatory environment.

•Similarly, the Vision underscores the need to pursue commercial opportunities for missions such as space transportation services for the ISS.

New Commercial Space Launch Activities

- **The Administration supports the goal of a strong, dynamic domestic commercial space transportation sector:**
  - **Innovation**
  - **Benefits to national security**
- **At least three important factors for growth of such a sector:**
  - **Government policies and regulations**
  - **Market supply**
  - **Market demand**
- **Role of incentives such as prizes**

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- So where does that leave us in terms of facilitating the growth of the commercial space transportation sector generally, and especially the new arena of commercial human spaceflight?
- First, it is clear from the preceding chart that the Administration strongly supports the basic goal of a strong, dynamic U.S. commercial space transportation sector. There are well-known benefits of such activity in terms of innovation, national security, and the nation's economy. And this type of top-level Administration support is certainly not a bad place to start.
- But it also is not enough. There are at least three major factors that will fundamentally impact the growth and robustness of this sector -- and they will not surprise an informed audience such as this. Those factors are government policies and regulations (which we have addressed in part), and the familiar elements of market supply and demand.
- Here I would like to distinguish between the traditional market for commercial launches of GEO communications satellites, or remote sensing satellites, and the emerging commercial human spaceflight sector. The former is reasonably well established and understood. It is facing significant over-supply globally and serious competitive pressures, but, at the same time, there are several established, proven players in this market and demand has been reasonably predictable.
- I would like to focus now on the emerging commercial human spaceflight sector. This sector is intriguing because only now are government policies and regulations beginning to come into focus, and the sector clearly is in its infancy with regard to supply and demand. This means that it both has great potential and great uncertainty.
- On the supply side, there recently has been a major upswing in the number of entrepreneurial companies that are developing capabilities for:
  1) supplying cargo (and ultimately ferrying crew) to the International Space Station;
  2) suborbital flights with humans onboard; or even
  3) More traditional commercial launch services.
- One of these craft, Spaceship 1, recently became the first privately-built vehicle to reach the lower edges of space – a major accomplishment.
- The presence of so many possible players makes it clear that interest is high. But it is hard to say how many can survive or succeed.
- Which brings us to the issue of demand. There appear to be two major sources of demand at the present time:
  - The US government's need for cargo and crew services for the ISS – as well as a more general need for responsive small launch vehicles.
  - Sub-orbital tourism market – as evidenced by Richard Branson's launch of Virgin Galactica for suborbital tourist flights
- These are a work in progress and the market characteristics are only partly understood. We can safely say that demand exists, but whether it is sufficient, we can not say…
- This uncertainty makes innovative concepts such as "prizes" all the more important at this early stage of the sector's development. Here I am referring to things such as the $10 million Ansari X-Prize prize won by Spaceship 1, or NASA's Centennial Challenges (aimed more at component-level technologies). We support the concept of such efforts and believe they could be very important to the ultimate success of this sector.

Support for Commercial Space Transportation Activities -- NASA

- **Commercial Orbital Transportation Services (COTS) Demonstrations (RFP released Jan. 2006)**
  - **Delivering cargo to and from the ISS**
  - **Crew transportation**

- **Ultimate goals are to achieve reliable, cost effective, commercial access to low Earth orbit, and to create a market environment in which commercial space transportation services are available to government and private sector customers**

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• I noted earlier that government sources of demand will be important, and that the ISS servicing mission is particularly significant in this regard. NASA already has initiated a procurement process for such services, with an emphasis on ISS cargo servicing and eventually even crew transportation, if operators can demonstrate an acceptable capability in this regard. I want to emphasize that this activity relates directly to the commercial goals outlined in the Vision.

• Even more to the point, NASA's efforts to provide opportunities to the commercial sector for cargo and crew delivery to the ISS are important to the Vision over the longer run.

• Some Facts:

– Responses to NASA's COTS RFP are due by mid-March 2006.

- NASA's budget supports COTS demonstrations at the level of $91M for FY07, and $500M over the five-year period.

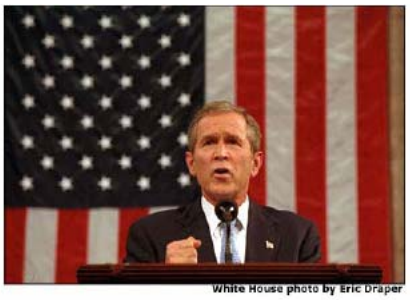
• In addition to supply and demand, another major piece of the puzzle is the regulatory environment. Here, as well, significant progress has been made in recent months.

• Congress added some momentum to the process through the **Commercial Space Launch Amendments Act** of 2004. This statute authorized the FAA to regulate the commercial human spaceflight sector primarily to protect the public and the public interest.

•For the next 8 years, the FAA can regulate space vehicles to ensure crew and passenger safety only if the operation of those vehicles result in death, serious injury, or a dangerous close call. After 2012, the FAA may regulate space vehicles as it sees fit.

•The FAA is working on a number of rules.

•The **Human Space Flight Requirements for Crew and Space Flight Participants** NPRM balances the requirements to ensure public safety without over-restricting activity in this nascent field. Two additional NPRMs are also in progress. 1) **Experimental Permits for Reusable Suborbital Rockets; and 2) Licensing and Safety Requirements for Launch.** These future NPRMs will attempt to be flexible and not place unreasonable burdens on growth in this sector. This is the approach urged by Congress and we believe it is the right one.



White House photo by Eric Draper

"The role of government is not to create wealth; the role of our government is to create an environment in which the entrepreneur can flourish, in which minds can expand, in which technologies can reach new frontiers."

--President George W. Bush

July 12, 2002

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There are great opportunities and challenges ahead for commercial space transportation including commercial human space flight. Clearly the Government has an important role. However, if we are ever to have the kind of dynamic commercial space flight industry we all want, it will only occur through private sector risk taking. As the President has stated…..

The Administration is committed to establishing that environment. It will ultimately be the private sector that will take us to the new commercial frontier.