

COMMERCIAL CREW

National Aeronautics and
Space Administration



Commercial Crew Transportation

NASA's Commercial Crew Transportation Capability (CCtCap) contracts bring the United States one step closer to launching crew. Commercial transportation to and from the International Space Station will provide expanded utility, providing for additional research and discovery on the orbiting laboratory. The International Space Station is critical for NASA's continued research for understanding and overcoming the challenges of long-duration spaceflight necessary for the journey to Mars.

GOAL: Facilitate the development of U.S. commercial crew space transportation systems to provide safe, reliable, cost-effective access to and from the International Space Station and low-Earth orbit from America.

- Transport pressurized scientific research and cargo and increase the station crew, enabling twice the amount of scientific research to be conducted.
- By encouraging private companies to provide human transportation services to and from low-Earth orbit, NASA can expand its focus on building spacecraft and rockets for deep space missions on our journey to Mars.

SAFETY:

- Crew safety is paramount.
- Systems must meet NASA's rigorous safety standards for human spaceflight.
- Robust NASA insight into safety and performance.

MULTIPLE CONTRACT AWARDS:

- Maintains competition and provides more options and flexibility for the agency.

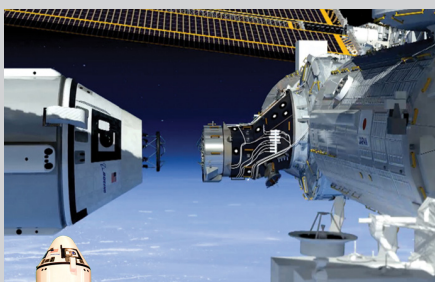
CONTRACT TERMS:

- FAR-based firm, fixed-price contracts; both providers must meet the same NASA requirements.
- Components:
 - Certification: Five mandatory milestones, including a crew flight test to ISS with a NASA astronaut to validate system performance.
 - Post-Certification Missions (PCMs): Five mandatory milestones; guaranteed order of two missions per award; maximum order of six missions per award.
 - Financing Milestones: Each contractor proposed interim milestones to demonstrate meaningful progress in the development and certification of its crew transportation system.
 - Special Studies and Analyses

FY 2016 BUDGET REQUEST:

The FY 2016 request of \$1,243.8 million for commercial crew is critical to program execution; if less funding is received NASA will need to delay milestones for both providers, resulting in possible contract cost adjustments and delays in certification.

PROVIDERS



Boeing

Spacecraft:
CST-100

Launch Vehicle:
ULA Atlas V

Height:
171 Feet

Launch Pad:
**Space Launch
Complex 41**

Destination:
**International
Space Station**

Maximum potential value:
\$4.2B



SpaceX

Spacecraft:
Crew Dragon

Launch Vehicle:
Falcon 9 v1.1

Height:
208 Feet

Launch Pad:
**Launch
Complex 39A**

Destination:
**International
Space Station**

Maximum potential value:
\$2.6B



Commercial Crew Benefits

Cost-Effective

Developing safe, reliable crew transportation to ISS that reduces reliance on foreign systems.



SPACEX CREW DRAGON & BOEING CST-100

\$58 MILLION
per seat



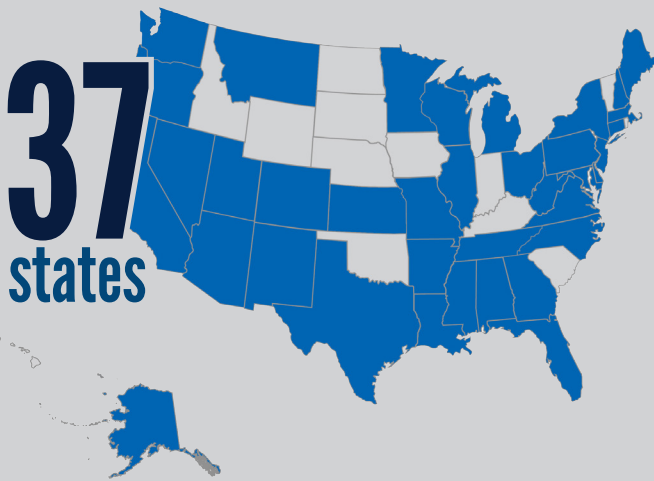
RUSSIAN SOYUZ

\$76 MILLION
per seat

After certification, the U.S. will have developed two new, independent, human space transportation systems for less than \$5 billion.

American Ingenuity

Lowering the cost of access to space and enhancing the U.S. industrial base.



NASA's Commercial Crew Program partner companies, and their providers and suppliers, are leading a truly national effort. More than 150 companies across 37 states are applying their most efficient and innovative approaches to get astronauts back into space on American-led spacecraft and rockets. American companies have the flexibility to determine the design details and development approach for state-of-the-art U.S.-based transportation systems to and from ISS and to develop other space markets in low-Earth orbit.

Journey to Mars

Using limited resources wisely to enable deep space capabilities.



NASA is on a dual path for human exploration. By turning over low-Earth orbit flights to the commercial aerospace industry, NASA can pursue the challenges of deep space exploration and our journey to Mars.

Focus on Science

2X more time
for research



- The ISS crew spends about 35 hours each week conducting research in Earth, space, physical and biological sciences to advance scientific knowledge for the benefit of people living on Earth.
- NASA requires these spacecraft to carry a crew of 4, enabling the ISS crew to expand from 6 to 7 astronauts and cosmonauts.
- It only takes 6 crew members to maintain the ISS, so an extra person translates to 40 additional hours of crew time for research.

**Transforming Human Spaceflight
for Future Generations.**