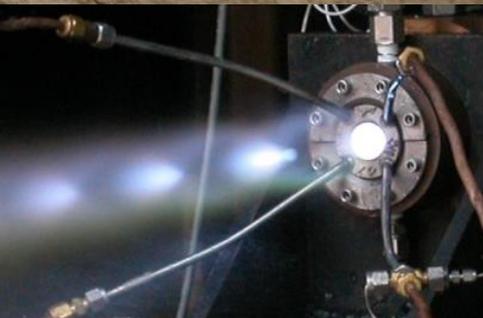


AEROJET **ROCKETDYNE**



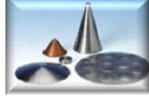
IDEAS POWERING FREEDOM
2015

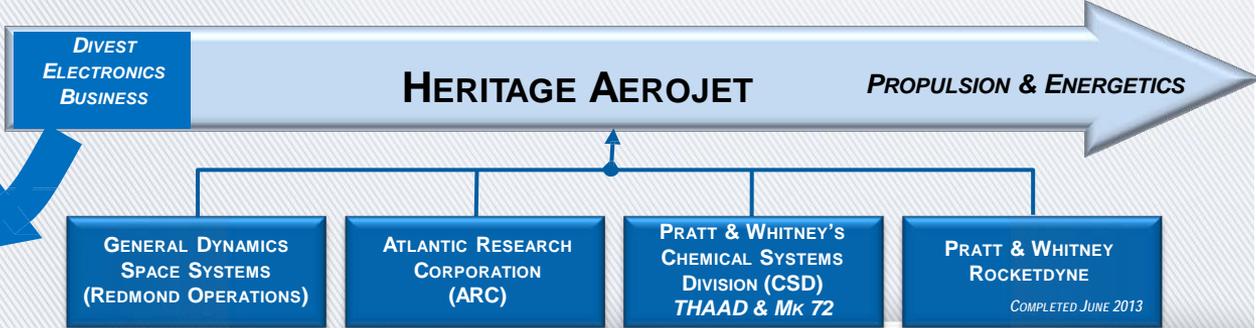
CORPORATE GROWTH

NET SALES DOLLAR AMOUNTS
SHOWN IN MILLIONS



CURRENT BUSINESS UNITS

-  SPACE LAUNCH SYSTEMS
-  TACTICAL SYSTEMS
-  MISSILE DEFENSE AND STRATEGIC SYSTEMS
-  SPACE SYSTEMS
-  SPECIALTY METALS
-  SPACE ADVANCED PROGRAMS
-  DEFENSE ADVANCED PROGRAMS

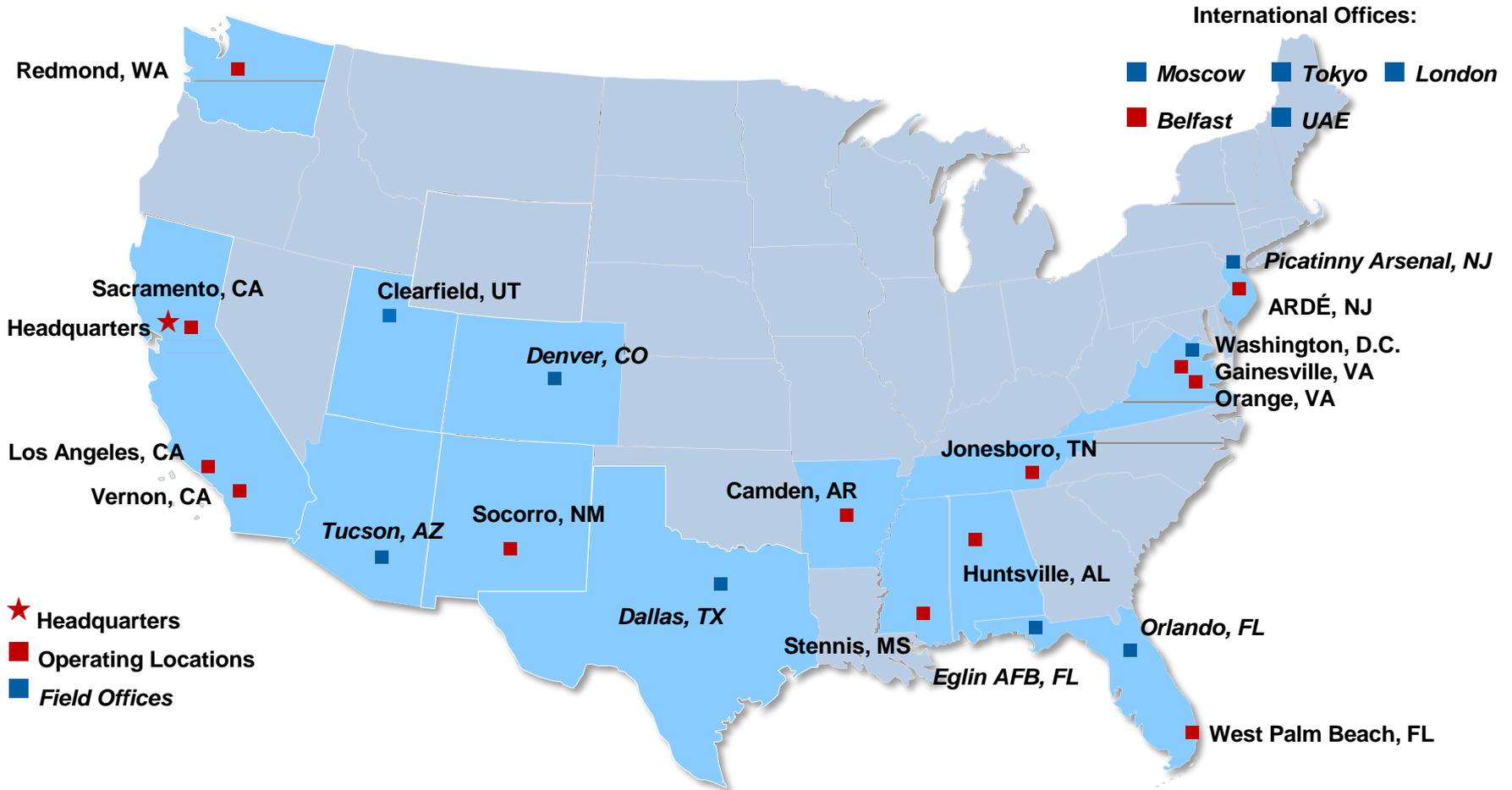


COMPLEMENTARY ACQUISITIONS

**A GROWING COMPANY
FOCUSED ON AEROSPACE AND DEFENSE**



Aerojet Rocketdyne Footprint

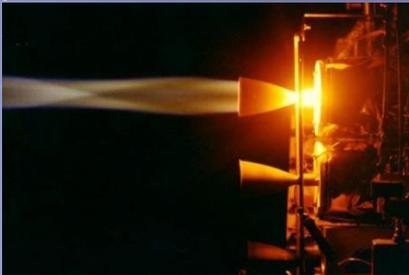


More than 5,000 Employees Across 14 States

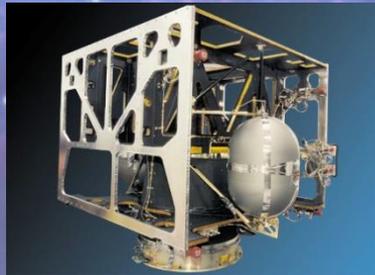
Aerojet Redmond Operations



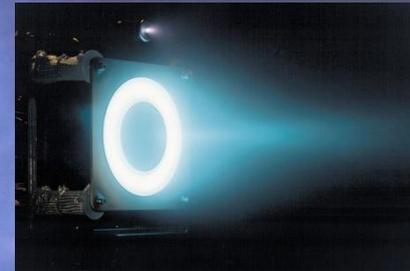
Hydrazine Thrusters



Bipropellant Engines



Propulsion Systems



Electric Propulsion



Space Electronics

Redmond Operations

Established on this site in 1968 as Rocket Research, Inc.

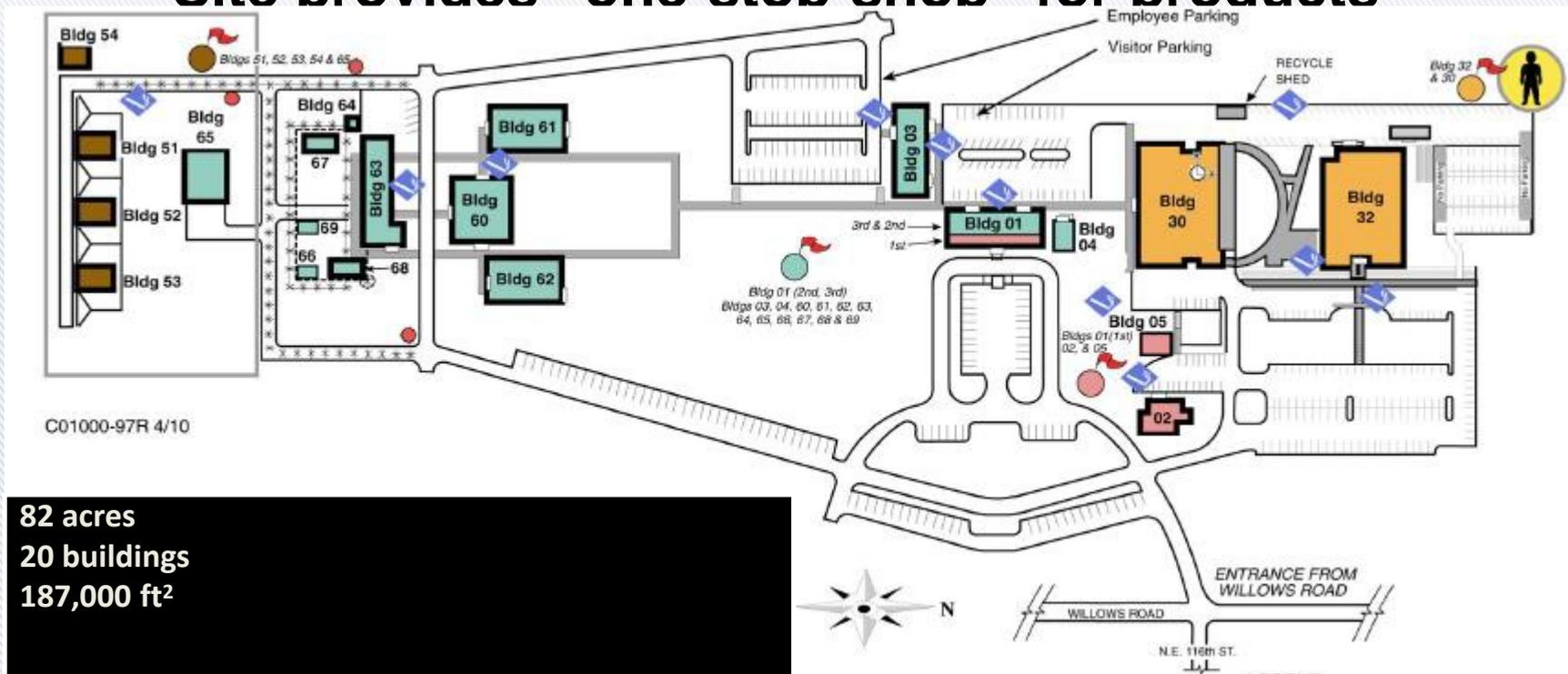


>520 Employees

- **Engineers & Scientists 40%**
- **Technicians 24%**
- **Administrative 36%**

Redmond Operations Description

Site provides “one-stop-shop” for products



Entire Product Lifecycle

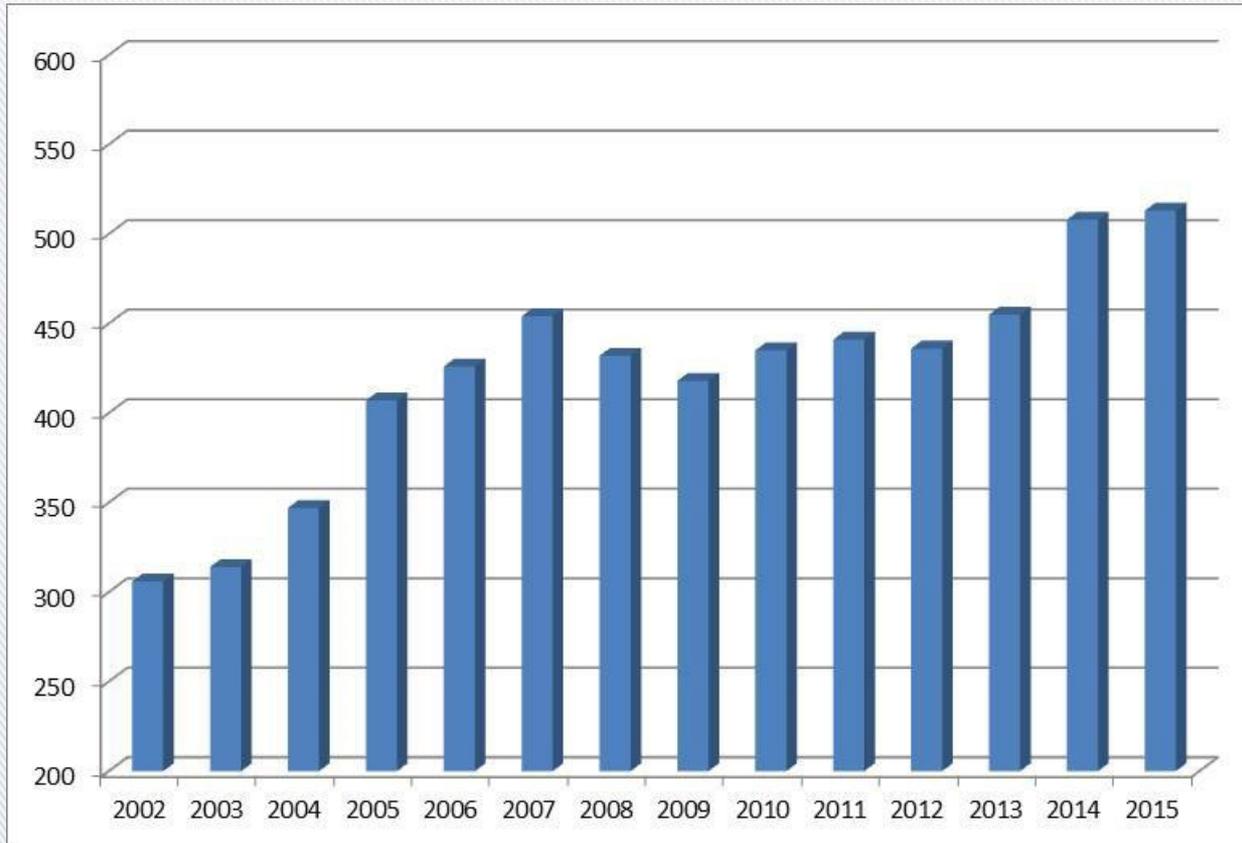
- Requirements Assessment
- Design and Analysis
- Procurement, Fabrication and Assembly
- Test and Evaluation
- Delivery

REDMOND SPACE SYSTEMS

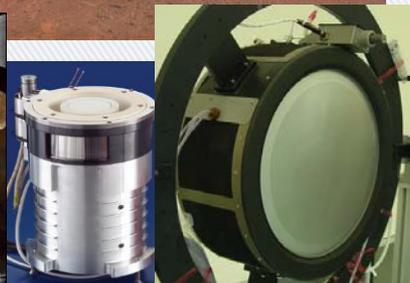
- ▶ **Global Leader for In-Space Propulsion Systems:**
 - **>15,000 Flight Chemical Rocket Engines Delivered**
 - **>550 Flight Electric Propulsion Engines Delivered**
 - **Provided propulsion on >90% of NASA spacecraft flown**
 - **Rockets from Redmond Engines Have Visited Every Planet**
 - **Only Interstellar Propulsion System!**
 - **Provides propulsion to all commercial satellite propulsion primes in U.S., Europe and Japan**
 - **Provided 100% of propulsion on every GPS satellite flown over last 30 years (>1,500 rocket engines)**
 - **Leading the industry in shift to new electric and green propulsion technologies**

***AEROJET ROCKETDYNE REDMOND IS LEADING INNOVATION AND PRODUCTION FOR
IN-SPACE TRANSPORTATION SYSTEMS***

REDMOND EMPLOYMENT GROWTH



~70% INCREASE IN REDMOND EMPLOYMENT SINCE 2002



Human Space Programs

- Shuttle
- Orion (multi-site)
- ISS Resupply (Commercial & International)
- Commercial Crew Development (Boeing & SNC)

Exploration Programs

- Lunar
- Mars (All U.S. Missions)
- Interplanetary (Every Planet Including Pluto)
- Earth Observing (e.g. STEREO, THEMIS)
- Every Discovery Mission

Innovation

- Green Propulsion
- 3D printed Cubesat Propulsion systems
- NASA Evolutionary Xenon Thruster System (NEXT)
- 100kW Nested Hall Thruster systems
- Integrated Solar Electric Propulsion Systems



Programs

- Advanced Extremely High Frequency (AEHF) Satellites
- Global Positioning System (GPS) (All Blocks)
- Wideband Global Satcom (WGS)
- Mobile User Objective System (MUOS)
- Space Based Infrared Satellites (SBIRS)
- Classified (multiple)

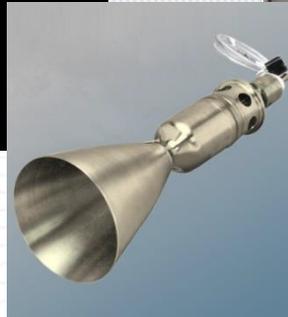
Innovation

- Advanced Hall Thruster systems
- Green high-performance monopropellant



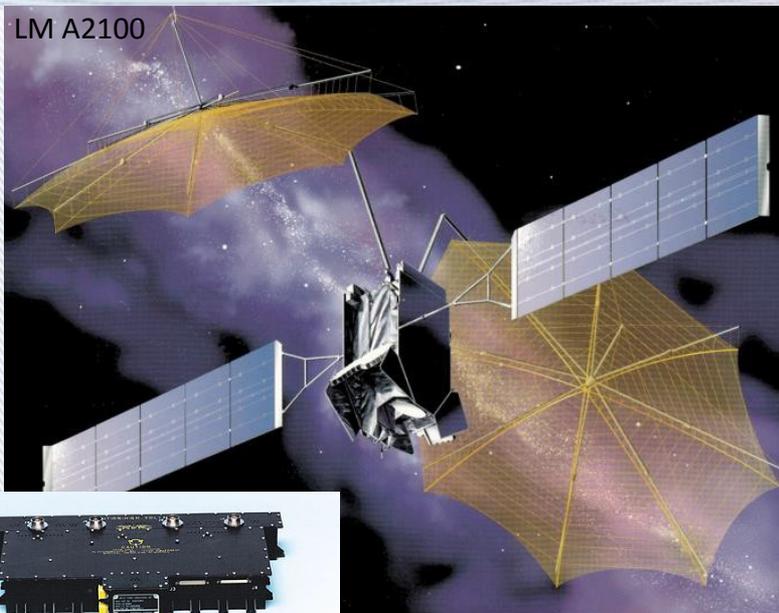
Programs

- Geostationary Operational Environmental Satellites (GOES)
- DMSP, TIROS, NOAA
- National Polar-orbiting Operational Environmental Satellite System (NPOESS)
- LANDSAT



COMMERCIAL COMMUNICATIONS SATELLITES

LM A2100

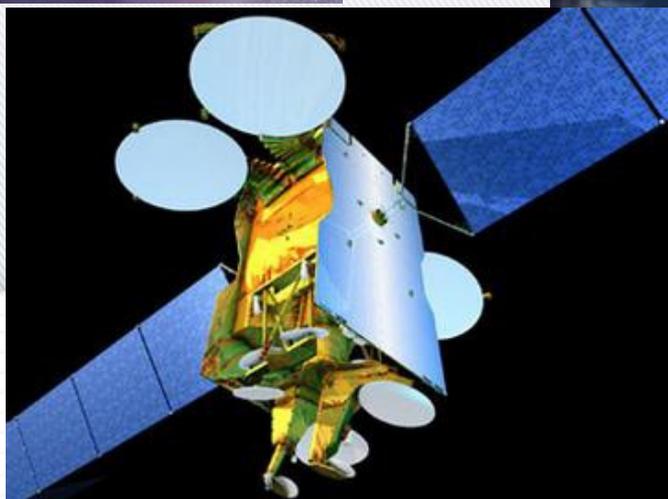


Programs

- LM A2100 and TR
- BS 601 & 702 (all versions)
- Loral FS-series (all versions)
- Astrium Eurostar 2000/3000
- Orbital Star 2 and Star 3

Innovations

- EP systems
- Green propulsion



Eurostar 3000

- **Multiple STEM initiatives through AR Foundation**
 - Tesla High School Rocket program
 - Aviation High School Laboratory
 - Museum of Flight
 - Pacific Science Center
 - University of Washington
 - Multiple scholarships/year
- **Joint Center for Aerospace Technology Innovation**
 - Board member/Chair
 - Partner for programs at both UW and WSU
- **Washington State Academy of Sciences**

- **Future directions for the space industry**
 - Continued growth and innovation in established space sector
 - Market expansion opportunities and new entrants
 - New technologies lowering the barriers to entry

- **How can the legislature help the Washington State Space Industry**