



NASA Perspectives on
Space Industrial Base and Supply Chain
to
Supply Chain 2010 Conference

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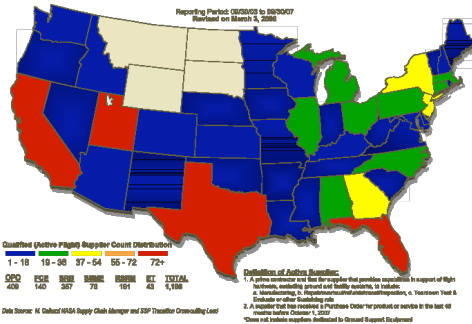
- The health of the space industry is vital to all of NASA's missions as well as to the nation (space leadership, new science, innovation, competitiveness, industrial growth and economic well-being)
- The historic, current and emerging relationship (teamwork / partnership) between NASA and industry continues to produce our nation's space systems for human and science exploration
- However, the changing landscape / environment for the space industry and their suppliers (thinning of the U.S. Industrial base, globalization of the industry, etc.) has raised concern
 - NASA and other government departments and agencies are becoming more focused on how it affects the formulation and management of space systems development (diminishing domestic sources / capabilities and other supply chain risks, use of foreign suppliers and export control concerns, rise of counterfeit parts, etc.)
 - Questions we face: What is the roles of the NASA projects, prime contractors and domestic suppliers in maintaining and growing a vibrant, world-leading national capability for space exploration; What should or can be done by NASA programs/ projects to address supplier risks and challenges?



- NATIONAL SPACE POLICY *of the* UNITED STATES *of* AMERICA, JUNE 28, 2010
- National Aeronautics and Space Administration Authorization Act of 2010, Oct. 11, 2010
- Redirection of Space Flight strategy creates new challenges for NASA's industrial base.
 - It is important that we maintain industrial capabilities that are critical for production of future NASA spacecraft and launch vehicles.
 - We must make decisions about maintaining difficult-to-replace NASA facilities and capabilities (such as production of fluids and propellants).
 - We must define relationships between NASA and commercial crew and cargo delivery service providers to provide confidence that NASA needs will be met.
- For future programs we must ensure that necessary contractual requirements are established and communication mechanisms emplaced to provide timely information about potential supply chain disruptions.

Space Shuttle Program/Retirement Impacts

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1,200 Active Suppliers in 46 States

Major Production, Operations, and Testing Facilities Across the Country



Skilled Team of 1,200 Civil Servants and 9,200+ Prime Contractors

Important Customer for Unique National Capabilities



1.2M+ property line items and equipment at government and contractor sites nationwide valued over \$12 billion

Transatlantic Abort and Emergency Landing Arrangements on 6 Continents



Constellation Program Status/Transition Impact

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- **2005 Start, ~\$10B Invested (\$3.9B planned in FY10):** Development of elements for access to LEO for ISS (Initial Capability) and a Human Lunar Return Capability
- **8 projects** to design, develop, and execute US Space Exploration Policy:
 - Orion, Ares (I & V), Ground Operations (GO), Mission Operations (MO), Lunar Lander, Lunar Surface Systems (LSS), Extravehicular Activity (EVA). Hardware dev ongoing in all
- **6 Prime Contracts:** ATK, Lockheed, Boeing, PWR, and Oceaneering
 - 160+ program-related contracts (not including sub-contracts) across US
- **Locations:** Content across all 10 NASA Centers, 23+ States in FY10
- **Workforce:** 2,867 FTEs and over 8,651 Support Contracts Personnel in FY10
- **Facilities:** 2,000+ with 57 facility projects complete or under construction

Initial Capability

Orion Crew Vehicle

Ares I Launch Vehicle

Launch Suit

Ground & Mission Operations

National Capability

Map showing project locations across the United States, including facilities like Alliant Techsystems, Inc., Lockheed Martin, Boeing, White Sands Test Facility, Oceaneering (pending), and Michoud Assembly Facility.

Lunar Capability

Ares V Launch Vehicle

EVA

Surface Systems

Altair Lunar Lander

Combined Impact of Shuttle & Constellation Transitions is HUGE



Assessing impact of Constellation Transition on partners and space industrial base

Current Efforts

- Inter-Agency Solid Rocket Motor task force, OUSD(I) lead, NASA supports
- Released Department of Commerce industrial base survey of 1500 suppliers
- Initially mapped supply base commonality: NASA, MDA & USAF (On-going)
- Interagency Discussion/Coordination (DoD, MDA, NRO) at all levels
- Top Areas include: SRM IB, Propulsion & Launch, Ranges, DoD Support

Next Steps

- Analysis of common suppliers to determine impact & criticality
- Launch and Assess NASA Department of Commerce survey
- Complete Supply Chain Interoperability pilot projects



Department of Commerce (DoC) Space IB Survey

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- DoC Bureau of Industry and Security (BIS) surveying 1500 NASA human space flight (HSF) suppliers to:
 - Assess impact of Shuttle retirement and Constellation transition
 - Determine health and competitiveness of the U.S. HSF supply base
 - Identify potential industrial capability gaps for NASA's new focus areas
- Timeline: Results to be released by end of 2010

Study Element	Area Includes
Company Information	Location, POCs, Business Description
Product & Service Type List	Standardized nomenclature
Relationships	Mergers & Acqs, Joint Ventures, Competitors, Suppliers
Operations	Production Capacity Utilization, SCM, Machinery/Tooling/Facilities
Financial Health	Financial Statements, Top 10 Customers, Export Sales
Employment	Personnel Numbers, Personnel Skills/Description
Research & Development	R&D Expenditures, Funding Sources, Partnerships
Investments	Capital Expenditures and Future Projections/Outlook



- NASA has begun to identify the top industrial base risks and challenges facing the space industry in fulfilling NASA missions
 - Assessed during Acquisition Strategy Meetings
 - Established an Agency Supply Chain Management Team to sharpen the focus on Supply Chain Management issues as well as coordinate inter-agency cooperation with other government departments and agencies.
- Conferences such as this and your input is vital for:
 - Current NASA HQ initiatives / thinking / approach for addressing industrial base / supply chain management challenges and risks
 - As well as opportunities / ways to make a difference as we move forward
- Help us define the future for industrial base / supply chain management at NASA