Commercial Crew Program Status for the NAC

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• The objective of the proposed commercial crew initiative is to facilitate the development of a U.S. commercial crew space transportation capability with the goal of achieving safe, reliable, and cost effective access to and from low-Earth orbit (LEO) and the International Space Station (ISS).

• The Commercial Crew Program (CCP) intends to use a non-traditional acquisition and partnering approach.

• Competition is a fundamental aspect of the strategy: incentivizes performance, supports cost-effectiveness, and eliminates NASA dependence on a single provider.

• The 2010 NASA Authorization Act established commercial crew as the primary means for ISS crew transportation.
Commercial Crew Development CCDev2

- Four Partners.
- ~$270M in Space Act Agreements.
- 12 of 40 milestones completed to date.
- Planned completion by May 2012.
- 3 of the 4 Partners will achieve an internal integrated PDR level of maturity.
- 1 of the 4 Partners will achieve an internal SRR level of maturity.
Acquisition Strategy Evolution

• Initial indications established Space Act Agreements (SAAs) as a potential instrument to meet Commercial Crew Program and industry needs.

• CCDev1 and CCDev2 utilized funded SAAs to allow for Government investment in early commercial concept development and element design.
  – These SAAs were awarded to stimulate efforts to further commercial human spaceflight services
  – Allowed Industry to make progress while NASA determined best approach for detailed design, development, and certification

• In developing a recommendation for the Agency, the CCP evaluated every possible option to use SAAs.
  – Several key limitations of SAAs were discovered
  – Mitigations were thoroughly examined
  – Recognized industry concern with Cost Accounting Standards and other requirements prescribed by Federal Acquisition Regulations (FAR)
NASA SAA Limitations

• Requirements and Certification
  – Inability to levy certification requirements – could only be reference
  – Even as reference, NASA could NOT:
    • Tie milestone progress and payments to compliance
    • Formally evaluate compliance or non-compliance
    • Approve tailoring, exemptions, or waivers for future phases
  – Ultimately, NASA could not formally accept the verification of requirements using SAAs, which is necessary for certification

• Proposed mitigations could not be fully implemented
  – ‘Gap analysis’ and ‘risk assessments’ for NASA missions deemed to go beyond ‘public purpose’ under a funded SAA

• Data rights limitations under an SAA made a phased competition problematic
COTS Cargo and CCP Differences

• None of the COTS Cargo objectives includes anything about NASA’s ISS cargo delivery requirements.
  – Implement the U.S. Space Exploration policy with investments to stimulate the commercial space industry
  – Facilitate U.S. private industry demonstration of cargo and crew space transportation capabilities with the goal of achieving safe, reliable, cost effective access to low-Earth orbit (LEO)
  – Create a market environment in which commercial space transportation services are available to Government and private sector customers.

• In contrast, the CCP objective explicitly states NASA’s need for ISS crew transportation.

• In addition, the 2010 NASA Authorization Act established commercial crew as the primary means of ISS crew transportation, further strengthening NASA’s requirements as an objective of the Program.
Proposed Program Strategy

• The current proposed strategy would use a contract instrument that combines the best elements of SAAs with the features of a contract that allow NASA to approve tailoring of requirements and certify the vehicle for NASA missions
  – Milestone based payments with fixed government investment
  – Utilize FAR exemption for all Cost Accounting Standards requirements
  – Maximize industry retention of intellectual property rights
  – Encourage partners to market products to other customers
  – NASA control at the “Certification Requirements” level only
    • Provide approval, tailoring, and exceptions/waivers of Industry’s implementation in a crew transportation system
    • NASA will not dictate design solutions

• This proposed strategy matches the work scope and risk posture within budget and schedule constraints
## Current Proposed Strategy

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Initial ISS Missions
Differences in Approach

**Traditional NASA Development**
- Goal: ISS Crew Mission
- Extensive Government Oversight
- Detailed Design Requirements
- Large Sustaining Engineering
- Full Reporting Requirements
- Unlimited Data and Deliverables
- Higher Costs

**Non-Traditional Development**
- Goal: Commercial Human Transport
- Limited Insight/Oversight
- Tailored Human-Rating Requirements
- Streamline Sustaining Engineering
- Minimal Reporting Requirements
- Limited Deliverables
- Lower Costs

**Traditional Contract**
- No Cost Sharing
- Requirements & Certification Mgmt
- Government Cost/Schedule Risk
- Full Cost Reporting
- Government Owns IP
- Full Government Involvement

**Non-Traditional Contract**
- Cost Sharing
- Requirements & Certification Mgmt
- Shared Cost/Schedule Risk
- Minimal Cost Reporting
- Negotiable IP
- Tailored Government Involvement

**Space Act Agreement**
- Cost Sharing
- No Requirements & Certification Mgmt
- Shared Cost/Schedule Risk
- No Cost Reporting
- Provider Owns IP
- Limited Government Involvement
# Acquisition Strategy – Path Forward

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Conclusion

• All the original key program attributes are being maintained in the new proposed acquisition strategy

• There are currently two organizations in the world that can transport people to low Earth orbit – the governments of Russia and China.

• As the primary means for the U.S. to launch crew to low-Earth orbit, the Commercial Crew Program will:
  – End the gap in U.S. human access to space and NASA’s dependence on Soyuz
  – Give us assured access to the International Space Station
  – Strengthen America’s leadership in space
  – Allow NASA to focus on exploration, enabling us to go further, faster

• By pushing the boundaries of private enterprise and commerce into