Why Commercial Crew?

- Commercial crew is integral to the NASA human spaceflight strategy
  - Full utilization of the International Space Station
    - Requires assured access and a commitment to research
  - Exploration beyond LEO
    - Requires the development of the SLS and MPCV
  - Commercial Crew to provide safe, affordable LEO transportation
    - Reduced cost required for reliable LEO transportation enables additional resources to be applied to exploration and ISS utilization
Leveraging Demonstrated Human Spaceflight Success with Innovative Approaches Across Boeing
Commercial Crew Transportation System (CCTS)

- Complete transportation system
  - Commercial Crew Vehicle
  - Launch Vehicle
  - Ground Operations
  - Mission Operations
  - Recovery

- Design objectives dictate uncomplicated systems and proven components
  - Safe and reliable
  - Low development risk
  - Low recurring cost

- Compatible with a variety of launch vehicles
  - Have down selected to Atlas V for initial flight tests and verification

- Operational in 2015

Boeing CST-100
Partners & Subs
- Bigelow Aerospace
- PWR
- Airborne Systems
- ATK
- Spincraft
Mar 2010 – Awarded CCDev
- Retire risk through demos
- Mature design to SDR
- Completed all milestones

Apr 2011 – Awarded CCDev2
- Demos to further retire risk
- Mature design to PDR

Full Crew Transportation Capability to Support NASA Missions Starting in 2015

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Commercial Crew Development (CCDev)
Achieved All Program Milestones

Heat Shield Fab
Abort Thruster Hot Fire
Integrated AR&D Sim
Arc Jet Test
Pressure Vessel Structural Test

Life Support Demonstration
Crew Module Mockup
Landing Drop and Rollover

Significant Progress with $18M Government Investment over 9 Months
CCDev2 Performance Milestones

Space Exploration | Commercial Crew Transportation

Design Maturation through System Preliminary Design Review

- Lightweight Launch Abort Engine Fab and Test
- Landing Airbag Drop Demonstration #1
- Phase 1 Wind Tunnel Test
- Service Module Propellant Tank Development Test
- Launch Vehicle Emergency Detection System/Avionics and Software Integration Facility Interface Simulation Test
Commercial Crew Enables:

- Safe, Affordable Crewed Access to Low Earth Orbit (LEO) and Space Station
- Utilization of International Space Station
- NASA-led exploration beyond Low Earth Orbit (LEO)