

2023 Annual Report

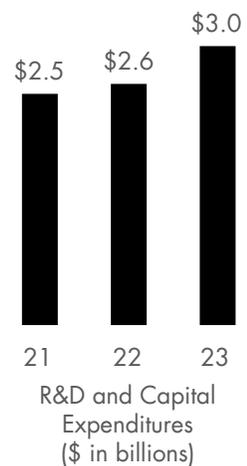
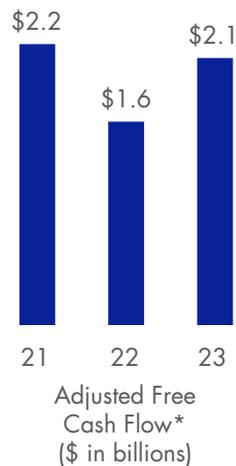
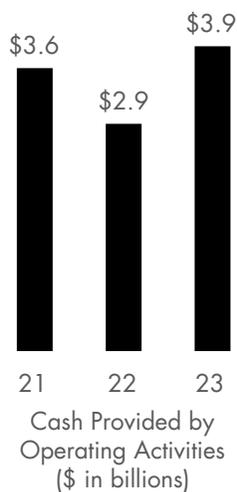
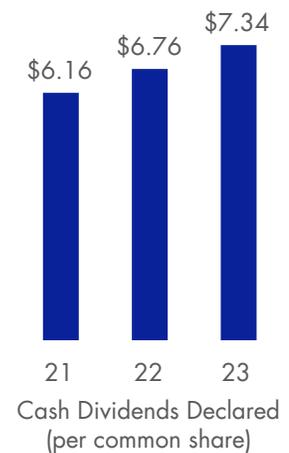
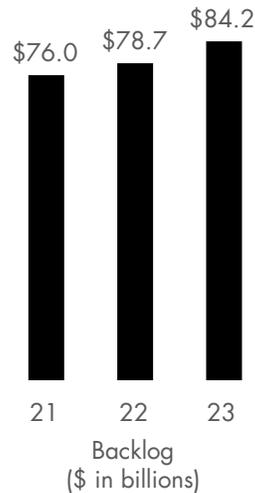
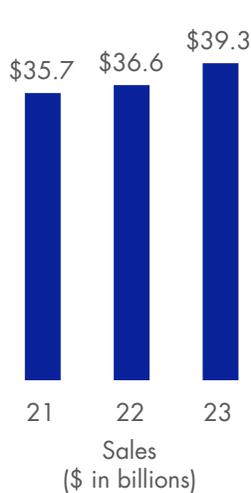


NORTHROP
GRUMMAN



About Us

Northrop Grumman is a leading global aerospace and defense technology company. Our pioneering solutions equip our customers with capabilities they need to connect and protect the world and push the boundaries of human exploration across the universe. Driven by a shared purpose to solve our customers' toughest problems, our employees define possible every day.



* Non-GAAP financial metric. For more information, including a definition, reconciliation to the most directly comparable GAAP measure and why we believe this measure may be useful to investors, please refer to "Use of Non-GAAP Financial Measures" at the back of this Annual Report.

Dear Shareholders,

As the security landscape evolves, Northrop Grumman is trusted to deliver the world's most advanced security solutions. Leading-edge technologies, developed by our more than 100,000 employees, ensure our customers' most urgent and challenging needs are met.

Partnering with the U.S. Air Force to successfully enter flight testing for the B-21 Raider, delivering on key milestones in support of national security space and the U.S. military's new Proliferated Warfighter Space Architecture and answering significant global demand for our weapons systems are just a few of the many incredible milestones achieved in 2023.

Key program wins, a diverse portfolio aligned to our customers' priorities and laser-focus on program performance strengthened our position as trusted global technology leaders.

Anchored by our business strategy, our balanced approach to capital deployment drives innovation and capacity to meet our customers' needs and create value for shareholders.



2023 Performance

Growing global demand for our solutions drove another year of strong performance. Our annual sales grew by 7% and totaled \$39.3 billion. We achieved a book to bill ratio of 1.14 and ended the year with a record \$84.2 billion in backlog. We generated \$3.9 billion of operating cash flow and \$2.1 billion of adjusted free cash flow* for the year. Despite a challenging macroeconomic environment, the underlying operating margins for the majority of our programs remained solid.

Defining the future of defense requires robust investment in our tools, people and innovation. In 2023, we invested \$3.0 billion in research and development and capital expenditures into our business, providing a strong foundation for future growth. These investments included innovation areas such as the future of computing, microelectronics, the responsible use of artificial intelligence as well as the advanced networking required to tie our systems together.

Our disciplined approach to capital deployment returned \$2.6 billion to shareholders through dividends and share repurchases.

Our Strong, Sustainable Culture

Innovation at this level requires diversity of thought and strong leadership. We were proud to receive DiversityInc's "Top 50 Companies in Diversity" in recognition of our efforts to create a culture of belonging where people of every background can thrive.

Advancing sustainability through impactful conservation and sustainability projects remained a priority including efforts to protect land surrounding military installations.

Recognizing our commitment to our people, community, customers, shareholders and the environment, we were again named one of America's Most Just Companies in 2023, and included on the Dow Jones Sustainability North America Index for the eighth consecutive year.

Positioning for the Future

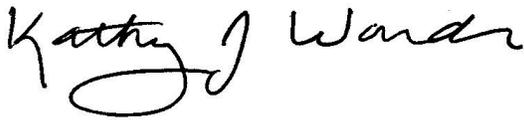
With robust demand for our products and the trust of our customers, even greater milestones are on the horizon. Our team stands ready, remaining ahead of the expanding technological landscape.

Our distinctive, integrated solutions remain in-line with our customer's highest priorities. No matter what the future holds, the greater the challenge, the more determined we are to solve it.

Anchored by our values, we do the right thing, uphold our promises, commit to shared success and develop pioneering technologies, we expect to shape our world for generations to come.

I'm confident we have the right strategy, technology and team to lead our industry in 2024 and beyond.

Sincerely,

A handwritten signature in black ink that reads "Kathy J. Warden". The signature is fluid and cursive, with a large loop under the letter 'W'.

Kathy Warden

Chair, Chief Executive Officer and President

* Non-GAAP financial metric. For more information, including a definition, reconciliation to the most directly comparable GAAP measure and why we believe this measure may be useful to investors, please refer to "Use of Non-GAAP Financial Measures" at the back of this Annual Report.

Elected Officers (As of March 1, 2024)

Kathy J. Warden

Chair, Chief Executive Officer and President

Ann M. Addison

Corporate Vice President and Chief Human Resources Officer

Matthew F. Bromberg

Corporate Vice President, Global Operations

Mark A. Caylor

Corporate Vice President and President, Mission Systems

Heather M. Crofford

Corporate Vice President and Treasurer

Robert J. Fleming

Corporate Vice President and President, Space Systems

Michael A. Hardesty

Corporate Vice President, Controller and Chief Accounting Officer

Thomas H. Jones

Corporate Vice President and President, Aeronautics Systems

Lesley A. Kalan

Corporate Vice President and Chief Strategy and Development Officer

David F. Keffer

Corporate Vice President and Chief Financial Officer

Jennifer C. McGarey

Corporate Vice President and Secretary

Stephen F. O'Bryan

Corporate Vice President and Chief Global Business Development Officer

Roshan S. Roeder

Corporate Vice President and President, Defense Systems

Lucy C. Ryan

Corporate Vice President, Communications

Kathryn G. Simpson

Corporate Vice President and General Counsel

Board of Directors (As of March 1, 2024)

Kathy J. Warden

Chair, Chief Executive Officer and President, Northrop Grumman Corporation

David P. Abney^{2† 3}

Former Executive Chairman and Chief Executive Officer, United Parcel Service (a package delivery and supply chain management company)

Marianne C. Brown^{1 3†}

Former Chief Operating Officer, Global Financial Solutions, Fidelity National Information Services, Inc. (financial services technology solutions provider)

Ann M. Fudge^{1 4}

Former Chairman and Chief Executive Officer, Young & Rubicam Brands (marketing communications company)

Madeleine A. Kleiner^{2 3}

Lead Independent Director, Northrop Grumman Corporation; Former Executive Vice President and General Counsel, Hilton Hotels Corporation (hotel and resort company)

Arvind Krishna^{2 4}

Chairman and Chief Executive Officer, International Business Machines Corporation (an information technology company)

Graham N. Robinson^{2 4}

Senior Vice President, Stanley Black & Decker, and President, STANLEY Industrial (manufacturer of tools and hardware)

Kimberly A. Ross^{1 4}

Former Chief Financial Officer, WeWork and Baker Hughes Company

Gary Roughead^{2 4†}

Admiral, United States Navy (Ret.) and Former Chief of Naval Operations

Thomas M. Schoewe^{1† 3}

Former Executive Vice President and Chief Financial Officer, Wal-Mart Stores, Inc. (operator of retail stores)

James S. Turley^{1 3}

Former Chairman and Chief Executive Officer, Ernst & Young (a professional services organization)

Mark A. Welsh^{1 4}

President, Texas A&M University; General, United States Air Force (Ret.) and Former Chief of Staff, United States Air Force

Mary A. Winston^{2 4}

President and Founder, WinsCo Enterprises, Inc. (a financial and board governance advisory consulting firm)

¹ Member of Audit and Risk Committee

² Member of Compensation and Human Capital Committee

³ Member of Nominating and Corporate Governance Committee

⁴ Member of Policy Committee

† Committee Chair

**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION**

Washington, D.C. 20549

FORM 10-K

ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the fiscal year ended December 31, 2023
or

TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the transition period from _____ to _____
Commission file number 1-16411

NORTHROP GRUMMAN CORPORATION

(Exact name of registrant as specified in its charter)

Delaware

(State or other jurisdiction of
incorporation or organization)

**2980 Fairview Park Drive
Falls Church, Virginia**

(Address of principal executive offices)

80-0640649

(I.R.S. Employer
Identification Number)

22042

(Zip code)

(703) 280-2900

(Registrant's telephone number, including area code)

Securities registered pursuant to section 12(b) of the Act:

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Common Stock	NOC	New York Stock Exchange

Securities registered pursuant to Section 12(g) of the Act: None

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act.

Yes

No

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or 15(d) of the Act.

Yes

No

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days.

Yes

No

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files).

Yes

No

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company" and "emerging growth company" in Rule 12b-2 of the Exchange Act:

Large Accelerated Filer

Accelerated Filer

Smaller Reporting Company

Non-accelerated Filer

Emerging Growth Company

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act.

Indicate by check mark whether the registrant has filed a report on and attestation to its management's assessment of the effectiveness of its internal control over financial reporting under Section 404(b) of the Sarbanes-Oxley Act (15 U.S.C. 7262(b)) by the registered public accounting firm that prepared or issued its audit report.

If securities are registered pursuant to Section 12(b) of the Act, indicate by check mark whether the financial statements of the registrant included in the filing reflect the correction of an error to previously issued financial statements.

Indicate by check mark whether any of those error corrections are restatements that required a recovery analysis of incentive-based compensation received by any of the registrant's executive officers during the relevant recovery period pursuant to §240.10D-1(b).

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Act).

Yes

No

As of June 30, 2023, the aggregate market value of the common stock (based upon the closing price of the stock on the New York Stock Exchange) of the registrant held by non-affiliates was approximately \$68.9 billion.

As of January 22, 2024, 150,035,705 shares of common stock were outstanding.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of Northrop Grumman Corporation's Proxy Statement to be filed with the Securities and Exchange Commission pursuant to Regulation 14A for the 2024 Annual Meeting of Shareholders are incorporated by reference in Part III of this Form 10-K.

NORTHROP GRUMMAN CORPORATION
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PART I

Item 1. Business

HISTORY AND ORGANIZATION

History

Northrop Grumman Corporation (herein referred to as “Northrop Grumman,” the “company,” “we,” “us,” or “our”) is a leading global aerospace and defense technology company. We deliver a broad range of products, services and solutions to U.S. and international customers, and principally to the U.S. Department of Defense (DoD) and intelligence community. Our broad portfolio is aligned to support national security priorities and our solutions equip our customers with capabilities they need to connect, protect and advance humanity.

The company is a leading provider of space systems, military aircraft, missile defense, advanced weapons and long-range fires capabilities, mission systems, networking and communications, strategic deterrence systems, and breakthrough technologies, such as advanced computing, microelectronics and cyber. We are focused on competing and winning programs that enable continued growth, performing on our commitments and affordably delivering capability our customers need. With the investments we've made in advanced technologies, combined with our talented workforce and digital transformation capabilities, Northrop Grumman is well positioned to meet our customers' needs today and in the future. For a discussion of risks associated with our operations, see “Risk Factors.”

The company originally was formed in 1939 in Hawthorne, California as Northrop Aircraft Incorporated and was reincorporated in Delaware in 1985, as Northrop Corporation. Northrop Corporation was a principal developer of flying wing technology, including the B-2 Spirit stealth aircraft. We developed into one of the largest defense technology companies in the world through a series of acquisitions, as well as organic growth, including the following:

- 1994 - Acquired Grumman Corporation, a premier military aircraft systems integrator. The combined company was renamed Northrop Grumman Corporation;
- 1996 - Acquired the defense and electronics businesses of Westinghouse Electric Corporation, developer of sophisticated radar and other electronics systems;
- 2001 - Acquired Litton Industries, Inc., a global electronics and information technology company and full service shipbuilder;
- 2001 - Acquired Newport News Shipbuilding Inc., designer and builder of nuclear-powered aircraft carriers and submarines;
- 2002 - Acquired TRW Inc., developer of military and civil space systems and payloads, and integrator of complex, mission-enabling systems and services;
- 2011 - Completed the spin-off of Huntington Ingalls Industries, Inc., operator of our former shipbuilding business, comprised largely of a part of Litton Industries and Newport News Shipbuilding;
- 2018 - Acquired Orbital ATK, Inc. (OATK), developer and producer of satellites and other space systems, launch vehicles and missile products; and
- 2021 - Completed the sale of our IT and mission support services business (the “IT services divestiture”) to Veritas Capital.

Organization

From time to time, we acquire or dispose of businesses and realign contracts, programs or businesses among and within our operating segments. Internal realignments are typically designed to leverage existing capabilities more fully and to enhance efficient development and delivery of products and services. At December 31, 2023, the company was aligned in four operating sectors, which also comprise our reportable segments: Aeronautics Systems, Defense Systems, Mission Systems and Space Systems.

AERONAUTICS SYSTEMS

Aeronautics Systems is a leader in the design, development, production, integration, sustainment and modernization of military aircraft systems for the U.S. Air Force, the U.S. Navy, other U.S. government agencies, and international customers. Major products include strategic long-range strike aircraft; tactical fighter and air dominance aircraft; airborne battle management and command and control systems; and unmanned autonomous aircraft systems, including high-altitude long-endurance (HALE) strategic intelligence, surveillance and reconnaissance (ISR)

NORTHROP GRUMMAN CORPORATION

systems and vertical take-off and landing (VTOL) tactical ISR systems. Approximately 45 percent of this business is performed through restricted programs. Key programs include:

- Development and production of the U.S. Air Force B-21 Raider long-range strike aircraft that defines sixth-generation technologies;
- Modernization and sustainment services for the B-2 Spirit stealth aircraft;
- Fuselage production for the F/A-18 Super Hornet and the F-35 Lighting II Joint Strike Fighter for use by U.S. and international forces;
- E-2D Advanced Hawkeye battle management aircraft production for the U.S. Navy, Japan, and France;
- MQ-4C Triton, which provides wide area strategic ISR over vast ocean and coastal regions for maritime domain awareness to the U.S. Navy and Australia;
- RQ-4 Global Hawk, which provides high resolution imagery of land masses for theater awareness and strategic ISR to the U.S. Air Force, Japan, and the Republic of Korea;
- North Atlantic Treaty Organization (NATO) Alliance Ground Surveillance (AGS), a Global Hawk variant, for strategic ISR missions conducted in multinational theater operations; and
- MQ-8C Fire Scout, ship-based, VTOL tactical ISR systems that provide situational awareness and precision targeting for the U.S. Navy.

DEFENSE SYSTEMS

Defense Systems is a leader in the design, development, integration and production of advanced tactical weapons and missile defense solutions, and a provider of sustainment, modernization and training services for manned and unmanned aircraft and electronics systems for the U.S. military and a broad range of international customers. Major products and services include integrated, all-domain command and control (C2) battle management systems, precision strike weapons; advanced propulsion, including high speed air-breathing and hypersonic systems; high-performance gun systems, ammunition, precision munitions and advanced fuzes; aircraft and mission systems logistics support, sustainment, operations and modernization; and warfighter training. Less than 5 percent of this business is performed through restricted programs. Key programs include:

- Integrated Air and Missile Defense Battle Command System (IBCS) for the U.S. Army and Poland, which is an open architecture system that seamlessly integrates sensors and effectors to deliver among the most advanced C2 systems for joint and coalition forces;
- Medium (30mm and 20mm) and Large (120mm) caliber tactical and training ammunition production;
- Guided Multiple Launch Rocket System (GMLRS) propulsion and warhead subsystems for a surface-to-surface system used to defeat targets using indirect precision fires;
- U.S. Navy's Advanced Anti-Radiation Guided Missile (AARGM), a medium-range, air-to-surface missile, and its extended range variant, AARGM-ER;
- U.S. Air Force's Stand-In Attack Weapon (SiAW), an advanced capability air-to-surface tactical missile for the F-35;
- Hypersonic Attack Cruise Missile (HACM) air-breathing, scramjet propulsion subsystem for the hypersonic air-launched cruise missile to travel at speeds of Mach 5 or greater;
- Global system sustainment and operations support for the F-35, B-2, P-3 Orion, E-6B Mercury, KC-30A multi-role tanker, C-27J transport, NATO AGS, Triton and restricted programs;
- Precision Guidance Kit (PGK), replaces conventional fuzes for artillery and mortar munitions and transforms them into Global Positioning System enabled precision guided weapons;
- Forward Area Air Defense Command and Control (FAAD C2), the Army's long-standing program of record for short range air defense and Counter Rocket, Artillery and Mortar (C-RAM), as well as the interim C2 for Counter Unmanned Aircraft Systems (C-UAS);
- AAQ-24 sensor sustainment and repair for U.S. military customers;
- Special Electronics Mission Aircraft (SEMA) ISR support; and
- Distributed Mission Operations Network (DMON), a live, virtual, constructive, and synthetic simulation program for global training and exercises.

MISSION SYSTEMS

Mission Systems is a leader in advanced mission solutions and multifunction systems, primarily for the U.S. defense and intelligence community, and international customers. Major products and services include command, control, communications and computers, intelligence, surveillance and reconnaissance (C4ISR) systems; radar, electro-optical/infrared (EO/IR) and acoustic sensors; electronic warfare systems; advanced communications and network systems; full spectrum cyber solutions; intelligence processing systems; advanced microelectronics; navigation and positioning sensors; and maritime power, propulsion and payload launch systems. Approximately 30 percent of this business is performed through restricted programs. Key unrestricted programs include:

- Scalable Agile Beam Radar (SABR), an active electronically scanned array fire control radar system for F-16 aircraft;
- F-35 fire control radar and Distributed Aperture System (DAS), which provides 360 degree field of view tracking, identifying, missile warning and night vision capabilities;
- F-35 Communications, Navigation and Identification (CNI) integrated avionics system, which provides secure communications and interoperability capabilities;
- Ground/Air Task Oriented Radar (G/ATOR), a mobile multi-mode active electronically scanned array;
- Surface Electronic Warfare Improvement Program (SEWIP) Block III, which protects surface ships from anti-ship missiles, provides early detection, signal analysis and threat warning;
- Airborne Early Warning & Control (AEW&C). The centerpiece of the E-7 AEW&C aircraft is the Multi-role Electronically Scanned Array (MESA) radar which enables 360 degree long range advanced air moving target indicator (AMTI) capabilities for Battle Management, Command and Control, and Maritime Surveillance;
- Large Aircraft and Common Infrared Countermeasures (LAIRCM, DoN LAIRCM, CIRCM) systems, which protect large aircraft as well as rotary wing and medium fixed wing aircraft from infrared missiles using advanced laser technology;
- Battlefield Airborne Communications Node (BACN), one of the first airborne gateway systems that allows platforms to communicate and securely share data;
- DDG Modernization, which is comprised of several subsystems to support modernization of Arleigh Burke-class guided missile destroyers including Integrated Bridge and Navigation Systems (IBNS) and ship control systems;
- LITENING Advanced Targeting Pod, an electro-optical infrared sensor system for targeting and surveillance that enables aircrews to detect, acquire, identify and track targets at long ranges;
- APR-39 DV(2) and EV(2) Radar Warning Receiver programs, which provide a digital radar warning receiver for the U.S. Army, Navy and Marines;
- Exploitation and cyber programs, which provide cyber and intelligence domain support through unique intelligence and cyber capabilities;
- AC/MC 130J Radio Frequency Countermeasures system, which provides superior situational awareness and better enables aircraft survivability in operationally relevant environments;
- Embedded Global Positioning System (GPS) / Inertial Navigation Systems-Modernization (EGI-M) program, which provides state-of-the-art airborne navigation capabilities with an open architecture that enables rapid responses to future threats; and
- UH-60V Black Hawk integrated mission equipment package, which modernizes the U.S. Army's Black Hawk helicopters with a glass cockpit, including an integrated computational system, visual display system and control display units, extending the life and mission capabilities of the UH-60 platform.

NORTHROP GRUMMAN CORPORATION

SPACE SYSTEMS

Space Systems is a leader in delivering end-to-end mission solutions through the design, development, integration, production and operation of space, missile defense, launch and strategic missile systems for national security, civil government, commercial and international customers. Major products include satellites and spacecraft systems, subsystems, sensors and payloads; ground systems; missile defense systems and interceptors; launch vehicles and related propulsion systems; and strategic missiles. Approximately 35 percent of this business is performed through restricted programs. Key unrestricted programs include:

- Ground Based Strategic Deterrent (GBSD) Engineering & Manufacturing Development (EMD) program;
- Missile defense systems, interceptors, targets, mission processing and boosters for the Missile Defense Agency's (MDA) Next-Generation Interceptor (NGI) and Ground-based Midcourse Defense Weapon Systems (GWS);
- Space Development Agency Tracking and Transport layers providing missile warning/tracking and resilient, low-latency, high-volume data transport communication systems;
- Next-Generation Overhead Persistent Infrared (Next Gen OPIR) program satellites and payloads providing data for missile defense;
- Development and production of solid rocket motors for NASA's Space Launch System (SLS) heavy lift vehicle;
- 63-inch diameter Graphite Epoxy Motor (GEM 63) and the extended length variation (GEM 63XL) solid rocket boosters used to provide lift capability for the ATLAS V and Vulcan launch vehicles;
- Medium-class solid rocket motors for the U.S. Navy's Trident II Fleet Ballistic Missile program;
- Evolved Strategic SATCOM (ESS) and Protected Tactical SATCOM (PTS) satellites and payloads providing survivable, protected communications to U.S. forces;
- Intercontinental Ballistic Missile (ICBM) Ground Subsystem Support Contract (GSSC);
- Cygnus spacecraft, used in the execution of our Commercial Resupply Services (CRS) contracts with NASA;
- Habitation and Logistics Outpost (HALO) module in support of NASA's Gateway; and
- James Webb Space Telescope (JWST) operations and sustainment contract.

CUSTOMER CONCENTRATION

Our largest customer is the U.S. government. Sales to the U.S. government accounted for 86 percent, 86 percent and 85 percent of sales during the years ended December 31, 2023, 2022 and 2021, respectively. For further information on sales by customer type, contract type and geographic region, see Note 16 to the consolidated financial statements. See "Risk Factors" for further discussion regarding risks related to customer concentration.

COMPETITIVE CONDITIONS

We compete with many companies in the defense, intelligence and federal civil markets. The Boeing Company, General Dynamics, L3Harris Technologies, Lockheed Martin, and RTX are some of our primary competitors. Key characteristics of our industry include long operating cycles and intense competition, which is evident through the number of competitors bidding on program opportunities and the number of competitor protests of U.S. government procurement awards.

It is common in the defense industry for work on major programs to be shared among a number of companies. A company competing to be a prime contractor may, upon ultimate award of the contract to another competitor, serve as a subcontractor to the ultimate prime contracting company. It is not unusual to compete for a contract award with a peer company and, simultaneously, perform as a supplier to or a customer of that same competitor on other contracts, or vice versa.

SEASONALITY

No material portion of our business is considered to be seasonal.

BACKLOG

At December 31, 2023, total backlog, which is equivalent to the company's remaining performance obligations, was \$84.2 billion as compared with \$78.7 billion at December 31, 2022. For further information, see "Backlog" in

“Management’s Discussion and Analysis of Financial Condition and Results of Operations” (MD&A) and Note 1 to the consolidated financial statements.

INTELLECTUAL PROPERTY

We routinely apply for and own a number of U.S. and foreign patents related to the technologies we develop. We also develop and protect intellectual property as trade secrets. In addition to owning a large portfolio of proprietary intellectual property, we license some intellectual property rights to third parties and we license or otherwise obtain access to intellectual property from third parties. The U.S. government typically holds licenses to patents developed in the performance of U.S. government contracts and may use or authorize others to use the inventions covered by these patents for certain purposes. See “Risk Factors” for further discussion regarding risks related to intellectual property.

RAW MATERIALS

We have experienced challenges with access to certain raw materials due to macroeconomic factors and several global events such as inflation, geopolitical conflicts and microelectronics shortages. In some cases, these challenges have significantly increased the cost and/or lead time required to obtain certain raw materials. Nonetheless, these challenges have not to date materially impacted our ability to perform on our contracts. See “Risk Factors” for further discussion regarding risks related to raw materials.

HUMAN CAPITAL

Fostering a culture that offers employees opportunities to live our values, deliver for our customers, and act responsibly and sustainably is central to our diverse and talented workforce. Our culture and values enable us to continue attracting qualified talent, particularly those with security clearances and requisite skills in multiple areas, including science, technology, engineering and math. This focus on our culture and workforce was a factor in our ability to hire approximately 14,500 new employees in 2023, and as of December 31, 2023, we have approximately 101,000 employees.

Additional information regarding our human capital strategy is available in our Environmental, Social, and Governance (ESG) Report, which can be found on our company website. Information on our website, including our ESG Report, is not incorporated by reference into this Annual Report.

Our Values and Culture

Our values reflect our priorities and form the bedrock of our culture:

- We do the right thing – we earn trust, act with ethics, integrity and transparency, treat everyone with respect, value diversity and foster safe and inclusive environments.
- We do what we promise – we own the delivery of results, focused on quality.
- We commit to shared success – we work together to focus on the mission and take accountability for the sustainable success of our people, customers, shareholders, suppliers and communities.
- We pioneer – with fierce curiosity, dedication and innovation, we seek to solve the world’s most challenging problems.

We believe our culture and values are vital to the ongoing success of the company, including our ability to attract and retain a talented and diverse workforce. Our values are also integral to our commitment to long-term sustainability, with robust ESG practices across our company. The company has a Standards of Business Conduct program. Our employees are empowered to raise concerns without fear of reprisal. In addition to full-time ethics professionals, we also have over 150 business conduct advisors who promote values and an ethical culture within the company.

Our annual Employee Experience Survey gives employees a voice and a mechanism to provide feedback on our culture and empower our leaders to enhance the employee experience. This anonymous survey encourages employee candor on key engagement and inclusion drivers, including belonging, respect, a sense of personal work accomplishment and recommending the company to others. In 2023, 81 percent of employees responded to the survey, an indication that our employees believe their feedback matters, and our survey results exceeded many of the global norms of our third party vendor for both engagement and inclusion. Our leaders review the survey responses and work collaboratively with their teams to take meaningful actions based on survey results.

NORTHROP GRUMMAN CORPORATION

Diversity, Equity and Inclusion

We value diversity and belonging in its broadest sense, as an enabling force that helps us pioneer, perform and deliver on quality, which results in value for our shareholders, customers, and employees. Across our U.S. employee population, as of December 31, 2023, 25 percent are female, 38 percent are people of color, 18 percent are veterans and 8 percent are persons with disabilities. At the vice president level, 35 percent are female and 20 percent are people of color. We strive to reach all parts of the diverse talent pools available now and in the future because we recognize that we benefit from having coworkers with different ideas, perspectives and approaches to help us innovate.

Talent Management

Northrop Grumman's talent strategy is focused on four key pillars: broadening talent pools; enhancing the employee experience; building leaders of the future; and enabling new ways of working. Our strategy addresses the external and internal landscape and ensures that we are able to attract, retain and develop the workforce necessary to support the continued success of the business.

We hold regular talent review discussions to ensure line of sight to talent at various levels of the organization. Succession plans are refreshed and reviewed to ensure a robust, diverse pipeline of talent and business continuity with a tight linkage to development. We focus on accelerating learning and development of our leaders by providing a combination of experiences, exposure and education.

Our employee development programs strengthen employee skills aligned to our current and future business needs through on-the-job development, knowledge sharing and tools to support career growth. Employees utilize curated, career-specific resources such as My Learning Experience, a machine learning enabled content aggregator that creates a personalized learning experience for each employee. Our Education Assistance Program subsidizes tuition and other educational institution fees to support development through job-related degrees and certificates. Our early-in-career rotation program, Pathways, develops talent pipelines with both depth of critical skills and breadth of experiences. Our technical cohort programs cultivate technical, domain expertise and collaborative thought leadership for early through advanced career levels.

In a rapidly changing world, we maintain focus on keeping our team and our company prepared for the evolving future of work. In addition to offering our employees flexible work arrangements, caregiver support and mental health services that help our employees make their careers work within their lives, we also help our employees build the careers that will serve them into the future. We ensure that our employees have the tools and resources to develop their knowledge base and skill sets, so that they can continue to thrive at Northrop Grumman even in the midst of change. When our employees succeed and grow at work, our business succeeds and grows. Through a focus on our employees, we remain agile and innovative, adapting to the future as it unfolds before us. We provide many avenues for our employees to feel included, so we can hire, develop and retain the best people to support our common mission and better pioneer together.

Employee Health and Safety

Health and safety are a core focus in everything we do. People are our most valuable resource, and our goals have been, and continue to be, to keep our employees safe and position the company for long-term success.

Risk and hazard identification, abatement and prevention are key components of Northrop Grumman's safety program. Everyone has a responsibility to identify workplace hazards and we empower employees to report these hazards without fear of repercussion. We evaluate the effectiveness of our health and safety programs externally, through benchmarking with industry peers and the U.S. Bureau of Labor Statistics. Internally, we determine program effectiveness by conducting trend analyses of our past performance.

Collective Agreements

Approximately 4,100 employees are covered by 15 collective agreements in the U.S., of which we negotiated one renewal in 2023 and expect to negotiate five renewals in 2024.

See "Risk Factors" for further discussion regarding risks related to our workforce and employee relations.

REGULATORY MATTERS

Government Contract Security Restrictions

We are prohibited by the U.S. government from publicly discussing the details of certain classified programs. These programs are generally referred to as "restricted" in this Annual Report. The consolidated financial statements and financial information in this Annual Report reflect the operating results of our entire company, including restricted programs.

Contracts

We generate the majority of our business from long-term contracts with the U.S. government for development, production and support activities. Unless otherwise specified in a contract, allowable and allocable costs are billed to contracts with the U.S. government pursuant to the Federal Acquisition Regulation (FAR) and U.S. government Cost Accounting Standards (CAS), which are regulations that govern cost accounting requirements for government contracts. Examples of costs incurred by us and not billed to the U.S. government in accordance with applicable FAR and CAS requirements include, but are not limited to, unallowable employee compensation, charitable donations, interest expense, advertising, and certain legal and travel costs.

We monitor our contracts on a regular basis for compliance with our policies and procedures and applicable government laws and regulations. In addition, costs incurred and allocated to contracts with the U.S. government are routinely audited by the Defense Contract Audit Agency (DCAA).

Our long-term contracts typically fall into one of two contract types:

Cost-type contracts – Cost-type contracts include cost plus fixed fee, cost plus award fee and cost plus incentive fee contracts. Cost-type contracts generally provide for reimbursement of a contractor’s allowable costs incurred plus fee. As a result, cost-type contracts have less financial risk associated with unanticipated cost growth but generally provide lower profit margins than fixed-price contracts. Cost-type contracts typically require that the contractor use its best efforts to accomplish the scope of the work within some specified time and stated dollar limitation. Fees on cost-type contracts can be fixed in terms of dollar value or can be variable due to award and incentive fees, which are generally based on performance criteria such as cost, schedule, quality and/or technical performance. Award fees are determined and earned based on customer evaluation of the company’s performance against contractual criteria. Incentive fees are generally based on cost or schedule and provide for an initially negotiated fee to be adjusted later, based on the relationship of total allowable costs to total target costs or as schedule milestones are met. Award and incentive fees are included in total estimated sales to the extent it is probable that a significant reversal in the amount of cumulative revenue recognized will not occur when the uncertainty associated with the variable consideration is subsequently resolved. We estimate variable consideration as the most likely amount to which we expect to be entitled.

Fixed-price contracts – Firm fixed-price contracts include a specified scope of work for a price that is a pre-determined, negotiated amount and not typically subject to adjustment regardless of costs incurred by the contractor, absent changes by the customer. As a result, fixed-price contracts typically have more financial risk associated with unanticipated cost growth, but provide the opportunity for higher profit margins. Certain fixed-price incentive fee contracts provide for reimbursement of the contractor’s allowable costs plus a fee up to a cost ceiling amount, typically through a cost-sharing ratio that affects profitability. These contracts effectively become firm fixed-price contracts once the cost-share ceiling is reached. Time-and-materials contracts are considered fixed-price contracts as they specify a fixed hourly rate for each labor hour charged.

Profit margins on our contracts may vary materially depending on, among other things, the contract type, contract phase (e.g., development, low-rate production or mature production), negotiated fee arrangements, achievement of performance objectives, unexpected macroeconomic factors or other circumstances, and cost, schedule and technical performance.

See Note 1 to the consolidated financial statements and “Risk Factors” for further information regarding our contracts and Note 16 to the consolidated financial statements for sales by contract type.

NORTHROP GRUMMAN CORPORATION

The following table summarizes sales for the year ended December 31, 2023, recognized by contract type and customer category:

<i>\$ in millions</i>	U.S. Government ⁽¹⁾	International ⁽²⁾	Other Customers	Total	Percentage of Total Sales
Cost-type contracts	\$ 20,170	\$ 785	\$ 24	\$ 20,979	53 %
Fixed-price contracts	13,712	4,120	479	18,311	47 %
Total sales	\$ 33,882	\$ 4,905	\$ 503	\$ 39,290	100 %

⁽¹⁾ Sales to the U.S. government include sales from contracts for which we are the prime contractor, as well as those for which we are a subcontractor and the ultimate customer is the U.S. government. Each of the company's segments derives substantial revenue from the U.S. government.

⁽²⁾ International sales include sales from contracts for which we are the prime contractor, as well as those for which we are a subcontractor and the ultimate customer is an international customer. These sales include foreign military sales contracted through the U.S. government.

Environmental

Our operations are subject to and affected by federal, state, local and foreign laws, regulations and enforcement actions relating to protection of the environment. We have incurred and expect to continue to incur capital and operating costs to comply with applicable environmental laws and regulations and to achieve our environmental sustainability commitments. See "Risk Factors" and Notes 1 and 12 to the consolidated financial statements for further information regarding environmental matters.

In 2022, we announced our next generation environmental sustainability goals, and in 2023, we announced our goals for water and waste. These goals focus on Northrop Grumman's facilities in addition to supply chain partners and customers:

- Net zero greenhouse gas emissions in operations by 2035;
- Source 50 percent of total electricity from renewable sources by 2030;
- Reduce 10% of absolute water withdrawals, reuse 10% of water withdrawals and replenish 10% of water withdrawals, focusing in water-stressed regions — all by 2030;
- Reduce solid waste sent to landfill and incineration by 10% by 2030;
- In collaboration with key customers, work to develop a pioneering product stewardship program focused on material efficiency, product design and life cycle assessment;
- Expand Technology for Conservation initiatives in proximity to Northrop Grumman's U.S. locations by 2030, in collaboration with external partners.

Additional information regarding our environmental sustainability goals is available in our ESG Report, which can be found on our company website.

EXECUTIVE OFFICERS

See "Directors, Executive Officers and Corporate Governance" for information about our executive officers.

AVAILABLE INFORMATION

Our principal executive offices are located at 2980 Fairview Park Drive, Falls Church, Virginia 22042. Our telephone number is (703) 280-2900 and our home page is www.northropgrumman.com.

Our annual reports on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K and proxy statement for the annual shareholders' meeting, as well as any amendments to those reports, are available free of charge through our website as soon as reasonably practicable after we file them with the U.S. Securities and Exchange Commission (SEC). You can learn more about us by reviewing our SEC filings on the investor relations page of our website.

The SEC also maintains a website at www.sec.gov that contains reports, proxy statements and other information about SEC registrants, including Northrop Grumman Corporation.

References to our website and the SEC's website in this report are provided as a convenience and do not constitute, and should not be viewed as, incorporation by reference of the information contained on, or available through, such websites. Such information should not be considered a part of this report, unless otherwise expressly incorporated by reference in this report.

Item 1A. Risk Factors

Our consolidated financial position, results of operations and cash flows are subject to various risks, many of which are not exclusively within our control, that may cause actual performance to differ materially from historical or projected future performance. We encourage you to consider carefully the risk factors described below in evaluating the information contained in this report as the outcome of one or more of these risks could have a material adverse effect on our financial position, results of operations and/or cash flows.

Industry and Economic Risks

- ***We depend heavily on a single customer, the U.S. government, for a substantial portion of our business. Changes in this customer's priorities and spending could have a material adverse effect on our financial position, results of operations and/or cash flows.***

Our primary customer is the U.S. government, from which we derived 86 percent of our sales in 2023; we have a number of large programs with the U.S. Department of the Air Force, in particular. The U.S. government has the ability to delay, modify or cancel ongoing competitions, procurements and programs, as well as to change its future acquisition strategy. We cannot predict the impact on existing, follow-on, replacement or future programs from potential changes in the threat and global security environment, defense spending levels, government and budgetary priorities, political leadership, procurement practices and strategy, inflation and other macroeconomic trends, military strategy; or broader changes in social, economic, security or political demands and priorities.

The U.S. government has the ability to terminate contracts, in whole or in part, for its convenience or for default based on performance. In the event of termination for convenience, contractors are generally protected by provisions covering reimbursement for costs incurred and profit on those costs up to the amount authorized under the contract, but not the anticipated profit that would have been earned. In the event of termination due to default, contractors may be required to pay for re-procurement costs in excess of the original contract price, net of the value of work accepted from the original contract, as well as other damages. Termination due to our default (or that of a teammate) could have a material adverse effect on our reputation, our ability to compete for other contracts and our financial position, results of operations and/or cash flows.

Where program cost estimates exceed certain thresholds, our customer has been, and may in the future be, required to provide congressional notification of significant or critical cost increases (or breaches) under the Nunn-McCurdy Act, which, in some circumstances, could result in program restructure or termination. For example, in January 2024 the customer provided congressional notification that the Ground Based Strategic Deterrent ("Sentinel") program is currently under a Nunn-McCurdy breach review.

The U.S. government also has the ability to stop work under a contract for a limited period of time for its convenience. The U.S. government has invoked and could invoke this ability across a limited or broad number of contracts. In the event of a stop work order, contractors are typically protected by provisions covering reimbursement for costs incurred to date and for costs associated with the temporary stoppage of work plus a reasonable fee. However, such temporary stoppages often introduce inefficiencies and result in financial and other damages for which contractors may not be able to negotiate full recovery. In some cases, they have also ultimately resulted and could result in termination of a contract for convenience or reduced future orders.

A significant shift in government priorities, programs or strategies could have a material adverse effect on our financial position, results of operations and/or cash flows.

- ***Significant delays or reductions in appropriations for our programs and U.S. government funding more broadly, including a prolonged continuing resolution or breach of the debt ceiling, can negatively impact our business and programs and could have a material adverse effect on our financial position, results of operations and/or cash flows.***

U.S. government programs are subject to annual congressional budget authorization and appropriation processes. For many programs, Congress appropriates funds annually even though the program performance period may extend over several years. Programs are often partially funded initially, with additional funds committed only as Congress makes further appropriations. When we or our subcontractors incur costs in excess of funds obligated on a contract, we are generally at risk for reimbursement unless and until additional funds are obligated to the contract. We cannot

predict what funding will ultimately be approved for individual programs. In addition, pressures on, as well as laws and plans relating to the federal budget, potential changes in priorities and defense spending, the timing and substance of the appropriations process, use of continuing resolutions (with restrictions, e.g., on new starts) and the federal debt limit (including a breach of the federal debt ceiling), have adversely affected and could adversely affect the amount and timing of funding for individual programs and delay purchasing or payments by our customers. In the event government funding for our significant programs is reduced, delayed or unavailable, or orders are reduced, our contracts or subcontracts, or competitions for such programs have at times been, and in the future may be, terminated or changed.

The U.S. continues to face an uncertain and changing political environment, along with substantial fiscal, economic and security challenges, which affect funding and budgetary priorities. The budget and macroeconomic environment, global security environment, political instability, and uncertainty surrounding the appropriations processes and the debt ceiling, remain significant short and long-term risks. See “Overview” in MD&A. In addition, high deficit levels and high debt servicing costs could drive cuts to federal spending. Considerable uncertainty exists regarding how future budget and program decisions will unfold. If annual appropriations bills are not timely enacted, the U.S. government may continue to operate under a continuing resolution (potentially of extended duration), restricting new contract or program starts, presenting resource allocation challenges and placing limitations on budgets. We also may face a prolonged government shutdown that could lead to program cancellations, disruptions and/or stop work orders and could limit the U.S. government’s ability to progress programs and make timely payments. A prolonged shutdown could limit our ability to perform on our contracts and successfully compete for new work. If the statutory debt limit is not increased adequately, we could be obligated to work without receiving timely payments, and a prolonged breach could have far-reaching adverse consequences. If current macroeconomic pressures (especially from inflation and labor and supply chain challenges) are prolonged or worsen, and increased costs continue, then existing or anticipated appropriated and contracted funds may not be sufficient to cover costs incurred on existing or future programs.

Future funding for certain programs in which we participate may be reduced, delayed or cancelled. Budget cuts globally could adversely affect the viability of our subcontractors and suppliers. While we believe that our business is well-positioned in areas for future defense spending, changing priorities, budget pressures, defense spending cuts, challenges in the appropriations process, the possibility of a long-term continuing resolution (or series of continuing resolutions) and breach of the debt ceiling, ongoing fiscal debates and the global economic and security environment increase uncertainties and risk.

Significant delays or reductions in appropriations for our current and future programs; long-term funding under a continuing resolution; an extended debt ceiling breach or government shutdown; and/or future budget and program decisions, among other items, may negatively impact our business and programs and could have a material adverse effect on our financial position, results of operations and/or cash flows.

- ***We use estimates when accounting for contracts. Contract cost growth or changes in estimated contract revenues and costs can affect our profitability and our overall financial position.***

Contract accounting requires judgment, including in assessing risks, estimating contract revenues and costs, and predicting future performance. Given the size and nature of our many contracts, estimating total revenues and costs at completion is complex and subject to many variables. When there is sufficient information to assess expected future performance, we consider performance related incentives, awards and penalties in estimating revenue and profit rates. Suppliers’ expected performance, and the availability and costs of labor, materials and components, are also considered.

Our operating income can be adversely affected when estimated contract costs increase, especially without comparable increases in revenue. There are many reasons estimated contract costs can increase, including inflation, labor challenges, supply chain challenges, and market and exchange rate volatility; delays or limitations in customer funding; design or other development challenges; production challenges (including from technical or quality issues and other performance concerns); inability to realize learning curves or other cost savings; changes in laws or regulations; actions necessary for long-term customer satisfaction; challenges caused by the global health environment; and natural disasters or environmental matters.

We aim to mitigate this risk through contract terms, and we have submitted and may submit requests for equitable adjustment (REAs), engineering change proposals or other claims to seek recovery in whole or in part for our increased costs. We have also sought, and will seek, other avenues, as appropriate, to compensate the company for certain unexpected cost increases. However, our contracts may not enable full recovery, and/or the government may disagree with our requests and may not have funding to cover them.

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Our risk varies with the type of contract. Fixed-price contracts inherently tend to have more financial risk than cost-type contracts, including as a result of inflationary pressures, labor rates and shortages, and supplier challenges. In 2023, approximately half of our sales were derived from fixed-price contracts. We have more often entered into fixed-price contracts where costs can be more reasonably estimated based on actual experience, such as for mature production programs. However, our customers have sought, and may in the future seek, fixed-price contracts for development programs, combined development and production programs, or low-rate initial production programs, where the risks are greater. In addition, our contracts contain provisions relating to cost controls and audit rights. If we do not achieve our estimates or meet terms in our contracts, our profitability has at times been and may be reduced, and we have incurred and may incur losses.

Certain of our fixed-price contracts include or may include fixed-price development work. This work is inherently more uncertain, and, as a result, there is typically more variability in estimates of the costs to complete the development stage. As work progresses into production, the risks associated with estimating total costs are typically reduced. While management uses its best judgment to estimate costs associated with fixed-price contracts, future events could result in significant adjustments.

Under cost-type contracts, allowable costs are generally subject to reimbursement plus a fee. We often enter into cost-type contracts for development programs with complex design and technical challenges. These cost-type programs may have award or incentive fees that are uncertain and may be earned over extended periods or towards the end of the contract. In these cases, the financial risks are typically in recognizing profit, which ultimately may not be earned, or program cancellation if cost, schedule, or technical performance issues arise. We also face additional financial risk when solicitations require us to bid on cost-type development work and fixed-price production lots and/or options in one submission, or cost-type development work requiring us to provide certain items at our expense or with little or no fee. Ongoing macroeconomic challenges increase these risks.

Because of the significance of management's judgments and the estimation processes, and the difficulties inherent in estimating future costs, particularly in a challenging macroeconomic environment, it is possible that we could see materially different results. Changes in underlying assumptions, circumstances or estimates, and the failure to recover on requests for equitable adjustments, engineering change proposals or other claims could have a material adverse effect on the profitability of one or more of our contracts and on our overall financial position, results of operations and/or cash flows. See "Critical Accounting Policies and Estimates" in MD&A and Note 12 to the consolidated financial statements.

- ***The global macroeconomic environment could negatively impact our business and our financial position, results of operations and/or cash flows could be materially adversely affected.***

Our business, financial position, results of operations and/or cash flows have been and may continue to be adversely impacted by the global macroeconomic environment, which has experienced extraordinary challenges, including high rates of inflation; increased interest rates; widespread disruptions in supply chains; workforce challenges, including labor shortages; and market volatility, including exchange rate volatility. These challenges have, among other things, led to increased costs, labor and supply shortages, and delays and disruption in performance, as well as competing demands for scarce resources. Those challenges have adversely impacted our customers, our industry, our company, our suppliers and others with whom we do business. While some aspects of the macroeconomic environment have improved, and we have been able to mitigate some of the challenges (especially with respect to labor shortages), other challenges persist. We cannot predict the future trajectory or duration of this risk, including how the macroeconomic environment will evolve or how it will continue to impact us.

We continue to work proactively to mitigate the challenges caused by the macroeconomic environment, including, in some cases, seeking the inclusion of economic price adjustment clauses or seeking to recover on requests for equitable adjustments, engineering change proposals or other claims. However, if we are unable to do so successfully, our financial position, results of operations and/or cash flows could be materially adversely affected.

- ***Competition within our markets and bid protests may affect our ability to win new contracts and result in reduced revenues and market share.***

We operate in highly competitive markets and our competitors may have more financial capacity or more extensive or specialized engineering, manufacturing, marketing or servicing capabilities. They may be willing to accept more risk or lower profitability in competing for contracts. We have seen, and anticipate we will continue to see, increased competition in some of our core markets, especially as a result of our customers' budget pressures, their focus on affordability and competition, and our own success in winning business. We are facing increasing competition in the U.S. and outside the U.S. from U.S., foreign and multinational firms, including new entrants, and anticipate that acquisitions within our industry could further increase competition. We are also facing increasing competition for,

and more limited access to various critical products, services and other supplies. In some instances, foreign companies may receive loans, subsidies and other assistance from their governments that may not be available to U.S. companies and foreign companies may be subject to fewer restrictions on technology transfer. Some customers, including the DoD, are turning to commercial contractors, rather than traditional defense contractors, for some products and services, and continue to utilize small business contractors or determine to source work internally. Our success in competing depends, in part, on our ability to remain cost-competitive, accurately anticipate our customers' needs and successfully to effect our digital transformation strategy and adopt and integrate new digital manufacturing and operating technologies into our products and services.

Bid protests can result in contract modifications or the award decision being reversed and loss of the contract award. Even where a bid protest does not result in such a loss, it can delay the start of contract activities and earnings.

If we are unable to continue to compete successfully against our current or future competitors, or prevail in protests, or to prevail against other attempts to interfere with our ability to obtain and retain awards, we may experience declines in future revenues and market share, which could have a material adverse effect on our financial position, results of operations and/or cash flows.

Legal and Regulatory Risks

- ***We are subject to various investigations, claims, disputes, enforcement actions, litigation, and other legal proceedings that could ultimately be resolved against us.***

The size, nature and complexity of our business make us particularly susceptible to investigations, claims, disputes, enforcement actions, prosecutions, litigation and other legal proceedings (collectively "legal proceedings"), particularly those involving governments, which have at times been, and may continue to be, increasingly aggressive. We are and may become subject to legal proceedings globally (including criminal, civil and administrative) and across a broad array of matters, including, but not limited to, government contracts, cost accounting, financial accounting and reporting, false statements or claims, cybersecurity and pension accounting and other employee benefit plan matters. These matters can divert resources; result in administrative, civil or criminal fines, penalties or other sanctions (including judgments, convictions, consent or other voluntary decrees or agreements), compensatory, treble or other damages, non-monetary relief, or other liabilities; and otherwise harm our business and our ability to obtain and retain awards. Certain allegations may lead to suspension or debarment from government contracts or suspension of export/import privileges for the company or one or more of its components. Suspension or debarment or criminal resolutions in particular could have a material adverse effect on the company because of our reliance on government contracts and export authorizations. An investigation, claim, dispute, enforcement action or litigation, even if pending or not ultimately substantiated or if fully indemnified or insured, can negatively impact our reputation among our customers and the public, and make it substantially more difficult for us to compete effectively for business, obtain and retain awards, ensure adequate funding for our programs or obtain adequate insurance in the future. Investigations, claims, disputes, enforcement actions, litigation or other legal proceedings could have a material adverse effect on our financial position, results of operations and/or cash flows. See Note 11 to the consolidated financial statements for information regarding investigations, claims and litigation.

- ***The improper conduct of employees, agents, subcontractors, suppliers, business partners or joint ventures in which we participate can impact our reputation, our ability to do business and our financial position, results of operations and/or cash flows.***

We have implemented policies, training and other compliance controls, and have negotiated contractual terms designed to prevent misconduct by employees, agents or others working with us or on our behalf that would violate the applicable laws of the jurisdictions in which we operate, including laws governing improper payments to government officials, the protection of export controlled or classified information, false claims, procurement integrity, cost accounting and billing, competition, information security and data privacy, intellectual property and contract terms. However, we cannot ensure that we will prevent all such misconduct committed by our employees, agents, suppliers, partners or others working with us or on our behalf. We have in the past experienced and may in the future experience such misconduct, despite a vigorous compliance program, our values and strong culture. This risk of improper conduct may increase as we continue to expand globally, with greater opportunities and demands to do more business with local and new partners, and in new environments. At the same time, law enforcement agencies are continuing to focus collaboratively on combating global corruption and other misconduct. In the ordinary course we form and are members of joint ventures or other business arrangements and/or invest in third parties with whom we do business. Notwithstanding our robust processes, we may be unable to prevent misconduct or violations of applicable laws by these joint ventures (including their officers, directors and employees) or our

partners. Improper actions by our employees or those with whom or through whom we do business subjects us to risk of administrative, civil or criminal investigations and enforcement actions; monetary and non-monetary penalties; liabilities; and the loss of privileges and other sanctions, including suspension and debarment, which could negatively impact our reputation and ability to conduct business and could have a material adverse effect on our financial position, results of operations and/or cash flows.

- ***As a U.S. government contractor, we and our partners are subject to various procurement and other laws, regulations and contract terms applicable to our industry, as well as those more broadly applicable to industry, and we could be adversely affected by changes in such laws, regulations or terms, or any negative findings by the U.S. government as to our compliance with them. We also may be adversely affected by changes in our customers' business practices globally.***

U.S. government contractors (including their subcontractors and others with whom they do business) must comply with various specific procurement laws, regulations, rules and other legal requirements, as well as ones more broadly applicable. These various legal requirements, although sometimes customary in government contracting, increase costs and risks. They have been and are evolving at a significant pace. The costs are not always fully recoverable. New laws or other requirements, or changes to existing ones (including, for example, related to cyber, information protection, cost accounting, environment, sustainability, securities, competition, compensation costs, taxes, counterfeit parts, pensions, and use of certain non-US equipment) or more expansive interpretations or other changes in how government agencies construe existing ones, can significantly increase our costs and risks and reduce our profitability.

We operate in a highly regulated environment and are routinely audited and reviewed by the U.S. government and its agencies, such as the DCAA, Defense Contract Management Agency (DCMA) and the DoD Inspector General. These agencies review performance under our contracts, our cost structure and accounting, and our compliance, and the adequacy of our systems in meeting government requirements. Costs ultimately found to be unallowable or improperly allocated may not be reimbursed or may be refunded. When an audit uncovers improper or illegal activities, we are subject to possible civil and criminal penalties, sanctions, or suspension or debarment. Whether or not illegal activities are alleged, the U.S. government has the ability to decrease or withhold certain payments when it deems systems to be inadequate, with significant financial impact, regardless of the ultimate outcome. In addition, we risk serious reputational harm in situations involving allegations of impropriety made against us or our business partners.

Our industry has experienced, and we expect it will continue to experience, significant changes to business practices globally, in part as a result of changes in the global security and threat environment and an increased focus on affordability, efficiencies, business systems, recovery of costs and a reprioritization of available defense funds. We have experienced and may continue to experience an increased number of audits and challenges to our claims and our business systems for current and past years, as well as longer periods to close audits, broader requests for information and an increased risk of withholdings of payments. The U.S. government has been pursuing and may continue to pursue policies that could negatively impact our profitability, including those that shift additional responsibility and performance risks to the contractor. Changes in procurement practices, including those favoring incentive-based fee arrangements; fixed price development or long-term production programs; different award criteria; non-traditional contract provisions; and contract negotiation offers that indicate what our costs should be, have affected and may in the future affect our profitability and predictability.

We (including our subcontractors and others with whom we do business) also are subject to, and expected to perform in compliance with, a vast array of federal, state and local laws, regulations, contract terms and requirements related to our industry, our products and the businesses we operate, as well as those more broadly applicable to industry, such as securities laws and regulations. These requirements, whether specific to our industry or broadly applicable, may limit our ability to achieve our goals. If we are found to have violated any such requirements, or are found not to have acted responsibly, we may be subject to a wide array of actions, including contract modifications or termination; payment withholdings; the loss of export/import privileges; administrative, civil or criminal judgments or penalties (including convictions, agreements, fines, damages and non-monetary relief); or suspension or debarment.

If we or those with whom we do business do not comply with the laws, regulations, rules, contract terms and processes to which we are subject or if customer business practices or requirements change significantly, including with respect to allowable costs, it could affect our ability to compete and have a material adverse effect on our financial position, results of operations and/or cash flows.

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- *Environmental matters, including climate change, unforeseen costs associated with compliance and remediation efforts, and government and third party claims, could have a material adverse effect on our reputation and our financial position, results of operations and/or cash flows.*

Our operations are subject to and affected by a variety of federal, state, local and foreign environmental laws and regulations, including as they may be expanded, otherwise changed or enforced differently over time. Compliance with these existing and evolving environmental laws and regulations requires, and is expected to continue to require, significant operating and capital costs. For example, some of these recently enacted laws and regulations prohibit the use of certain chemicals or other substances that are used in our business, which may require us to identify alternate sources, result in additional costs and/or otherwise impact our business and operations. New and evolving laws, regulations and rule makings globally are expected to impose different and more restrictive standards and require greater disclosures. They could also require capital investments, could adversely impact our ongoing operations, and could require changes on a more accelerated time frame. Our suppliers are expected to face similar challenges and incur additional compliance costs that may be passed on to us. These direct and indirect costs may adversely impact our results of operations and financial condition, and, if we are unable to comply with legislative and regulatory requirements or meet our sustainability objectives, our reputation and ability to do business could be negatively impacted. In addition, our customers' requirements, priorities and ways of doing business with respect to environmental matters, and climate change specifically, also may have an impact on our business, operations and financial success. For example, in 2022, the SEC and FAR council issued proposed rule-makings on climate change. The proposed rules, depending on how they are finally adopted, as well as other changes the government might implement, could impose significant new burdens on the company and our suppliers, with significant potential costs and operational impacts, and adversely impact our ability to win business and operate successfully.

Environmental matters may significantly impact our business and operations and present evolving risks and challenges. Environmental impacts, including climate change specifically, create short and long-term financial risks to our business globally. We have significant operations located in regions that have been, and may in the future be, exposed to significant weather events and other natural disasters. Increased worldwide focus on climate change has led to legislative and regulatory efforts to combat both potential causes and adverse impacts of climate change, including regulation of greenhouse gas emissions. New or more stringent laws and regulations related to greenhouse gas emissions and other climate change related concerns have affected and will likely continue to affect us, our suppliers and our customers. The company has set a goal to achieve net zero greenhouse gas emissions in our operations by 2035 and is committed to working to achieve its climate change and other sustainability goals. We are working to identify opportunities to utilize alternatives to fossil-based energy sources, to decrease our greenhouse gas emissions, to reduce our consumption of water and generation of waste, and to ensure our compliance with environmental regulations where we operate, enhancing our record of environmental sustainability. However, the costs of doing so may be greater than expected, and there can be no assurance the company will achieve its objectives, or meet the evolving sustainability expectations and standards of our investors and other external stakeholders.

We may be subject to substantial administrative, civil or criminal fines, penalties or other sanctions (including suspension and debarment) for violations of environmental laws. If we are found to be in violation of the Federal Clean Air Act or the Clean Water Act, the facility or facilities involved in the violation could be placed by the Environmental Protection Agency on a list of facilities that generally cannot be used in performing on U.S. government contracts until the violation is corrected.

We incur, and expect to continue to incur, substantial remediation costs related to the cleanup of pollutants previously released into the environment. Stricter or different remediation standards or enforcement of existing laws and regulations; new requirements, including regulation of new substances; discovery of previously unknown or more extensive contamination or new contaminants; imposition of fines, penalties, or damages (including natural resource damages); a determination that certain remediation or other costs are unallowable; rulings on allocation or insurance coverage; and/or the insolvency, inability or unwillingness of other parties to pay their share, could require us to incur material additional costs in excess of those anticipated.

We are and may become a party to various legal proceedings and disputes involving government and private parties (including individual and class actions) relating to alleged impacts from pollutants released into the environment, including bodily injury and property damage. These matters could result in material compensatory or other damages, remediation costs, penalties, and non-monetary relief, and adverse determinations on allowability or insurance coverage.

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Government and private parties also seek to hold us responsible for liabilities or obligations related to former operations that have been divested or spun-off and/or for which we believe other parties have agreed to be responsible and/or to indemnify us. These rights may not be sufficient to protect us.

The impact of these factors is difficult to predict, but one or more of them could harm our reputation and business and have a material adverse effect on our financial position, results of operations and/or cash flows.

- ***Unanticipated changes in our tax provisions or exposure to additional tax liabilities could affect our profitability and cash flow.***

We are subject to income and other taxes in the U.S. and foreign jurisdictions. Changes in applicable tax laws and regulations, or their interpretation and application, including the possibility of retroactive effect, have affected and could affect our tax expense. In addition, the final determination of any tax audits or related litigation, in particular with regard to our positions on research credits and timing of revenue recognition under IRC Section 451(b), could be materially different from our historical income tax provisions and accruals.

We may be subject to future tax audits and legal challenges involving OATK, which we acquired in 2018, or the spinoff of its then subsidiary Vista Outdoor, and we may be unable to obtain indemnification or we may be required to indemnify Vista.

Changes in our tax provisions or an increase in our tax liabilities, whether due to changes in applicable laws and regulations, the interpretation or application thereof, or a final determination of tax audits or litigation or agreements, could have a material adverse effect on our financial position, results of operations and/or cash flows.

Business and Operational Risks

- ***Our business could be negatively impacted by cyber and other security threats or disruptions.***

As a defense contractor, we face significant cyber and other security threats. They include, among other things, attempts to gain unauthorized access to sensitive information or otherwise compromise the integrity, confidentiality and/or availability of our systems, hardware and networks, and the information on them; insider threats; ransomware; threats to the safety of our directors, officers and employees; threats to our facilities, infrastructure, products (we produce and use), and subcontractors or other suppliers (referred to inclusively as suppliers); and threats from terrorist acts, espionage, civil unrest and other acts of aggression. We are also subject to increasing government, customer and other cyber and security requirements, including disclosure obligations.

We have robust measures in place to address and mitigate cyber-related risks. However, we have experienced cyber attacks and expect we will continue to experience additional attacks in the future, including from nation states and non-state actors. We continue to invest in the cybersecurity and resiliency of our networks and products and to enhance our internal controls and processes, which are designed to help protect our systems and infrastructure, and the information they contain. These include timely detection of incidents through monitoring, training, incident response capabilities, and mitigating cyber and security risks to our data, systems, products and services. We also partner with the government and others in our industry to help protect national security. However, given the complex, continuing and evolving nature of cyber and other security threats, including threats from targeting by more advanced and persistent adversaries, including nation states and other actors, these efforts may not be fully effective, particularly against previously unknown vulnerabilities that could go undetected for an extended period.

Our customers and partners (including our suppliers and joint ventures) to whom we entrust confidential data, and on whom we rely to provide products and services, face similar threats and growing requirements, including ones for which others may seek to hold us responsible. We depend on our customers, suppliers, and other business partners to implement and verify adequate controls and safeguards to protect against and report cyber incidents. If they fail to deter, detect or report cyber incidents in a timely manner, we may suffer financial and other harm, including to our information, operations, performance, employees and reputation.

Although we implement various measures and controls to monitor and mitigate risks associated with these threats and to increase the cyber resiliency of our infrastructure and products, there can be no assurance that these processes will be sufficient. Successful attacks could lead to losses or misuse of sensitive information or capabilities; theft or corruption of data; harm to personnel, infrastructure or products; financial costs and liabilities; protracted disruptions in our operations and performance; and the misuse of our products, as well as damage to our reputation as a provider of cyber-related or cyber-protected goods and services. We have not always been able to and may in the future not always be able to obtain adequate insurance to cover our losses.

Cyber threats, both on premises and in the cloud, are evolving and include, but are not limited to: malicious software, destructive malware, ransomware, attempts to gain unauthorized access to systems or data, disruption to

operations, critical systems or denial of service attacks; unauthorized release of confidential, personal or other protected information (ours or that of our employees, customers or partners); corruption of data, networks or systems; harm to individuals; and loss of assets. We have been and could be impacted by cyber threats or other disruptions or vulnerabilities found in products or services we use or in our internal, partners' or customers' systems that are used in connection with our business. Some of these threats are zero-day attacks associated with previously unknown vulnerabilities in third party software or products we utilize in our business. Cyber events, if not prevented or effectively mitigated, have caused and could cause harm and require remedial actions. They could also damage our reputation, disrupt performance, impact our ability to obtain future insurance coverage, and lead to loss of business, regulatory actions, liabilities or other financial losses, for which we do not have adequate sources of recovery.

We provide systems, products and services to various customers who also face cyber threats. Our systems, products and services may not be able to detect or deter threats, or effectively to mitigate resulting losses. These losses could adversely affect our customers and our company.

We also face increasing and evolving disclosure obligations related to cyber and other security events. Despite rigorous processes, we risk failing to meet all our existing or future disclosure obligations and/or having our disclosures misinterpreted. National security or public safety considerations may also affect, or in limited instances prevent, our public disclosure of a cybersecurity incident in certain circumstances.

We also face threats to our physical security, including to our facilities and the safety and well-being of our people. These threats could involve terrorism, insider threats, workplace violence, civil unrest, natural disasters, damaging weather, or fires, which could adversely affect our company. Our customers and suppliers face similar risks that, if realized, could also adversely impact our operations. Such acts could cause delays, manufacturing downtime, or other impacts that could detrimentally impact our ability to perform our operations. We could also incur unanticipated costs to remediate impacts and lost business.

The occurrence and impact of these various risks are difficult to predict, but one or more of them could have a material adverse effect on our financial position, results of operations and/or cash flows.

- ***Our ability to win new competitions and meet the needs of our customers depends, in part, on our ability to maintain a qualified workforce.***

Our operating results and growth opportunities are heavily dependent upon our ability to attract and retain sufficient qualified and diverse personnel who are or can reasonably be cleared (and obtain program access), who have the requisite skills in multiple areas, including science, technology, engineering and math, and who share our values and are able to operate effectively consistent with our culture. Outside the U.S., it is increasingly important that we are also able to attract and retain personnel with relevant local qualifications and experience. We continue to face increased competition for talent, both with traditional defense companies and commercial companies, globally, and with increasing wage rates. Although we have realized benefits from extensive hiring and retention programs in recent years, the risk of insufficient personnel may increase, either broadly or with respect to select critical staffing requirements. If necessary qualified personnel are more scarce or more difficult to attract or retain under reasonable terms, or if we experience a high level of attrition, generally or in particular areas, or if such personnel are increasingly unable to obtain security clearances or program access on a timely basis or are unable to be timely and effectively trained, we would expect higher labor-related costs and we could face challenges performing on various of our programs and meeting financial expectations. In addition, the macroeconomic environment, including continued challenges in the global labor market, may further affect our ability to hire, develop and retain the necessary talented and diverse workforce, and to maintain performance levels and our corporate culture. There is also the risk that we are unable to achieve our environmental, social and governance (ESG) goals which may be required by certain of our shareholders, employees, the government and other stakeholders, which could adversely impact our reputation, business and ability to hire and retain talent.

Certain of our employees are covered by collective agreements. We generally have been able to renegotiate renewals to expiring agreements without significant disruption of operating activities. However, the environment appears to be shifting, and if, for example, we experience difficulties with renewals and renegotiations of existing collective agreements, or if our employees pursue new collective representation, we could incur additional expenses and impacts on operating efficiency and may be subject to work stoppages or other labor-related disruptions. Any such expenses or delays could adversely affect our performance and results.

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If we are unable to attract and retain a qualified workforce, we may be unable to maintain our competitive position or achieve our results, and it could have a material adverse effect on our financial position, results of operations and/or cash flows.

- ***Our earnings and profitability depend, in part, on subcontractor and supplier performance and financial viability as well as raw material and component availability and pricing.***

We rely on other companies to provide raw materials, chemicals, parts and components and subsystems for our products, produce hardware elements and sub-assemblies, provide software and intellectual property, provide information about the parts they supply to us, and perform some of the services we need for our operations or provide to our customers, and to do so in compliance with all applicable laws, regulations and contract terms, while maintaining strong values and cultures. Disruptions or performance problems with our subcontractors or other suppliers (referred to inclusively as suppliers), unanticipated cost growth for the products and services they provide, failure to meet regulatory or contractual requirements, unethical behavior, or a misalignment between our contractual obligations to our customers and our agreement with our suppliers, have had and may continue to have various adverse impacts on the company, including on our ability to meet our commitments to customers and financial expectations. This risk of delays and disruptions in the supply chain, and supply chain challenges more broadly, has been and continues to be heightened globally, in the current macroeconomic environment.

Our ability to perform our obligations on time is adversely affected if one or more of our suppliers is unable to provide the agreed-upon products, materials or information, or perform the agreed-upon services in a timely, compliant and cost-effective manner. We also may experience challenges performing if we are unable to use certain raw materials, chemicals or other substances due to laws or other regulations that restrict or prohibit the use of such items and cannot obtain a reasonable substitute on a cost-effective basis. Changes in political or economic conditions, including changes in demand, changes in the macroeconomic environment (including inflation and labor and supply chain challenges), changes in defense budgets and/or priorities, changes in the global security environment, changes in export/import restrictions, evolving requirements, or changes in access to critical technology and materials (including metals and components), among others, have adversely affected and could in the future adversely affect the financial stability of our suppliers and/or their ability to perform effectively. The inability of our suppliers to perform effectively has required and may require us to provide them additional support and/or to transition to alternate suppliers, if available, with additional costs and delays. We expect we will need to continue to provide additional resources to support certain of our suppliers in performing under our contracts. In addition, if we are unable to do that, we may face additional losses and liabilities under our current contracts and adversely impact the prospects for certain new ones.

In connection with our U.S. government contracts, we are required to procure certain materials, components and parts from supply sources approved by the customer and/or are restricted from procuring products or services from certain sources. For example, we require assured access to certain microelectronics. Our ability to produce and/or deliver products will be significantly impacted if the microelectronics manufacturing supply chain is cut off or significantly delayed. For some components, there has been or may be only one supplier, or one domestic supplier. If that supplier cannot meet our needs or if we are unable to procure components from certain suppliers due to regulatory restrictions, we may be unable to find a suitable alternative and to meet our obligations.

We and our suppliers are also facing increased regulatory requirements globally. We may be held responsible not only for our compliance, but that of our suppliers. Our procurement practices are intended to reduce the risk we procure counterfeit, unauthorized or otherwise non-compliant parts or materials. We rely on our suppliers also to comply with applicable laws and contract terms, to ensure the quality of their components and effectively to mitigate the risk of cyber and security threats or other disruptions to their performance.

If our suppliers are not financially viable, incur increased costs of delays, fail to comply with legal requirements, or otherwise fail to address these risks or meet their obligations to us, it could have a material adverse effect on our financial position, results of operations and/or cash flows.

- ***Our international business exposes us to additional risks, including risks related to geopolitical and economic factors, laws and regulations.***

Sales to customers outside the U.S. are an important component of our strategy. Our international business (including our participation in joint ventures, requirements for local content, and our global supply chain) is subject to numerous political and economic factors, legal requirements, cross-cultural considerations and other risks associated with doing business globally. These risks differ in some respects from those associated with our U.S.

business and our exposure to such risks is expected to increase if and as our international business continues to grow.

Our international business is generally subject to both U.S. and foreign laws, regulations and practices. Failure by us, our employees, partners or others with whom we work to comply with applicable laws and regulations could result in administrative, civil, commercial or criminal liabilities, including suspension or debarment from government contracts or suspension of export/import privileges. Failure to comply with local practices can adversely impact our ability to win and perform business. New regulations and requirements, or changes to existing ones in countries in which we operate can significantly increase our costs and risks of doing business internationally. Our customers outside of the U.S. also often have the ability to terminate contracts for convenience as well as for default based on performance. Suspension or debarment, or termination of a contract due to default could have a material adverse effect on our reputation, our ability to compete for other contracts and our financial position, results of operations and/or cash flows. Despite robust processes, we also face risks related to the unintended or unauthorized use of our products and resources.

Changes in laws, political leadership and environment, and/or security risks may dramatically affect our ability to conduct or continue to conduct profitable business in international markets. Our international business is impacted by changes in U.S. and non-U.S. national policies and priorities, and geopolitical relationships, any of which may be influenced by changes in the global threat environment, political leadership, geopolitical and economic uncertainties, world events, government budgets, inflationary pressures, sanctions imposed in countries where we do business or seek to do business, and economic and political factors more generally. The U.S. and its allies continue to face a global security environment of heightened tensions and instability, threats from state and non-state actors, including major global powers, as well as terrorist organizations, emerging nuclear tensions, and diverse regional security concerns. Any of these factors may impact demand for our products and services, funding for programs, our ability to perform, our supply chain, export authorizations, purchasing decisions or customer payments. Global macroeconomic conditions, as well as fluctuations in foreign currency exchange rates and credit, are also likely to further impact our business.

Our contracts with non-U.S. customers in some cases include terms and reflect legal requirements that create additional risks. They may include requirements to hire, invest, manufacture or purchase locally, or specific financial obligations, including offset obligations, and they may provide for significant penalties if we fail to meet such requirements. They may also require us to enter into letters of credit, performance bonds, bank guarantees or other financial arrangements. If we are dependent on certain suppliers, as in the U.S., we face risks related to their failure to perform in accordance with legal requirements, particularly where we rely on a sole source supplier. Our ability to sell products globally could be adversely affected if we are unable to design our products on a cost effective basis or to obtain and retain all necessary export authorizations, which the U.S. government can deny, change or revoke for reasons outside our control. Our business outside of the U.S. also depends on our ability to attract and retain sufficient qualified personnel with the skills and/or security clearances in the markets in which we do business. We may need to partner successfully with non-U.S. companies, including through joint ventures, teaming agreements, co-production or other arrangements. This risk includes the ability to identify and negotiate appropriate arrangements with qualified and acceptable local partners, potential exposure for their actions, and the ability effectively to terminate these arrangements. This risk is complicated further when we partner with government-affiliated entities.

The products and services we provide, including those provided by suppliers and joint ventures, are sometimes in countries with unstable governments, economic or fiscal challenges, military or political conflicts, different business practices and/or developing legal systems. This may increase the risk to our employees, suppliers or other third parties, including for their safety, and increase our risk to a wide range of financial consequences and other liabilities, as well as loss of property or damage to our products.

The occurrence and impact of these factors is difficult to predict, but one or more of them could have a material adverse effect on our financial position, results of operations and/or cash flows.

- ***We face various risks related to health epidemics, pandemics and similar outbreaks, which may have material adverse effects on our business, financial position, results of operations and/or cash flows.***

We face a wide variety of risks related to health epidemics, pandemics and similar outbreaks, especially of infectious diseases. The global health environment has contributed to business slowdowns or shutdowns, labor shortages, supply chain challenges, changes in government spending and requirements, regulatory challenges, inflationary pressures and market volatility. Although we aim to mitigate impacts of adverse changes in the global health environment, these changes can be unpredictable and we may be unable to effectively mitigate them. If a health

epidemic, pandemic or similar outbreak were to occur or worsen, we likely would experience broad and varied impacts, including potentially to our workforce and supply chain, with inflationary pressures and increased costs (which may or may not be fully recoverable or insured), schedule and/or production delays, market volatility and other financial impacts. If any or all of these items were to occur, we could experience material adverse impacts on our business, financial position, results of operations and/or cash flows.

- ***Our future success depends, in part, on our ability to innovate, develop new products and technologies, progress and benefit from digital transformation and maintain technologies, facilities and equipment to win new competitions and meet the needs of our customers. Failure to do so or meet our contractual obligations that require innovative design could adversely affect our profitability, reputation and future prospects.***

We design, develop and manufacture technologically advanced and innovative products and services, which are applied by our customers in a variety of environments, including highly demanding operating conditions, to accomplish challenging missions. Our success depends upon our ability to develop technologically advanced, innovative and cost-effective products and services and market these products and services to our customers globally. Our ability to develop innovative and technologically advanced products depends on the talent of our workforce, continued funding for, and investment in, research and development projects, continued access to assured suppliers of important technologies and components, our ability to compete (including with commercial companies) and our ability to provide the people, technologies, facilities, equipment and financial capacity needed to develop and deliver those products and services with maximum efficiency. To perform on our contracts and to win new business, we also depend increasingly on our ability to progress successfully on our digital transformation. It is increasingly necessary to meet evolving customer requirements, to differentiate our offerings, and to achieve efficiencies that we and our suppliers/partners successfully develop digital based solutions and transform our operations. If we are unable to continue to develop new products and technologies in a timely fashion, and progress successfully to effect digital solutions and transformation, or if we fail to achieve market acceptance more rapidly than our competitors, we may be unable to maintain our competitive position and our future success could be materially adversely affected.

We aim to ensure that our technical solutions are responsibly developed, tested and operated. Problems and delays in the successful development and delivery of our solutions, including as a result of issues with our design, technology or operations, digital transformation, inability to achieve learning curve assumptions, artificial intelligence, manufacturing materials or components, or subcontractor (or other supplier) performance can prevent us from meeting requirements and create significant risk and liabilities. Similarly, failures to perform on schedule or otherwise to fulfill our contractual obligations can negatively impact our financial position, reputation and ability to win future business.

In addition, our products cannot be tested and proven in all situations and are otherwise subject to unforeseen problems that can negatively affect revenue, schedule and profitability, and result in loss of life or property. They include loss on launch or flight of spacecraft, loss of aviation platforms, premature failure of products that cannot be accessed for repair or replacement, unintended explosions, problems with design, quality and workmanship, country of origin of procured materials, inadequate supplier components and degradation of product performance. Factors that may affect revenue and profitability also include: inaccurate cost estimates, design issues, human factors, unforeseen costs and expenses, diversion of management focus, loss of follow-on work, replacement obligations, and repayment to the government customer of certain contract cost and fee payments previously received.

Certain contracts, primarily involving space satellite systems, contain provisions that entitle the customer to recover fees in the event of failure of the system upon launch or subsequent deployment for less than a specified period of time. Under such terms, we are generally required to forfeit fees previously recognized and/or collected.

If we are unable to meet our obligations, including due to issues regarding the design, development or manufacture of our products or services, or we experience launch, platform, satellite system or other failures, it could have a material adverse effect on our reputation, our ability to compete for other contracts and our financial position, results of operations and/or cash flows.

- ***Our business is subject to disruption caused by natural disasters that could adversely affect our profitability and our overall financial position.***

We have significant operations, including centers of excellence, located in regions that have been, and may in the future be, exposed to hurricanes, earthquakes, water levels, wildfires, windstorms, and other natural disasters. We expect our facilities, operations, employees and communities in the future, particularly at facilities in coastal areas and areas prone to extreme weather events and water scarcity to continue to be at risk for future natural disasters or

other weather events (which may be exacerbated by climate change). Climate related changes can impact natural disasters, including weather patterns, with the increased frequency and severity of significant weather events (e.g., flooding, hurricanes and tropical storms), natural hazards (e.g., increased wildfire risk), rising mean temperature and sea levels, and long-term changes in precipitation patterns (e.g., drought, desertification, and/or poor water quality). If a natural disaster occurs, our operations could be interrupted, our employees could be impacted, we could incur significant costs and our performance could be adversely affected. Our subcontractors and other suppliers have also been, and may in the future be, subject to natural disasters that could cause disruption and affect their ability to deliver or perform. Disruptions also impact the availability and cost of materials needed for manufacturing and could increase insurance and other operating costs, or result in a lack of available coverage. Although we take steps to mitigate these risks, including considering them in determining where to put new businesses, the damage and disruption resulting from natural disasters, which may increase, as well as delays in recovery, may be significant.

If insurance or other sources are unavailable or insufficient to recover all costs or if we experience a significant disruption to our business due to a natural disaster, it could have a material adverse effect on our financial position, results of operations and/or cash flows.

- ***We provide products and services, including related to hazardous and high risk operations, which subjects us to various environmental, regulatory, financial, reputational and other risks.***

We provide products and services related to hazardous and high risk operations. Among other such operations, our products and services are used in nuclear-related activities (including nuclear-powered platforms) and used in support of nuclear-related operations of third parties. In addition, certain of our products are provided with space and missile launches. We use and provide energetic materials, including in propulsion systems, which include products that involve highly explosive or flammable elements. We develop missile systems, and counter systems, including strategic deterrents, as well as subsystems and components. These and other activities subject us to various extraordinary risks, including (1) potential liabilities relating to nuclear or non-nuclear launch-related incidents, unintended initiation of energetic materials and explosions, including risk of personal injury, property damage and environmental harm; (2) harmful effects on the environment and human health that may result from nuclear-related activities, operations or incidents; the storage, handling and disposal of radioactive materials; and the development, testing and use of energetics, including in propulsion systems, and unintended explosions or releases and (3) to failed launches. We may be subject to reputational harm and potential liabilities arising out of such incidents or hazardous operations, whether or not the cause was within our control, and insurance may not be reasonably available. Under some circumstances, the U.S. government and prime contractors may provide for certain indemnification and other protection, including pursuant to, or in connection with, Public Law 85-804, 10 U.S.C. 3861, the Price-Anderson Nuclear Industries Indemnity Act, the NASA Space Act, the Commercial Space Launch Act and the Terrorism Risk Insurance Reauthorization Act, for certain risks, but those protections may not be available or adequate.

Certain of our products, such as medium and large caliber ammunition and propulsion systems, involve the use, manufacture and/or handling of a variety of explosive and flammable materials or other hazardous substances. These activities have resulted and may result in incidents that cause workplace injuries and fatalities, the temporary shut down or other disruption of manufacturing, production delays, environmental harm and expense, fines and liabilities to third parties. We have safety and loss prevention programs, which provide for pre-construction reviews, along with safety audits of operations involving explosive materials, to attempt to mitigate some such incidents, as well as potentially insurance coverage and indemnification, but they may not be successful.

In addition, our customers may use our products and services in ways that can be unusually hazardous or risky, or in ways that are not intended, which may create potential liabilities for our company, as well as reputational harm.

If any of these risks were to materialize (e.g. if there was a nuclear incident, or an incident related to launch activities or the use of energetics or propulsion systems), and if insurance coverage or indemnification or other protection was not fully available, it could adversely affect our reputation and have a material adverse effect on our financial position, results of operations and/or cash flows.

- ***We may be unable fully to exploit or adequately to protect intellectual property rights, which could materially affect our ability to compete, our reputation and our financial position, results of operations and/or cash flows.***

To perform on our contracts and to win new business, we depend on our ability to develop, protect and exploit our intellectual property and also to access the intellectual property of others under reasonable terms. Increasing demands from our customers to access and obtain rights in our intellectual property, and positions taken by our suppliers and competitors challenge our ability to exploit, protect and access intellectual property.

We own many forms of intellectual property, including U.S. and foreign patents, trademarks, copyrights and trade secrets and we license or otherwise obtain access to various intellectual property rights of third parties. The U.S. government and certain foreign governments hold licenses or other rights to certain intellectual property that we develop in performance of government contracts, and at times seek to use or authorize others to use such intellectual property, including in competition with us and including where we do not believe they are entitled to do so. Governments continue to increase efforts to assert or obtain more extensive rights in intellectual property, which could reduce our ability to develop, protect and exploit certain of our intellectual property rights and to compete. Governments also decline at times to make intellectual property of others available to us under acceptable terms.

We rely significantly upon proprietary technology, information, processes and know-how. We typically seek to protect this information, including by entering into intellectual property agreements with our employees and other parties such as consultants, teammates and subcontractors. These agreements and other measures may not provide adequate protection for our trade secrets and other proprietary information. In the event of an infringement of such intellectual property rights, a breach of a confidentiality agreement, a misuse or theft of our intellectual property or divulgence of proprietary information, we may not have adequate legal remedies. In addition, our trade secrets or other proprietary information may otherwise become known or be independently developed by competitors.

In some instances, our ability to win or perform contracts requires us to use third party intellectual property. This may require the government or our customer to provide rights to such third party intellectual property, or that we are able to negotiate directly with third parties to obtain necessary rights on reasonable terms. That may not be practicable.

Our intellectual property is subject to challenge, invalidation, misappropriation or circumvention by third parties. Our access to and use of intellectual property licensed or otherwise obtained from third parties is also subject to challenges. Litigation to determine the scope of intellectual property rights, even if ultimately successful, could be costly and could divert management's attention. Moreover, the laws concerning intellectual property rights vary among countries and the protection provided to our intellectual property by foreign laws and courts may not be favorable.

If we are unable adequately to exploit our intellectual property rights, to protect our intellectual property rights, to obtain rights to intellectual property of others, it could have a material adverse effect on our reputation, ability to compete for and perform on contracts, financial position, results of operations and/or cash flows.

General and Other Risk Factors

- ***Our insurance coverage, customer indemnifications or other liability protections may be unavailable or inadequate to cover all of our significant risks, which could adversely affect our profitability and overall financial position.***

We endeavor to obtain insurance from financially solid, responsible, highly rated counterparties in established markets to cover significant risks and liabilities (including, for example, natural disasters, space launches and on-orbit operations, cyber security, hazardous operations, energetics and products liability). Not every risk or liability can be insured, and insurance coverage is not always reasonably available. The policy limits and terms of coverage reasonably obtainable may not be sufficient to cover actual losses or liabilities. For example, the space and property insurance markets are experiencing increased price volatility and capacity constraint. Due to recent increases in the frequency and severity of losses, insurers are decreasing limits, increasing pricing and some may exit the market. Even if insurance coverage is available, we are not always able to obtain it at a price or on terms acceptable to us or without increasing exclusions. Disputes with insurance carriers over the availability of coverage, and the insolvency of one or more of our insurers has affected and may continue to affect the availability or timing of recovery, as well as our ability to obtain insurance coverage at reasonable rates in the future. In some circumstances we may be entitled to certain legal protections or indemnifications from our customers through contractual provisions, laws or otherwise. However, these protections are not always available, are difficult to negotiate and obtain, are typically subject to certain terms or limitations, including the availability of funds, and may not be sufficient to cover our losses or liabilities. If insurance coverage, customer indemnifications and/or other legal protections are not available or are not sufficient to cover risks or losses, it could have a material adverse effect on our financial position, results of operations and/or cash flows.

- ***Pension and other postretirement benefit (OPB) obligations and related expenses and funding requirements may fluctuate significantly depending upon investment performance of plan assets, changes in actuarial assumptions, and legislative or other regulatory actions.***

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The company's pension and OPB obligations and related expenses are dependent upon the investment performance of plan assets and various assumptions, including discount rates, mortality and the estimated long-term rates of return on plan assets. Changes in assumptions associated with our pension and OPB plans, investment performance of plan assets, and gains or losses associated with changes in valuation of marketable securities related to our non-qualified plans and other non-operating assets could have a material adverse effect on our financial position, results of operations and/or cash flows.

Funding requirements for our pension plans, including Pension Benefit Guaranty Corporation premiums, are subject to legislative and other government regulatory actions. In accordance with government regulations, pension plan cost recoveries under our U.S. government contracts may occur in different periods from when they are recognized for financial statement purposes or when pension funding is made. These timing differences, as well as government challenges to pension and OPB cost recovery, could have a material adverse effect on our financial position, results of operations and/or cash flows.

- ***Business investments and/or recorded goodwill and other long-lived assets may become impaired, resulting in substantial losses and write-downs that would reduce our operating income.***

Goodwill is an intangible asset that we recognize in connection with acquisitions of third-party businesses. Goodwill accounts for approximately 38 percent of our total assets as of December 31, 2023. Other long-lived assets principally comprise property, plant and equipment (PP&E) used in operating our business. The cost of PP&E utilized in support of our commercial business, including approximately \$500 million of PP&E used in our commercial space business, is not allocable to government contracts and is therefore subject to greater recoverability risk than PP&E utilized in support of our U.S. government contracts. Although the fair value of our reporting units and the net realizable value of our other long-lived assets currently exceed their respective carrying values, changes in business conditions, the market-based inputs used in our goodwill impairment test, or our assumptions related to the recoverability of our long-lived assets, could result in significant write-offs of goodwill or other long-lived assets, which could have a material adverse effect on our financial condition and/or results of operations.

Item 1B. Unresolved Staff Comments

None.

Item 1C. Cybersecurity

We recognize the critical importance of maintaining the safety and security of our systems and data and have a holistic process for overseeing and managing cybersecurity and related risks. This process is supported by both management and our Board of Directors.

The Chief Information Office, which maintains our cybersecurity function, is led by our Chief Information Officer (CIO), who reports to our CEO. The Chief Information Security Officer (CISO) reports to the CIO and generally is responsible for management of cybersecurity risk and the protection and defense of our networks and systems. The CISO manages a team of cybersecurity professionals with broad experience and expertise, including in cybersecurity threat assessments and detection, mitigation technologies, cybersecurity training, incident response, cyber forensics, insider threats and regulatory compliance.

Our Board of Directors is responsible for overseeing our enterprise risk management activities in general, and each of our Board committees assists the Board in the role of risk oversight. The full Board receives an update on the Company's risk management process and the risk trends related to cybersecurity at least annually. The Audit and Risk Committee specifically assists the Board in its oversight of risks related to cybersecurity. To help ensure effective oversight, the Audit and Risk Committee receives reports on information security and cybersecurity from the CISO at least four times a year.

In addition, the Company's Enterprise Risk Management Council (ERMC) considers risks relating to cybersecurity, among other significant risks, and applicable mitigation plans to address such risks. The ERMC is comprised of the Executive Leadership Team, as well as the Chief Accounting Officer, Chief Compliance Officer, Corporate Secretary, Chief Sustainability Officer, Treasurer and Vice President, Internal Audit. The CIO and CISO attend each ERMC meeting. The ERMC meets during the year and receives periodic updates on cybersecurity risks from the CIO and CISO. We have an established process and playbook led by our CISO governing our assessment, response and notifications internally and externally upon the occurrence of a cybersecurity incident. Depending on the nature and severity of an incident, this process provides for escalating notification to our CEO and the Board (including our Lead Independent Director and the Audit and Risk Committee chair).

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Our approach to cybersecurity risk management includes the following key elements:

- *Multi-Layered Defense and Continuous Monitoring* – We work to protect our computing environments and products from cybersecurity threats through multi-layered defenses and apply lessons learned from our defense and monitoring efforts to help prevent future attacks. We utilize data analytics to detect anomalies and search for cyber threats. Our Cybersecurity Operations Center provides comprehensive cyber threat detection and response capabilities and maintains a 24x7 monitoring system which complements the technology, processes and threat detection techniques we use to monitor, manage and mitigate cybersecurity threats. From time to time, we engage third party consultants or other advisors to assist in assessing, identifying and/or managing cybersecurity threats. We also periodically use our Internal Audit function to conduct additional reviews and assessments.
- *Insider Threats* – We maintain an insider threat program designed to identify, assess, and address potential risks from within our Company. Our program evaluates potential risks consistent with industry practices, customer requirements and applicable law, including privacy and other considerations.
- *Information Sharing and Collaboration* – We work with government, customer, industry and/or supplier partners, such as the National Defense Information Sharing and Analysis Center and other government-industry partnerships, to gather and develop best practices and share information to address cyber threats. These relationships enable the rapid sharing of threat and vulnerability mitigation information across the defense industrial base and supply chain.
- *Third Party Risk Assessments* – We conduct information security assessments before sharing or allowing the hosting of sensitive data in computing environments managed by third parties, and our standard terms and conditions contain contractual provisions requiring certain security protections.
- *Training and Awareness* – We provide awareness training to our employees to help identify, avoid and mitigate cybersecurity threats. Our employees with network access participate annually in required training, including spear phishing and other awareness training. We also periodically host tabletop exercises with management and other employees to practice rapid cyber incident response.
- *Supplier Engagement* – We provide training and other resources to our suppliers to support cybersecurity resiliency in our supply chain. We also require our suppliers to comply with our standard information security terms and conditions, in addition to any requirements from our customers, as a condition of doing business with us, and require them to complete information security questionnaires to review and assess any potential cyber-related risks depending on the nature of the services being provided.

While we have experienced cybersecurity incidents in the past, to date none have materially affected the Company or our financial position, results of operations and/or cash flows. We continue to invest in the cybersecurity and resiliency of our networks and to enhance our internal controls and processes, which are designed to help protect our systems and infrastructure, and the information they contain. For more information regarding the risks we face from cybersecurity threats, please see “Risk Factors.”

FORWARD-LOOKING STATEMENTS AND PROJECTIONS

This Annual Report on Form 10-K and the information we are incorporating by reference contain statements that constitute “forward-looking statements” within the meaning of the Private Securities Litigation Reform Act of 1995. Words such as “will,” “expect,” “anticipate,” “intend,” “may,” “could,” “should,” “plan,” “project,” “forecast,” “believe,” “estimate,” “guidance,” “outlook,” “trends,” “goals” and similar expressions generally identify these forward-looking statements. Forward-looking statements include, among other things, statements relating to our future financial condition, results of operations and/or cash flows. Forward-looking statements are based upon assumptions, expectations, plans and projections that we believe to be reasonable when made, but which may change over time. These statements are not guarantees of future performance and inherently involve a wide range of risks and uncertainties that are difficult to predict. Specific risks that could cause actual results to differ materially from those expressed or implied in these forward-looking statements include, but are not limited to, those identified under “Risk Factors” and other important factors disclosed in this report and from time to time in our other SEC filings. These risks and uncertainties are amplified by the global macroeconomic, security and political environments, including inflationary pressures, labor and supply chain challenges, which have caused and will continue to cause significant challenges, instability and uncertainty. They include:

Industry and Economic Risks

- our dependence on the U.S. government for a substantial portion of our business

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- significant delays or reductions in appropriations and/or for our programs, and U.S. government funding and program support more broadly, including as a result of a prolonged continuing resolution and/or government shutdown, and/or related to the global security environment or other global events
- significant delays or reductions in payments as a result of or related to a breach of the debt ceiling
- the use of estimates when accounting for our contracts and the effect of contract cost growth and our efforts to recover or offset such costs and/or changes in estimated contract costs and revenues, including as a result of inflationary pressures, labor shortages, supply chain challenges and/or other macroeconomic factors, and risks related to management's judgments and assumptions in estimating and/or projecting contract revenue and performance which may be inaccurate
- continued pressures from macroeconomic trends, including on costs, schedules, performance and ability to meet expectations
- increased competition within our markets and bid protests

Legal and Regulatory Risks

- investigations, claims, disputes, enforcement actions, litigation (including criminal, civil and administrative) and/or other legal proceedings
- the improper conduct of employees, agents, subcontractors, suppliers, business partners or joint ventures in which we participate, including the impact on our reputation and our ability to do business
- changes in procurement and other laws, SEC, DoD and other rules and regulations, contract terms and practices applicable to our industry, findings by the U.S. government as to our compliance with such requirements, more aggressive enforcement of such requirements and changes in our customers' business practices globally
- environmental matters, including climate change, unforeseen environmental costs and government and third party claims
- unanticipated changes in our tax provisions or exposure to additional tax liabilities

Business and Operational Risks

- cyber and other security threats or disruptions faced by us, our customers or our suppliers and other partners, and changes in related regulations
- our ability to attract and retain a qualified, talented and diverse workforce with the necessary security clearances to meet our performance obligations
- the performance and viability of our subcontractors and suppliers and the availability and pricing of raw materials and components, particularly with inflationary pressures, increased costs, shortages in labor and financial resources, supply chain disruptions, and extended material lead times
- impacts related to health epidemics and pandemics and similar outbreaks
- our exposure to additional risks as a result of our international business, including risks related to global security, geopolitical and economic factors, misconduct, suppliers, laws and regulations
- our ability to innovate, develop new products and technologies, progress and benefit from digital transformation and maintain technologies to meet the needs of our customers
- natural disasters
- products and services we provide related to hazardous and high risk operations, including the production and use of such products, which subject us to various environmental, regulatory, financial, reputational and other risks
- our ability appropriately to exploit and/or protect intellectual property rights

General and Other Risk Factors

- the adequacy and availability of, and ability to obtain, insurance coverage, customer indemnifications or other liability protections
- the future investment performance of plan assets, gains or losses associated with changes in valuation of marketable securities related to our non-qualified benefit plans, changes in actuarial assumptions associated

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with our pension and other postretirement benefit plans and legislative or other regulatory actions impacting our pension and postretirement benefit obligations

- changes in business conditions that could impact business investments and/or recorded goodwill or the value of other long-lived assets, and other potential future liabilities

We urge you to consider the limitations on, and risks associated with, forward-looking statements and not unduly rely on the accuracy of forward-looking statements. These forward-looking statements speak only as of the date this report is first filed or, in the case of any document incorporated by reference, the date of that document. We undertake no obligation to publicly update or revise any forward-looking statements, whether as a result of new information, future events or otherwise, except as required by applicable law.

Item 2. Properties

At December 31, 2023, we had approximately 51 million square feet of floor space at 459 separate locations, primarily in the U.S., for manufacturing, warehousing, research and testing, administration and various other uses. We leased to third parties approximately 37,000 square feet of our owned and leased facilities. The company's major operations are at the following locations:

Aeronautics Systems

El Segundo, Mojave, Palmdale, Redondo Beach and San Diego, CA; Melbourne and St. Augustine, FL; Iuka and Moss Point, MS; Beavercreek, OH; Oklahoma City, OK; and Clearfield, UT.

Defense Systems

Huntsville, AL; Mesa and Sierra Vista, AZ; Northridge, CA; Warner Robins, GA; Lake Charles, LA; Elkton, MD; Elk River and Plymouth, MN; Dulles, McLean and Radford, VA; and Keyser, WV. Locations outside the U.S. include Australia.

Mission Systems

McClellan, San Diego, Sunnyvale and Woodland Hills, CA; Apopka, FL; Rolling Meadows, IL; Annapolis, Annapolis Junction, Elkridge, Halethorpe, Linthicum and Sykesville, MD; Bethpage and Williamsville, NY; Cincinnati, OH; Salt Lake City, UT; and Chantilly, Charlottesville and Fairfax, VA. Locations outside the U.S. include France, Germany, Italy and the United Kingdom.

Space Systems

Huntsville, AL; Chandler and Gilbert, AZ; Azusa, Carson, Los Angeles, Manhattan Beach, Oxnard, Redondo Beach and San Diego, CA; Aurora, Boulder, and Colorado Springs, CO; Beltsville, MD; Devens, MA; Clearfield, Corinne, Magna, Ogden, Roy and Tremonton, UT; and Dulles and Sterling, VA.

Corporate

Falls Church, VA

The following is a summary of our floor space at December 31, 2023:

<i>Square feet (in thousands)</i>	Owned	Leased	U.S. Government Owned/Leased	Total
Aeronautics Systems	3,179	6,204	3,302	12,685
Defense Systems	1,367	3,328	2,285	6,980
Mission Systems	8,033	4,145	—	12,178
Space Systems	9,546	8,714	589	18,849
Corporate	372	246	—	618
Total	22,497	22,637	6,176	51,310

We maintain our properties in good operating condition and believe the productive capacity of our properties is adequate to meet current contractual requirements and those for the foreseeable future.

Item 3. Legal Proceedings

We have provided information about certain legal proceedings in which we are involved in Notes 11 and 12 to the consolidated financial statements.

We are a party to various investigations, lawsuits, arbitration, claims, enforcement actions and other legal proceedings, including government investigations and claims, that arise in the ordinary course of our business. These types of matters could result in administrative, civil or criminal fines, penalties or other sanctions (which terms

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include judgments or convictions and consent or other voluntary decrees or agreements); compensatory, treble or other damages; non-monetary relief or actions; or other liabilities. Government regulations provide that certain allegations against a contractor may lead to suspension or debarment from future government contracts or suspension of export privileges for the company or one or more of its components. The nature of legal proceedings is such that we cannot assure the outcome of any particular matter. For additional information on pending matters, please see Notes 11 and 12 to the consolidated financial statements, and for further information on the risks we face from existing and future investigations, lawsuits, arbitration, claims, enforcement actions and other legal proceedings, please see “Risk Factors.”

Consistent with SEC Regulation S-K Item 103, we have elected to disclose those environmental proceedings with a governmental entity as a party where the company reasonably believes such proceeding would result in monetary sanctions, exclusive of interest and costs, of \$1.0 million or more.

Item 4. Mine Safety Disclosures

No information is required in response to this item.

PART II

Item 5. Market for Registrant’s Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities

COMMON STOCK

We have 800,000,000 shares authorized at a \$1 par value per share, of which 150,109,271 shares and 153,157,924 shares were issued and outstanding as of December 31, 2023 and 2022, respectively.

PREFERRED STOCK

We have 10,000,000 shares authorized at a \$1 par value per share, of which no shares were issued and outstanding as of December 31, 2023 and 2022.

MARKET INFORMATION

Our common stock is listed on the New York Stock Exchange and trades under the symbol NOC.

HOLDERS

As of January 22, 2024, there were 18,531 common shareholders of record.

PURCHASES OF EQUITY SECURITIES BY THE ISSUER AND AFFILIATED PURCHASERS

Period	Number of Shares Purchased	Average Price Paid per Share⁽¹⁾	Number of Shares Purchased as Part of Publicly Announced Plans or Programs	Approximate Dollar Value of Shares that May Yet Be Purchased under the Plans or Programs (\$ in millions)⁽²⁾
September 30, 2023 - October 27, 2023	85,824	\$ 449.40	85,824	\$ 1,441
October 28, 2023 - November 24, 2023	293,446	466.94	293,446	1,304
November 25, 2023 - December 31, 2023	379,654	470.52	379,654	3,625
Total	758,924	\$ 466.75	758,924	\$ 3,625

⁽¹⁾ Excludes commissions paid.

⁽²⁾ The value remaining on December 31, 2023 includes an additional \$2.5 billion share repurchase authorization approved by the company’s board of directors on December 6, 2023.

Share repurchases take place from time to time, subject to market and regulatory conditions and management’s discretion, in the open market or in privately negotiated transactions. The company retires its common stock upon repurchase and, in the periods presented, has not made any purchases of common stock other than in connection with these publicly announced repurchase programs.

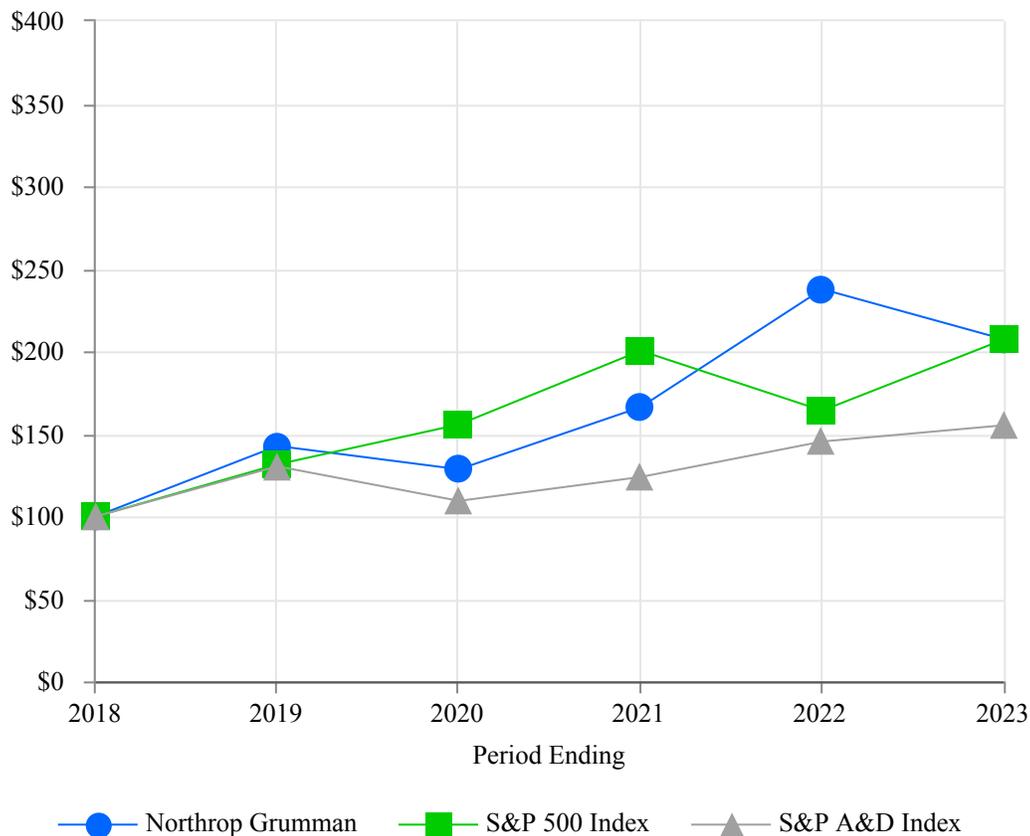
See Note 3 to the consolidated financial statements for further information on our share repurchase programs.

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STOCK PERFORMANCE GRAPH

Comparison of Cumulative Five Year Total Return

Among Northrop Grumman, the Standard & Poor's (S&P) 500 Index and the S&P Aerospace & Defense (A&D) Index



- Assumes \$100 invested at the close of business on December 31, 2018, in Northrop Grumman Corporation common stock, the S&P 500 Index and the S&P A&D Index.
- The cumulative total return assumes reinvestment of dividends.
- The S&P A&D Index is comprised of Axon Enterprise, Inc., The Boeing Company, General Dynamics Corporation, Howmet Aerospace Inc., Huntington Ingalls Industries Inc., L3Harris Technologies, Inc., Lockheed Martin Corporation, Northrop Grumman Corporation, RTX Corporation, Textron Inc., and TransDigm Group Incorporated.
- This graph is not deemed to be “filed” with the SEC or subject to the liabilities of Section 18 of the Securities Exchange Act of 1934 (the Exchange Act), and should not be deemed to be incorporated by reference into any of our prior or subsequent filings under the Securities Act of 1933 or the Exchange Act.

Item 6. [Reserved]

Item 7. Management’s Discussion and Analysis of Financial Condition and Results of Operations

OVERVIEW

The following discussion should be read along with the financial statements included in this Form 10-K, as well as Part II, “Item 7. Management’s Discussion and Analysis of Financial Condition and Results of Operations” of our Form 10-K for the year ended December 31, 2022 (“2022 Annual Report on Form 10-K”).

Global Security Environment

The U.S. and its allies continue to face a global security environment of heightened tensions and instability, threats from state and non-state actors, including in particular major global powers, as well as terrorist organizations, increasing nuclear tensions, diverse regional security concerns and political instability. The market for defense products, services and solutions globally is driven by these complex and evolving security challenges, considered in the broader context of political and socioeconomic circumstances and priorities. Our operations and financial performance, as well as demand for our products and services, are impacted by global events, including violence and unrest. The same is true for our suppliers and other business partners.

The conflict in Ukraine has increased global tensions and instability, highlighted threats and increased global demand, as well as further disrupted global supply chains. We continue to not anticipate significant adverse financial impacts directly from the ongoing conflict. We have experienced, and, while difficult to predict, may continue to experience a modest increase in demand for certain of our goods and services directly and indirectly related to the conflict in Ukraine, either through direct sales or if the U.S. provides increased military assistance and support to Ukraine.

More recently, the hostilities in Israel and the Gaza Strip have further heightened global tensions and instability. At this time, it is unknown whether hostilities in this region will escalate into an even larger conflict. The demand for our goods and services may increase, especially if the U.S. provides increased military assistance and support to Israel. We do not have a significant business presence in the region, and therefore do not anticipate significant adverse financial impacts directly from the current conflict.

More broadly, the ongoing conflicts in Ukraine and Israel and threats elsewhere, particularly in the Pacific region, have heightened tensions and highlighted security requirements globally, including Europe, the Middle East and the Pacific region, as well as the U.S. These conflicts may result in increased demand for defense products and services from allies and partner nations, particularly in those areas. We are actively exploring both opportunities and risks associated with the broader global security environment.

We believe the current global security environment highlights the significant national security threats to the U.S. and its allies, and the need for strong deterrence and a robust defense capability. We believe our capabilities, particularly in space, C4ISR, missile defense, battle management, advanced weapons, and survivable aircraft and mission systems should help our customers in the U.S. and globally defend against current and future threats and, as a result, continue to allow for long-term profitable business growth.

Global Economic Environment

The global economic environment has experienced extraordinary challenges, including high rates of inflation and inflationary pressures; widespread delays and disruptions in supply chains; business slowdowns or shutdowns; workforce challenges and labor shortfalls; and market volatility. Some of these challenges were due, in part, to the global health emergency caused by COVID-19, which the World Health organization declared ended in May 2023. Direct impacts of COVID-19 on our business during 2023 were limited, and we are not currently expecting significant direct impacts on our business going forward.

The macroeconomic factors have contributed, and we expect will continue to contribute, to increased costs, delays, disruptions and other performance challenges, as well as increased competing demands for limited resources to address such increased costs and other challenges, for our company, our suppliers and partners, and our customers.

We continue to work hard to mitigate challenges caused by the current macroeconomic environment on our business, including by taking steps to support our suppliers and small businesses and enhancing our workforce through extensive hiring, development and retention efforts. However, the broader macroeconomic environment, including inflationary pressures and supply chain challenges, continued adversely to affect the company’s results for the year ended December 31, 2023. We cannot clearly predict how long these macroeconomic challenges will continue, how they will change over time, or what additional resources will be available, but we expect to see this challenging macroeconomic environment continue adversely to impact the global economy, our customers and suppliers, our industry and our company in 2024.

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In addition, increased interest rates, raising the cost of borrowing for governments, could further impact government spending priorities (in the U.S. and allied countries, in particular), including their demand for defense products. Economic tensions and changes in international trade policies, including higher tariffs on imported goods and materials and renegotiation of free trade agreements, could also further impact the global market for defense products, services and solutions.

U.S. Political, Budget and Regulatory Environment

The U.S. continues to face an uncertain and evolving political, budget and regulatory environment. In particular, it is difficult to predict the specific course of future defense budgets. Current and future requirements related to the conflicts in Ukraine and Israel, threats in the Pacific regions and other security priorities, as well as global inflation, the national debt, and other domestic priorities, among other things, in the U.S. and globally, will continue to impact our customers' budgets, spending and priorities, and our industry. The U.S. political environment, including the U.S. election cycle, may also impact defense budgets and priorities, issues related to the national debt, and government spending more broadly. We anticipate that issues related to budgetary priorities and defense spending levels, the debt ceiling, and the spending caps imposed by the Fiscal Responsibility Act of 2023 (FRA), particularly with respect to discretionary spending, will continue to be a subject of considerable debate, with a potentially significant impact on our programs and the company.

Annual appropriations to fund the federal government for FY 2024 have not been enacted. Congress continues to pass short-term continuing resolutions (CR) to fund the federal government. The most recent "laddered" CR passed in January 2024 funds the government through March 2024, depending on the appropriation bill. If Congress does not pass full year appropriations or an additional CR before current funding expires, the federal government (or select departments) could face a shutdown and cease what are characterized as certain non-essential operations. Depending on the nature and duration of a potential shutdown, businesses that rely on government funding, including defense contractors, could be significantly impacted. If the federal government remains under a CR at the end of April 2024, the one percent discretionary spending cuts under the FRA could be triggered, potentially resulting in lower funding on the programs in which we participate.

In December 2023, the president signed the National Defense Authorization Act (NDAA) for FY 2024 which supports approximately \$886 billion in FY 2024 funding for national defense, \$842 billion of which is for the DoD.

The political environment, federal budget, debt ceiling and regulatory environment are expected to continue to be the subject of considerable debate, especially in light of the ongoing conflicts and heightened global tensions, the inflationary environment and political tensions. The results of those debates could have material impacts on defense spending broadly and the company's programs in particular. We anticipate that the broader macroeconomic environment, with ongoing inflationary pressures, pockets of labor challenges, and supply chain disruption, among other considerations, will continue to play a significant role in the outcome of these debates and, in turn, on our industry and company.

For further information on the global security and economic environment and U.S. political, budget and regulatory environment, including the risks related thereto, see "Liquidity and Capital Resources," "Quantitative and Qualitative Disclosures About Market Risks" and "Risks Factors" included in this Form 10-K.

Ground-Based Strategic Deterrent ("GBSD" or "Sentinel") Program Nunn-McCurdy Breach Review

Due in part to the impact of macroeconomic factors, in January 2024 the customer provided congressional notification that the Sentinel program is currently under a Nunn-McCurdy breach review, which is required when total program cost estimates exceed certain defined thresholds. This notification, which has been driven primarily by increases in construction and procurement cost projections for the Production and Deployment phases, commences the process to achieve recertification for continuance of the program and update its baseline cost estimates. We are currently executing under a cost-type contract for the Engineering and Manufacturing Development phase, and the Production and Deployment phases are yet to be priced and negotiated. We are continuing to partner with our customer to address this critical mission. For more information, see "Risk Factors".

Disposition of IT and Mission Support Services Business

Effective January 30, 2021 (the "Divestiture date"), we completed the sale of our IT and mission support services business (the "IT services divestiture") for \$3.4 billion in cash and recorded a pre-tax gain of \$2.0 billion. The IT and mission support services business was comprised of the majority of the former Information Solutions and Services (IS&S) division of Defense Systems (excluding the Vinnell Arabia business); select cyber, intelligence and missions support programs, which were part of the former Cyber and Intelligence Mission Solutions (CIMS) division of Mission Systems; and the former Space Technical Services business unit of Space Systems. Operating results include sales and operating income for the IT and mission support services business prior to the Divestiture

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date; therefore, no sales and operating income were recognized for this business during the years ended December 31, 2023 and 2022. The company recorded sales of \$162 million and pre-tax profit of \$20 million for the IT and mission support services business during the year ended December 31, 2021.

Operating Performance Assessment and Reporting

We manage and assess our business based on our performance on contracts and programs (typically larger contracts or two or more closely-related contracts). We recognize sales from our portfolio of long-term contracts as control is transferred to the customer, primarily over time on a cost-to-cost basis (cost incurred relative to costs estimated at completion). As a result, sales tend to fluctuate in concert with costs incurred across our large portfolio of contracts. Due to the applicable FAR and CAS requirements that govern our U.S. government business, most types of costs are allocable to U.S. government contracts. As such, we do not focus on individual cost groupings (such as manufacturing, engineering and design labor, subcontractor, material, overhead and general and administrative (G&A) costs), as much as we do on total contract cost, which is the key driver of our sales and operating income.

In evaluating our operating performance, we primarily focus on changes in sales and operating margin rates. Where applicable, significant fluctuations in operating performance attributable to individual contracts or programs, or changes in a specific cost element across multiple contracts, are described in our analysis. Based on this approach and the nature of our operations, the discussion of results of operations below first focuses on our four segments before distinguishing between products and services. Changes in sales are generally described in terms of volume, while changes in operating margin rates are generally described in terms of performance and/or contract mix. For purposes of this discussion, volume generally refers to increases or decreases in sales or cost from production/service activity levels and performance generally refers to non-volume-related changes in profitability, which are typically described in terms of changes in net EAC adjustments. Contract mix generally refers to changes in the ratio of contract type and/or life cycle (e.g., cost-type, fixed-price, development, production, and/or sustainment).

CONSOLIDATED OPERATING RESULTS

For purposes of the operating results discussion below, we assess our performance using certain financial measures that are not calculated in accordance with accounting principles generally accepted in the United States of America (“GAAP” or “FAS”).

Mark-to-market adjusted net earnings (MTM-adjusted net earnings) and MTM-adjusted earnings per share (MTM-adjusted EPS) exclude MTM pension and OPB (expense)/benefit and related tax impacts, which are generally only recognized during the fourth quarter. Transaction-adjusted net earnings and transaction-adjusted earnings per share (transaction-adjusted EPS) exclude the MTM impacts noted above, as well as impacts related to the IT services divestiture, including the gain on sale of the business, associated federal and state income tax expenses, transaction costs, and the make-whole premium for early debt redemption. These non-GAAP measures may be useful to investors and other users of our financial statements as supplemental measures in evaluating the company’s underlying financial performance by presenting the company’s operating results before the non-operational impact of pension and OPB actuarial gains and losses, and with regard to transaction-adjusted net earnings and EPS, the impact of certain divestiture activity. These measures are also consistent with how management views the underlying performance of the business as the impact of MTM accounting and the IT services divestiture are not considered in management’s assessment of the company’s operating performance or in its determination of incentive compensation awards.

We reconcile these non-GAAP financial measures to their most directly comparable GAAP financial measures below. These non-GAAP measures may not be defined and calculated by other companies in the same manner and should not be considered in isolation or as an alternative to operating results presented in accordance with GAAP.

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Selected financial highlights are presented in the table below:

<i>\$ in millions, except per share amounts</i>	Year Ended December 31			% Change in	
	2023	2022	2021	2023	2022
Sales	\$ 39,290	\$ 36,602	\$ 35,667	7 %	3 %
Operating costs and expenses	36,753	33,001	31,996	11 %	3 %
<i>Operating costs and expenses as a % of sales</i>	93.5 %	90.2 %	89.7 %		
Gain on sale of business	—	—	1,980	— %	NM
Operating income	2,537	3,601	5,651	(30)%	(36)%
<i>Operating margin rate</i>	6.5 %	9.8 %	15.8 %		
Mark-to-market pension and OPB (expense) benefit	(422)	1,232	2,355	NM	(48)%
Federal and foreign income tax expense	290	940	1,933	(69)%	(51)%
<i>Effective income tax rate</i>	12.4 %	16.1 %	21.6 %		
Net earnings	2,056	4,896	7,005	(58)%	(30)%
Diluted earnings per share	\$ 13.53	\$ 31.47	\$ 43.54	(57)%	(28)%

Sales

2023 sales increased \$2.7 billion, or 7 percent, due to higher sales at all four sectors. 2023 sales reflect continued strong demand for our products and services.

See “Segment Operating Results” below for further information by segment and “Product and Service Analysis” for product and service detail. See Note 16 to the consolidated financial statements for information regarding the company’s sales by customer type, contract type and geographic region for each of our segments.

Operating Income and Margin Rate

2023 operating income decreased \$1.1 billion, or 30 percent, primarily due to a \$1.56 billion charge on the B-21 program at Aeronautics Systems, partially offset by higher operating income at Space Systems and Defense Systems. The B-21 charge relates to the low-rate initial production (LRIP) phase of the program and is due principally to a change in our assumptions regarding funding to mitigate the impact of macroeconomic disruptions on the program and higher projected manufacturing costs that reflect recent supplier negotiations and our experience in completing the first aircraft. The decrease was also offset by \$311 million of lower unallocated corporate expense, largely due to higher deferred state tax benefits associated with the MTM adjustment and B-21 charge and lower intangible asset amortization and PP&E step-up depreciation, as well as a \$118 million reduction in the FAS/CAS operating adjustment. 2023 operating margin rate declined to 6.5 percent from 9.8 percent reflecting the items above.

2023 G&A costs as a percentage of sales decreased to 10.2 percent from 10.6 percent, primarily due to higher sales, which more than offset our continued investments for future business opportunities.

For further information regarding product and service operating costs and expenses, see “Product and Service Analysis” below.

Mark-to-Market Pension and OPB Benefit/Expense

The primary components of pre-tax MTM (expense) benefit are presented in the table below:

<i>\$ in millions</i>	Year Ended December 31		
	2023	2022	2021
Actuarial (losses) gains on projected benefit obligation	\$ (1,489)	\$ 9,662	\$ 1,163
Actuarial gains (losses) on plan assets	1,067	(8,430)	1,192
MTM (expense) benefit	\$ (422)	\$ 1,232	\$ 2,355

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The 2023 MTM expense of \$422 million was primarily driven by a 39 basis point decrease in the discount rate from year end 2022, partially offset by actual net plan asset returns of 11.1 percent compared to our 7.5 percent asset return assumption.

Federal and Foreign Income Taxes

The 2023 effective tax rate (ETR) decreased to 12.4 percent from 16.1 percent in 2022 primarily due to lower earnings before income taxes as a result of the B-21 charge and MTM expense, which collectively reduced the 2023 ETR by 3.8 percentage points. The 2022 MTM benefit increased the 2022 ETR by 1.2 percentage points. See Note 7 to the consolidated financial statements for additional information.

Net Earnings

The table below reconciles net earnings to MTM-adjusted net earnings and transaction-adjusted net earnings:

<i>\$ in millions</i>	Year Ended December 31			% Change in	
	2023	2022	2021	2023	2022
Net earnings	\$ 2,056	\$ 4,896	\$ 7,005	(58)%	(30)%
MTM expense (benefit)	422	(1,232)	(2,355)	NM	(48)%
MTM-related deferred state tax (benefit) expense ⁽¹⁾	(22)	65	124	NM	(48)%
Federal tax (benefit) expense of items above ⁽²⁾	(84)	245	469	NM	(48)%
MTM adjustment, net of tax	316	(922)	(1,762)	NM	(48)%
MTM-adjusted net earnings	2,372	3,974	5,243	(40)%	(24)%
Gain on sale of business	—	—	(1,980)	NM	NM
State tax impact ⁽³⁾	—	—	160	NM	NM
Transaction costs	—	—	32	NM	NM
Make-whole premium	—	—	54	NM	NM
Federal tax impact of items above ⁽⁴⁾	—	—	614	NM	NM
Transaction adjustment, net of tax	—	—	(1,120)	NM	NM
Transaction-adjusted net earnings	\$ 2,372	\$ 3,974	\$ 4,123	(40)%	(4)%

⁽¹⁾ The deferred state tax impact in each period was calculated using the company's blended state tax rate of 5.25 percent and is included in Unallocated corporate expense within operating income.

⁽²⁾ The federal tax impact in each period was calculated by subtracting the deferred state tax impact from MTM benefit (expense) and applying the 21 percent federal statutory rate.

⁽³⁾ The state tax impact includes \$62 million of incremental tax expense related to \$1.2 billion of nondeductible goodwill in the divested business.

⁽⁴⁾ The federal tax impact was calculated by applying the 21 percent federal statutory rate to the adjustment items and also includes \$250 million of incremental tax expense related to \$1.2 billion of nondeductible goodwill in the divested business.

2023 net earnings decreased \$2.8 billion, or 58 percent, principally due to a \$1.7 billion decrease in our MTM (expense) benefit, a \$975 million reduction in the non-operating FAS pension benefit and the \$1.1 billion decrease in operating income described above, partially offset by a \$650 million decrease in income tax expense, a \$107 million increase in returns on marketable securities related to our non-qualified benefit plans, and a \$97 million gain recognized upon the sale of our minority investment in an Australian business.

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Diluted Earnings Per Share

The table below reconciles diluted earnings per share to MTM-adjusted EPS and transaction-adjusted EPS:

	Year Ended December 31			% Change in	
	2023	2022	2021	2023	2022
Diluted earnings per share	\$ 13.53	\$ 31.47	\$ 43.54	(57)%	(28)%
MTM expense (benefit) per share	2.78	(7.92)	(14.64)	NM	(46)%
MTM-related deferred state tax (benefit) expense per share ⁽¹⁾	(0.14)	0.42	0.77	NM	(45)%
Federal tax (benefit) expense of items above per share ⁽²⁾	(0.56)	1.57	2.92	NM	(46)%
MTM adjustment per share, net of tax	2.08	(5.93)	(10.95)	NM	(46)%
MTM-adjusted EPS	15.61	25.54	32.59	(39)%	(22)%
Gain on sale of business per share	—	—	(12.31)	NM	NM
State tax impact ⁽³⁾ per share	—	—	0.99	NM	NM
Transaction costs per share	—	—	0.20	NM	NM
Make-whole premium per share	—	—	0.34	NM	NM
Federal tax impact of items above ⁽⁴⁾ per share	—	—	3.82	NM	NM
Transaction adjustment per share, net of tax	—	—	(6.96)	NM	NM
Transaction-adjusted EPS	\$ 15.61	\$ 25.54	\$ 25.63	(39)%	— %

⁽¹⁾ The deferred state tax impact in each period was calculated using the company's blended state tax rate of 5.25 percent and is included in Unallocated corporate expense within operating income.

⁽²⁾ The federal tax impact in each period was calculated by subtracting the deferred state tax impact from MTM benefit (expense) and applying the 21 percent federal statutory rate.

⁽³⁾ The state tax impact includes \$62 million of incremental tax expense related to \$1.2 billion of nondeductible goodwill in the divested business.

⁽⁴⁾ The federal tax impact was calculated by applying the 21 percent federal statutory rate to the adjustment items and also includes \$250 million of incremental tax expense related to \$1.2 billion of nondeductible goodwill in the divested business.

2023 diluted earnings per share decreased \$17.94, or 57 percent, reflecting the 58 percent decrease in net earnings described above and a 2 percent decrease in weighted-average diluted shares outstanding.

SEGMENT OPERATING RESULTS

Basis of Presentation

The company is aligned in four operating sectors, which also comprise our reportable segments: Aeronautics Systems, Defense Systems, Mission Systems and Space Systems. For a more complete description of each segment's products and services, see "Business."

Segment Operating Income and Margin Rate

Segment operating income, as reconciled in the table below, and segment operating margin rate (segment operating income divided by sales) are non-GAAP measures that reflect the combined operating income of our four segments less the operating income associated with intersegment sales. Segment operating income includes pension expense allocated to our sectors under FAR and CAS and excludes FAS pension service expense and unallocated corporate items (certain corporate-level expenses, which are not considered allowable or allocable under applicable FAR and CAS requirements, and costs not considered part of management's evaluation of segment operating performance). These non-GAAP measures may be useful to investors and other users of our financial statements as supplemental measures in evaluating the financial performance and operational trends of our sectors. These measures may not be

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defined and calculated by other companies in the same manner and should not be considered in isolation or as alternatives to operating results presented in accordance with GAAP.

<i>\$ in millions</i>	Year Ended December 31			% Change in	
	2023	2022	2021	2023	2022
Operating income	\$ 2,537	\$ 3,601	\$ 5,651	(30)%	(36)%
<i>Operating margin rate</i>	6.5 %	9.8 %	15.8 %		
Reconciliation to segment operating income:					
CAS pension expense	(154)	(167)	(544)	(8)%	(69)%
FAS pension service expense	236	367	414	(36)%	(11)%
FAS/CAS operating adjustment	82	200	(130)	(59)%	(254)%
Gain on sale of business	—	—	(1,980)	— %	NM
IT services divestiture – unallowable state taxes and transaction costs	—	—	192	— %	NM
Intangible asset amortization and PP&E step-up depreciation	122	242	254	(50)%	(5)%
Deferred state tax (benefit) expense ⁽¹⁾ of MTM adjustment	(22)	65	124	(134)%	(48)%
Deferred state tax benefit of B-21 charge ⁽¹⁾	(82)	—	—	NM	NM
Other unallocated corporate expense	123	145	106	(15)%	37 %
Unallocated corporate expense (income)	141	452	(1,304)	(69)%	(135)%
Segment operating income	\$ 2,760	\$ 4,253	\$ 4,217	(35)%	1 %
<i>Segment operating margin rate</i>	7.0 %	11.6 %	11.8 %		

⁽¹⁾ Represents the deferred state tax (benefits) expenses associated with MTM (expense) benefit and the B-21 charge, which are recorded in Unallocated corporate expense (income) consistent with other changes in deferred state taxes.

Segment Operating Income and Margin Rate

2023 segment operating income decreased \$1.5 billion, or 35 percent, and segment operating margin rate decreased to 7.0 percent primarily due to the B-21 charge at Aeronautics Systems. Operating income at Space Systems and Defense Systems was higher than in the prior year period.

FAS/CAS Operating Adjustment

The decrease in our 2023 FAS/CAS operating adjustment is primarily due to lower FAS pension service expense resulting from changes in certain actuarial assumptions as of December 31, 2022.

Unallocated Corporate Expense (Income)

The decrease in 2023 unallocated corporate expense is primarily due to higher deferred state tax benefits associated with the MTM adjustment and B-21 charge and lower intangible asset amortization and PP&E step-up depreciation.

Net Estimate-At-Completion (EAC) Adjustments - We record changes in estimated contract earnings at completion (net EAC adjustments) using the cumulative catch-up method of accounting. Net EAC adjustments can have a significant effect on reported sales and operating income and the aggregate amounts are presented in the table below:

<i>\$ in millions</i>	Year Ended December 31		
	2023	2022	2021
Favorable EAC adjustments	\$ 1,314	\$ 1,337	\$ 1,242
Unfavorable EAC adjustments	(1,230)	(977)	(715)
Net EAC adjustments	\$ 84	\$ 360	\$ 527

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Net EAC adjustments by segment are presented in the table below:

<i>\$ in millions</i>	Year Ended December 31		
	2023	2022	2021
Aeronautics Systems	\$ (44)	\$ 174	\$ 25
Defense Systems	111	111	113
Mission Systems	149	138	263
Space Systems	(121)	(38)	134
Eliminations	(11)	(25)	(8)
Net EAC adjustments	\$ 84	\$ 360	\$ 527

AERONAUTICS SYSTEMS

Aeronautics Systems is a leader in the design, development, production, integration, sustainment and modernization of military aircraft systems for the U.S. Air Force, the U.S. Navy, other U.S. government agencies, and international customers. Major products include strategic long-range strike aircraft; tactical fighter and air dominance aircraft; airborne battle management and command and control systems; and unmanned autonomous aircraft systems, including high-altitude long-endurance (HALE) strategic intelligence, surveillance and reconnaissance (ISR) systems and vertical take-off and landing (VTOL) tactical ISR systems.

<i>\$ in millions</i>	Year Ended December 31			% Change in	
	2023	2022	2021	2023	2022
Sales	\$ 10,786	\$ 10,531	\$ 11,259	2 %	(6)%
Operating (loss) income	(473)	1,116	1,093	NM	2 %
Operating margin rate	(4.4)%	10.6 %	9.7 %		

Sales

2023 sales increased \$255 million, or 2 percent, primarily due to higher volume on restricted programs, partially offset by a \$191 million decrease on the F/A-18 program largely due to post Multi-Year Procurement 4 (MYP4) contract award timing, a \$131 million decrease on the Joint Surveillance and Target Attack Radar System (JSTARS) program as that program nears completion and a decrease on the E-2 program largely related to higher material volume in the prior year.

Operating Income

2023 operating income decreased \$1.6 billion and operating margin rate decreased to (4.4) percent primarily due to the previously described \$1.56 billion charge recorded on the LRIP phase of the B-21 program, inclusive of a \$143 million unfavorable EAC adjustment for the first LRIP lot. The prior year period includes \$133 million of favorable EAC adjustments on the engineering, manufacturing and development phase of the B-21 program and a \$38 million gain on a property sale. Apart from the B-21 EAC adjustments noted above, net EAC adjustments across the sector were \$58 million higher than in the prior year.

DEFENSE SYSTEMS

Defense Systems is a leader in the design, development, integration and production of advanced tactical weapons and missile defense solutions, and a provider of sustainment, modernization and training services for manned and unmanned aircraft and electronics systems for the U.S. military and a broad range of international customers. Major products and services include integrated, all-domain command and control (C2) battle management systems, precision strike weapons; advanced propulsion, including high speed air-breathing and hypersonic systems; high-performance gun systems, ammunition, precision munitions and advanced fuzes; aircraft and mission systems logistics support, sustainment, operations and modernization; and warfighter training.

<i>\$ in millions</i>	Year Ended December 31			% Change in	
	2023	2022	2021	2023	2022
Sales	\$ 5,862	\$ 5,579	\$ 5,776	5 %	(3)%
Operating income	710	664	696	7 %	(5)%
Operating margin rate	12.1 %	11.9 %	12.0 %		

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Sales

2023 sales increased \$283 million, or 5 percent, primarily due to higher volume on several programs, including ammunition programs, Guided Multiple Launch Rocket System (GMLRS), an international training program, Hypersonic Attack Cruise Missile (HACM), and Stand-in Attack Weapon (SiAW).

Operating Income

2023 operating income increased \$46 million, or 7 percent, due to higher sales and a higher operating margin rate. Operating margin rate increased to 12.1 percent from 11.9 percent primarily due to the write-down of an unconsolidated joint venture investment in the prior year.

MISSION SYSTEMS

Mission Systems is a leader in advanced mission solutions and multifunction systems, primarily for the U.S. defense and intelligence community, and international customers. Major products and services include command, control, communications and computers, intelligence, surveillance and reconnaissance (C4ISR) systems; radar, electro-optical/infrared (EO/IR) and acoustic sensors; electronic warfare systems; advanced communications and network systems; full spectrum cyber solutions; intelligence processing systems; advanced microelectronics; navigation and positioning sensors; and maritime power, propulsion and payload launch systems.

<i>\$ in millions</i>	Year Ended December 31			% Change in	
	2023	2022	2021	2023	2022
Sales	\$ 10,895	\$ 10,396	\$ 10,134	5 %	3 %
Operating income	1,609	1,618	1,579	(1)%	2 %
<i>Operating margin rate</i>	<i>14.8 %</i>	<i>15.6 %</i>	<i>15.6 %</i>		

Sales

2023 sales increased \$499 million, or 5 percent, primarily due to higher restricted sales on advanced microelectronics programs, as well as a \$165 million increase on marine systems programs. These increases were partially offset by a \$107 million decrease on the Ground/Air Task Oriented Radar (G/ATOR) program largely driven by the timing of material receipts and full-rate production (FRP) 5 contract award, as well as lower volume on airborne radar programs.

Operating Income

2023 operating income decreased \$9 million, or 1 percent, due to a lower operating margin rate, which more than offset higher sales. Operating margin rate decreased to 14.8 percent from 15.6 percent primarily due to a prior year \$33 million benefit recognized in connection with a contract-related legal matter, as well as changes in contract mix toward more cost-type content.

SPACE SYSTEMS

Space Systems is a leader in delivering end-to-end mission solutions through the design, development, integration, production and operation of space, missile defense, launch and strategic missile systems for national security, civil government, commercial and international customers. Major products include satellites and spacecraft systems, subsystems, sensors and payloads; ground systems; missile defense systems and interceptors; launch vehicles and related propulsion systems; and strategic missiles.

<i>\$ in millions</i>	Year Ended December 31			% Change in	
	2023	2022	2021	2023	2022
Sales	\$ 13,946	\$ 12,275	\$ 10,608	14 %	16 %
Operating income	1,212	1,158	1,121	5 %	3 %
<i>Operating margin rate</i>	<i>8.7 %</i>	<i>9.4 %</i>	<i>10.6 %</i>		

Sales

2023 sales increased \$1.7 billion, or 14 percent, primarily due to higher volume on restricted programs and ramp-up on development programs, including increases of \$426 million on the Ground Based Strategic Deterrent (GBSD) program, \$333 million on the Next-Generation Overhead Persistent Infrared Polar (NextGen Polar) program, \$219 million on the Next Generation Interceptor (NGI) program, \$119 million on the Space Development Agency (SDA) Tranche 1 Tracking Layer program and \$102 million on the SDA Tranche 2 Transport Layer program. These increases were partially offset by a \$172 million decrease for Commercial Resupply Services (CRS) missions and a \$109 million decrease on the Habitation and Logistics Outpost (HALO) program.

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Operating Income

2023 operating income increased \$54 million, or 5 percent, due to higher sales, partially offset by a lower operating margin rate. Operating margin rate decreased to 8.7 percent from 9.4 percent primarily due to a prior year \$96 million gain recognized in connection with a land exchange transaction, as well as lower net EAC adjustments driven by \$100 million of unfavorable EAC adjustments on the HALO program in 2023. These decreases were partially offset by a \$42 million benefit from insurance recoveries in our commercial space business during 2023.

PRODUCT AND SERVICE ANALYSIS

The following table presents product and service sales and operating costs and expenses by segment:

<i>\$ in millions</i>	Year Ended December 31					
	2023		2022		2021	
Segment Information:	Sales	Operating Costs and Expenses	Sales	Operating Costs and Expenses	Sales	Operating Costs and Expenses
Aeronautics Systems						
Product	\$ 8,157	\$ 8,942	\$ 7,981	\$ 7,161	\$ 9,408	\$ 8,534
Service	2,389	2,099	2,311	2,042	1,662	1,462
Intersegment eliminations	240	218	239	212	189	170
Total Aeronautics Systems	10,786	11,259	10,531	9,415	11,259	10,166
Defense Systems						
Product	2,984	2,615	2,717	2,385	2,564	2,243
Service	2,080	1,836	2,056	1,819	2,423	2,137
Intersegment eliminations	798	701	806	711	789	700
Total Defense Systems	5,862	5,152	5,579	4,915	5,776	5,080
Mission Systems						
Product	7,749	6,669	7,376	6,291	7,064	6,017
Service	2,092	1,730	2,005	1,639	2,077	1,695
Intersegment eliminations	1,054	887	1,015	848	993	843
Total Mission Systems	10,895	9,286	10,396	8,778	10,134	8,555
Space Systems						
Product	12,007	11,067	10,448	9,455	8,832	7,898
Service	1,832	1,572	1,708	1,557	1,637	1,464
Intersegment eliminations	107	95	119	105	139	125
Total Space Systems	13,946	12,734	12,275	11,117	10,608	9,487
Total Product	\$ 30,897	\$ 29,293	\$ 28,522	\$ 25,292	\$ 27,868	\$ 24,692
Total Service	8,393	7,237	8,080	7,057	7,799	6,758
Total Company	\$ 39,290	\$ 36,530	\$ 36,602	\$ 32,349	\$ 35,667	\$ 31,450

Product Sales and Costs

2023 product sales increased \$2.4 billion, or 8 percent, due to an increase in product sales at all four sectors. The increase was principally driven by higher volume on restricted programs, GBSB and NGI at Space Systems, higher restricted sales at Mission Systems and Aeronautics Systems, and higher volume on ammunition programs, GMLRS, IBCS and HACM at Defense Systems.

2023 product costs increased \$4.0 billion, or 16 percent, consistent with the higher product sales described above and reflect a lower operating margin rate principally due to the previously described \$1.56 billion charge on the B-21 program at Aeronautics Systems and lower net EAC adjustments on Space Systems production programs.

Service Sales and Costs

2023 service sales increased \$313 million, or 4 percent, due to an increase in service sales at all four sectors. The increase was principally driven by higher restricted sales at Space Systems and Aeronautics Systems, higher volume on restricted programs and F-35 sustainment at Mission Systems, and higher volume on an international training program at Defense Systems.

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2023 service costs increased \$180 million, or 3 percent, consistent with the higher service sales described above and reflects a higher operating margin rate on Space Systems service programs.

BACKLOG

Backlog represents the future sales we expect to recognize on firm orders received by the company and is equivalent to the company's remaining performance obligations at the end of each period. It comprises both funded backlog (firm orders for which funding is authorized and appropriated) and unfunded backlog. Unexercised contract options and indefinite delivery indefinite quantity (IDIQ) contracts are not included in backlog until the time the option or IDIQ task order is exercised or awarded. Backlog is converted into sales as costs are incurred or deliveries are made.

Backlog consisted of the following at December 31, 2023 and 2022:

<i>\$ in millions</i>	2023			2022	% Change in 2023
	Funded	Unfunded	Total Backlog	Total Backlog	
Aeronautics Systems	\$ 9,660	\$ 9,923	\$ 19,583	\$ 19,397	1 %
Defense Systems	6,346	1,718	8,064	7,515	7 %
Mission Systems	11,334	4,774	16,108	13,875	16 %
Space Systems	10,035	30,440	40,475	37,956	7 %
Total backlog	\$ 37,375	\$ 46,855	\$ 84,230	\$ 78,743	7 %

2023 net awards totaled \$44.8 billion. Significant 2023 new awards include \$15.5 billion for restricted programs (primarily at Space Systems, Aeronautics Systems and Mission Systems), \$2.1 billion for F-35 programs (primarily at Aeronautics Systems and Mission Systems), \$1.7 billion for E-2, \$1.5 billion for Triton, \$1.4 billion for SDA Tranche 2 Transport Layer, and \$0.8 billion for GMLRS.

Subsequent Event – In January 2024, the company received a termination for convenience in our restricted Space business. The company expects to reduce backlog by approximately \$2 billion during the first quarter of 2024 related to the termination.

LIQUIDITY AND CAPITAL RESOURCES

We are focused on the efficient conversion of operating income into cash to provide for the company's material cash requirements, including working capital needs, satisfaction of contractual commitments, funding of our pension and OPB plans, investment in our business through capital expenditures, and shareholder return through dividend payments and share repurchases.

As of December 31, 2023, we had cash and cash equivalents of \$3.1 billion; \$277 million was held outside of the U.S. by foreign subsidiaries. We expect cash and cash equivalents and cash generated from operating activities, supplemented by borrowings under credit facilities, commercial paper and/or in the capital markets through our shelf registration with the SEC, if needed, to be sufficient to provide liquidity to the company in the short-term and long-term. The company has a five-year senior unsecured credit facility in an aggregate principal amount of \$2.5 billion, and in April 2023, we renewed our one-year \$500 million uncommitted credit facility. At December 31, 2023, there were no borrowings outstanding under these credit facilities. In February 2023, we issued \$2.0 billion of unsecured senior notes for general corporate purposes, including debt repayment, share repurchases and working capital.

The company's principal contractual commitments include purchase obligations, repayments of long-term debt and related interest, and payments under operating leases. At December 31, 2023, we had \$20.7 billion of purchase obligations, approximately half of which is short-term. Purchase obligations are largely comprised of open purchase order commitments to suppliers and subcontractors under U.S. government contracts. In most circumstances, our risk associated with the purchase obligations on our U.S. government contracts is limited to the termination liability provisions within those contracts. As such, we do not believe they represent a material liquidity risk to the company. At December 31, 2023, we had capital expenditure commitments of \$1.4 billion, which we expect to satisfy with cash on hand. We also had provisions for uncertain tax positions of \$2.0 billion, some or all of which could result in future cash payments to various taxing authorities. At this time, we are unable to estimate the timing and amount of any future cash outflows related to these uncertain tax positions.

Refer to the respective notes to the consolidated financial statements for further information about our share repurchase programs (Note 3), commercial paper, credit facilities and long-term debt (Note 10), standby letters of

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credit and guarantees (Note 12), future minimum contributions for the company's pension and OPB plans (Note 13), and lease payment obligations (Note 15).

Internal Revenue Code (IRC) Section 174

Beginning in 2022, the Tax Cuts and Jobs Act of 2017 ("TCJA") eliminated the option to deduct research and development expenditures in the current year and requires taxpayers to amortize them over five years pursuant to IRC Section 174. Our 2022 cash from operations were reduced by approximately \$900 million for federal estimated tax payments we made related to Section 174. As we finalized our 2022 federal tax return along with our continued analysis of research and development expenditures, we reduced the previously estimated impact of Section 174 on our tax liability for 2022 and 2023 to approximately \$700 million and \$500 million, respectively. Congress is considering legislation that would defer the amortization requirement to later years, possibly with retroactive effect. In the meantime, we expect to continue to make additional federal tax payments based on the current Section 174 tax law. The impact of Section 174 on our cash from operations depends on the amount of research and development expenditures incurred by the company and whether the IRS issues guidance on the provision which differs from our current interpretation, among other things.

Cash Flow Measures

In addition to our cash position, we consider various cash flow measures in capital deployment decision-making, including cash provided by operating activities and adjusted free cash flow, a non-GAAP measure described in more detail below.

Operating Cash Flow

The table below summarizes key components of cash provided by operating activities:

<i>\$ in millions</i>	Year Ended December 31		
	2023	2022	2021
Net earnings	\$ 2,056	\$ 4,896	\$ 7,005
Gain on sale of business	—	—	(1,980)
B-21 charge	1,559	—	—
Non-cash items ⁽¹⁾	551	(1,305)	(1,510)
Pension and OPB contributions	(139)	(136)	(141)
Changes in trade working capital	(144)	(600)	181
Other, net	(8)	46	12
Net cash provided by operating activities	\$ 3,875	\$ 2,901	\$ 3,567

⁽¹⁾ Includes depreciation and amortization, non-cash lease expense, MTM (expense) benefit, stock based compensation expense, deferred income taxes and net periodic pension and OPB income.

2023 cash provided by operating activities increased \$974 million, or 34 percent, principally due to improved trade working capital largely driven by increased billings and cash collections, partially offset by higher supplier payments.

Adjusted Free Cash Flow

Adjusted free cash flow, as reconciled in the table below, is a non-GAAP measure defined as net cash provided by or used in operating activities, less capital expenditures, plus proceeds from the sale of equipment to a customer (not otherwise included in net cash provided by or used in operating activities) and the after-tax impact of discretionary pension contributions, if any. Adjusted free cash flow includes proceeds from the sale of equipment to a customer as such proceeds were generated in a customer sales transaction. It also includes the after-tax impact of discretionary pension contributions for consistency and comparability of financial performance. This measure may not be defined and calculated by other companies in the same manner. We use adjusted free cash flow as a key factor in our planning for, and consideration of, acquisitions, the payment of dividends and stock repurchases. This non-GAAP measure may be useful to investors and other users of our financial statements as a supplemental measure of our cash performance, but should not be considered in isolation, as a measure of residual cash flow available for discretionary purposes, or as an alternative to operating cash flows presented in accordance with GAAP.

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The table below reconciles net cash provided by operating activities to adjusted free cash flow:

<i>\$ in millions</i>	Year Ended December 31			% Change in	
	2023	2022	2021	2023	2022
Net cash provided by operating activities	\$ 3,875	\$ 2,901	\$ 3,567	34 %	(19)%
Capital expenditures	(1,775)	(1,435)	(1,415)	24 %	1 %
Proceeds from sale of equipment to a customer	—	155	84	(100)%	85 %
Adjusted free cash flow	\$ 2,100	\$ 1,621	\$ 2,236	30 %	(28)%

2023 adjusted free cash flow increased \$479 million, or 30 percent, principally due to higher net cash provided by operating activities, partially offset by an increase in capital expenditures.

Investing Cash Flow

2023 net cash used in investing activities increased \$341 million principally due to higher capital expenditures. Proceeds from the sale of minority investments in 2023 were largely offset by cash received in 2022 from the sale of equipment to a customer.

Financing Cash Flow

2023 net cash used in financing activities decreased \$852 million principally due to the issuance of \$2.0 billion in long-term debt, partially offset by \$1.05 billion in debt repayments. Cash returned to shareholders through share repurchases and dividends totaled \$2.6 billion in each period.

CRITICAL ACCOUNTING POLICIES AND ESTIMATES

Our consolidated financial statements are prepared in conformity with GAAP, which requires us to make estimates and assumptions about future events that affect the amounts reported in our consolidated financial statements. We employ judgment in making our estimates in consideration of historical experience, currently available information and various other assumptions that we believe to be reasonable under the circumstances. Actual results could differ from our estimates and assumptions, and any such differences could be material to our consolidated financial statements. We believe the following accounting policies are critical to the understanding of our consolidated financial statements and require the use of significant management judgment in their application. For a summary of our significant accounting policies, see Note 1 to the consolidated financial statements.

Revenue Recognition

Due to the long-term nature of our contracts, we generally recognize revenue over time using the cost-to-cost method, which requires us to make reasonably dependable estimates regarding the revenue and cost associated with the design, manufacture and delivery of our products and services.

Contract sales may include estimates of variable consideration, including cost or performance incentives (such as award and incentive fees), un-priced change orders, REAs and contract claims. Variable consideration is included in total estimated sales to the extent it is probable that a significant reversal in the amount of cumulative revenue recognized will not occur when the uncertainty associated with the variable consideration is subsequently resolved. We estimate variable consideration as the most likely amount to which we expect to be entitled.

Our cost estimation process is based on the professional knowledge of our engineering, program management and financial professionals, and draws on their significant experience and judgment. We prepare EACs for our contracts and calculate an estimated contract profit based on total estimated contract sales and cost. Since our contracts often span a period of several years, estimation of revenue, cost, and progress toward completion requires the use of judgment. Factors considered in these estimates include our historical performance, the availability, productivity and cost of labor, the nature and complexity of work to be performed, the effect of change orders, availability and cost of materials, components and subcontracts, the effect of any delays in performance and the level of indirect cost allocations.

We also consider the impact of macroeconomic factors on our estimates, in particular on contract EACs that span several years. For example, during 2023, we included in our EACs management's best estimate of the impact inflation has had and may continue to have on our contracts. We also included our current best estimate of the impact on our EACs of disruptions we have experienced and continue to experience in the supply chain. The volatility of the recent macroeconomic environment has added complexity to our estimation process and may result in our year end 2023 contract EACs having more variability in the future than they might otherwise have had if the estimates had been prepared in a more stable macroeconomic environment.

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We generally review and reassess our sales, cost and profit estimates for each significant contract at least annually or more frequently as determined by the occurrence of events, changes in circumstances and evaluations of contract performance to reflect the latest reliable information available. These assessments require judgments and estimates that can be affected by any number of these factors over time, which may cause actual results to differ materially from those estimates as facts and circumstances change or become known to us.

The company performs on a broad portfolio of long-term contracts, including the development of complex and customized military platforms and systems, as well as advanced electronic equipment and software, that often include technology at the forefront of science. Cost estimates on fixed-price development contracts and early-stage/low-rate production contracts are inherently more uncertain as to future events than on mature, full-rate production contracts. As a result, there is typically more variability in those estimates and greater financial risk associated with unanticipated cost growth on fixed-price development contracts and early-stage/low-rate production contracts. Changes in estimates occur for a variety of reasons, including changes in contract scope, the resolution of risk at lower or higher cost than anticipated, unanticipated performance and other risks affecting contract costs, performance issues with subcontractors or suppliers, changes in indirect cost allocations, such as overhead and G&A costs, and changes in estimated award and incentive fees. Identified risks typically include technical, schedule and/or performance risk based on our evaluation of the contract effort. Similarly, the changes in estimates may include changes in, or resolution of, identified opportunities for operating margin improvement.

For the impacts of changes in estimates on our consolidated statements of earnings and comprehensive income, see “Segment Operating Results” and Note 1 to the consolidated financial statements.

Retirement Benefits

Overview – The determination of projected benefit obligations, the fair value of plan assets, and pension and OPB expense for our retirement benefit plans requires the use of estimates and actuarial assumptions. We perform an annual review of our actuarial assumptions in consultation with our actuaries. When we determine changes in the assumptions are warranted, or as a result of plan amendments, future pension and OPB expense and our projected benefit obligation could increase or decrease materially. The principal estimates and assumptions that have a significant effect on our consolidated financial position and annual results of operations are the discount rate, cash balance crediting rate, expected long-term rate of return on plan assets, estimated fair market value of plan assets, and the mortality rate of those covered by our pension and OPB plans. The effects of actual results differing from our assumptions and the effects of changing assumptions (i.e., actuarial gains or losses) are recognized immediately through earnings upon annual remeasurement in the fourth quarter, or on an interim basis as triggering events warrant remeasurement.

Discount Rate – The discount rate represents the interest rate used to determine the present value of future cash flows currently expected to be required to settle our pension and OPB obligations. The discount rate is generally based on the yield of high-quality corporate fixed-income investments. At the end of each year, we determine the discount rate using a theoretical bond portfolio model of bonds rated AA or better to match the notional cash outflows related to projected benefit payments for each of our significant benefit plans. Taking into consideration the factors noted above, our weighted-average composite pension discount rate was 5.15 percent at December 31, 2023 and 5.54 percent at December 31, 2022.

The effects of a hypothetical change in the discount rate may be nonlinear and asymmetrical for future years as the discount rate changes. Holding all other assumptions constant, an increase or decrease of 25 basis points in the December 31, 2023 discount rate assumption would have the following estimated effects on 2023 pension and OPB obligations, which would be reflected in the 2023 MTM expense (benefit), and 2024 expected pension and OPB expense:

<i>\$ in millions</i>	25 Basis Point Decrease in Rate	25 Basis Point Increase in Rate
2023 pension and OPB obligation and MTM expense (benefit)	\$ 866	\$ (827)
2024 pension and OPB (benefit) expense	(23)	22

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Cash Balance Crediting Rate – A portion of the company’s pension obligation and resulting pension expense is based on a cash balance formula, where participants’ hypothetical account balances are accumulated over time with pay-based credits and interest. Interest is credited monthly using the current 30-Year Treasury bond rate. The interest crediting rate is part of the cash balance formula and independent of actual pension investment returns. The cash balance crediting rate used for FAS purposes tends to move in concert with the discount rate but has an offsetting effect on pension benefit obligations and the related MTM expense (benefit). The minimum cash balance crediting rate allowed under the plan is 2.25 percent. The cash balance crediting rate assumption has been set to 4.02 percent for all years. Holding all other assumptions constant, an increase or decrease of 25 basis points in the December 31, 2023 cash balance crediting rate assumption would have the following estimated effects on the 2023 pension benefit obligation, which would be reflected in the 2023 MTM expense (benefit), and 2024 expected pension expense:

<i>\$ in millions</i>	25 Basis Point Decrease in Rate	25 Basis Point Increase in Rate
2023 pension obligation and MTM expense (benefit)	\$ (105)	\$ 108
2024 pension (benefit) expense	(9)	9

Expected Long-Term Rate of Return on Plan Assets – The expected long-term rate of return on plan assets (EROA) assumption reflects the average rate of net earnings we expect on current and future benefit plan investments. EROA is a long-term assumption, which we review annually and adjust to reflect changes in our long-term view of expected market returns and/or significant changes in our plan asset investment policy. Due to the inherent uncertainty of this assumption, we consider multiple data points at the measurement date including the plan’s target asset allocation, historical plan asset returns and third party projection models of expected long-term returns for each of the plans’ strategic asset classes. In addition to the data points themselves, we consider trends in the data points, including changes from the prior measurement date. The EROA assumptions we use for pension benefits are consistent with those used for OPB plans; however, we reduce the EROA for OPB plans to allow for the impact of tax on investment earnings, as certain Voluntary Employee Beneficiary Association trusts are taxable.

During 2023, the Investment Committee of the company’s benefit plans reviewed the plans’ major asset class allocations and approved an update to increase the target fixed-income asset allocation from 40% to 43%. The current asset allocation is now approximately 42% fixed-income, 27% public equities, 28% alternatives and 3% cash. At this time, the Investment Committee is not planning any significant changes to that mix. For further information on plan asset investments, see Note 13 to the consolidated financial statements.

While historical market returns are not necessarily predictive of future market returns, given our long history of plan performance supported by the stability in our investment mix, investment managers, and active asset management, we believe our actual historical performance is a reasonable metric to consider when developing our EROA. Our average annual rate of return from 1976 to 2023 was approximately 10.7 percent and our 20-year and 30-year rolling average rates of return were approximately 7.9 percent and 8.7 percent, respectively, each determined on an arithmetic basis and net of expenses. Our 2023 return on plan assets, net of expenses, were approximately 11.1 percent.

Consistent with our past practice, we obtained long-term capital market forecasting models from several third parties and, using our target asset allocation, developed an expected rate of return on plan assets from each model. We considered not only the specific returns projected by those third party models, but also changes in the models year-to-year when developing our EROA.

For determining 2023 FAS expense, we assumed an expected long-term rate of return on pension plan assets of 7.5 percent and an expected long-term rate of return on OPB plan assets of 7.23 percent. For 2024 FAS expense, we have assumed an expected long-term rate of return on pension plan assets of 7.5 percent and 7.12 percent on OPB plans. Holding all other assumptions constant, an increase or decrease of 25 basis points in our December 31, 2023 EROA assumption would have the following estimated effects on 2024 expected pension and OPB expense:

<i>\$ in millions</i>	25 Basis Point Decrease	25 Basis Point Increase
2024 pension and OPB expense (benefit)	\$ 76	\$ (76)

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In addition, holding all other assumptions constant, an increase or decrease of 100 basis points in actual versus expected return on plan assets would have the following estimated effects on our 2024 MTM expense (benefit):

<i>\$ in millions</i>	100 Basis Point Decrease	100 Basis Point Increase
2024 MTM expense (benefit)	\$ 305	\$ (305)

Estimated Fair Market Value of Plan Assets – For certain plan assets where the fair market value is not readily determinable, such as real estate, private equity, hedge funds and opportunistic investments, we develop estimates of fair value using the best information available. Estimated fair values on these plan assets are based on redemption values and net asset values (NAV), as well as valuation methodologies that include third party appraisals, comparable transactions, discounted cash flow valuation models and public market data.

Mortality Rate – Mortality assumptions are used to estimate life expectancies of plan participants. In October 2014, the Society of Actuaries Retirement Plans Experience Committee (RPEC) issued updated mortality tables and a mortality improvement scale, which reflected longer life expectancies than previously projected. In October 2019, the RPEC issued an updated mortality base table (the Private Retirement Plans Mortality table for 2012 (Pri-2012)), which we adopted after reviewing our own historical mortality experience. In October 2021, the RPEC released a new projection scale (MP-2021) that included additional underlying data for 2019, which included an increase in life expectancies relative to the prior year.

The RPEC did not release a MP-2022 or MP-2023 projection scale citing complexities in incorporating the substantial number of “excess deaths” in 2020 into their existing model and uncertainties about future expectations primarily related to COVID-19. As such, after considering the information released by the RPEC in October 2021 as well as the company’s recent mortality experience, we adopted the full MP-2021 projection scale while continuing to use the Pri-2012 White Collar table, supplemented with 50% of the Gradual Wear-Off illustration as outlined in the RPEC’s 2022 Mortality Improvement Update paper to reflect the future impacts of COVID-19, to develop our mortality assumptions used in calculating our pension and OPB obligations recognized at December 31, 2023, and the amounts estimated for our 2024 pension and OPB expense.

For further information regarding our pension and OPB plans, see “Risk Factors” and Notes 1 and 13 to the consolidated financial statements.

Litigation, Commitments and Contingencies

We are subject to a range of claims, disputes, enforcement actions, investigations, lawsuits, overhead cost claims, environmental matters, income tax matters and administrative proceedings that arise in the ordinary course of business. Estimating liabilities and costs associated with these matters requires judgment based upon the professional knowledge and experience of management. We determine whether to record a reserve and, if so, what amount based on consideration of the facts and circumstances of each matter as then known to us. Determinations regarding whether to record a reserve and, if so, of what amount, reflect management’s assessment regarding what is likely to occur; they do not necessarily reflect what management believes should occur. The ultimate resolution of any such exposure to us may vary materially from earlier estimates as further facts and circumstances develop or become known to us.

Environmental Matters – We are subject to environmental laws and regulations in the jurisdictions in which we do or have done business. Factors that could result in changes to the assessment of probability, range of reasonably estimated costs and environmental accruals include: modification of planned remedial actions; changes in the estimated time required to conduct remedial actions; discovery of more or less extensive (or different) contamination than anticipated; information regarding the potential causes and effects of contamination; results of efforts to involve other responsible parties; financial capabilities of other responsible parties; changes in laws and regulations, their interpretation or application; contractual obligations affecting remediation or responsibilities; and improvements in remediation technology. As we expect to be able to recover a portion of environmental remediation liabilities through overhead charges on government contracts, such amounts are deferred in prepaid expenses and other current assets (current portion) and other non-current assets until charged to contracts. We use judgment to evaluate the recoverability of our environmental remediation costs, assessing, among other things, U.S. government regulations, our U.S. government contract mix and past practices. Portions of the company’s environmental liabilities we do not expect to be recoverable have been expensed. As of December 31, 2023, we expect approximately 90 percent of the company’s environmental remediation costs to be recoverable; however, to the extent our judgments on the recoverability of our environmental remediation costs change or the unallowable portion of our environmental

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remediation costs otherwise increase, there could be a significant impact on our consolidated financial position, annual results of operations and/or cash flows.

Income Tax Matters – The evaluation of tax positions taken in a filed tax return, or planned to be taken in a future tax return or claim, requires the use of judgment. We establish reserves for uncertain tax positions when, despite the belief that our tax positions are supportable, there remains uncertainty in a tax position taken in our filed tax returns or planned to be taken in a future tax return or claim. The company follows a recognition and measurement approach, considering the facts, circumstances, and information available at the reporting date. We exercise judgment in determining the level of evidence necessary and appropriate to support our assessment using all available information. The technical merits of a given tax position are derived from sources of authority in the tax law and their applicability to the facts and circumstances of the position. In measuring the tax position, the company considers the amounts and probabilities of the outcomes that could be realized upon settlement. When it is more likely than not that a tax position will be sustained, we record the largest amount of tax benefit with a greater than 50 percent likelihood of being realized upon ultimate settlement with a taxing authority. As of December 31, 2023, we have approximately \$2.0 billion in unrecognized tax benefits. To the extent we prevail in matters for which reserves have been established or are required to pay amounts in excess of reserves, there could be a significant impact on our consolidated financial position, annual results of operations and/or cash flows.

For further information on litigation, commitments and contingencies, see “Risk Factors” and Note 1, Note 7, Note 11 and Note 12 to the consolidated financial statements.

Goodwill and Long-Lived Assets

Overview – We allocate the purchase price of acquired businesses to the underlying tangible and intangible assets acquired and liabilities assumed based upon their respective fair values, with the excess recorded as goodwill. Such fair value assessments require judgments and estimates that can be affected by contract performance and other factors over time, which may cause final amounts to differ materially from original estimates. Adjustments to the fair value of purchased assets and liabilities after the initial measurement period are recognized in net earnings.

We record property, plant and equipment (PP&E) for capital assets used in operating our business. The cost of PP&E utilized in support of our government contracts is generally allowable and allocable cost in accordance with applicable FAR and CAS requirements, which limits our risk of impairment on those assets. However, the cost of PP&E utilized in support of our commercial business, including approximately \$500 million of PP&E used in our commercial space business, is not allocable to government contracts and is therefore subject to greater recoverability risk.

Impairment Testing – We test for impairment of goodwill annually at each of our reporting units, which comprise our operating segments. The results of our annual goodwill impairment tests as of December 31, 2023 and 2022, respectively, indicated that the estimated fair value of each reporting unit significantly exceeded its respective carrying value. There were no impairment charges recorded in the years ended December 31, 2023, 2022 and 2021.

In addition to performing an annual goodwill impairment test, we may perform an interim impairment test if events occur or circumstances change that suggest goodwill in any of our reporting units may be impaired. Such indicators may include, but are not limited to, the loss of significant business, significant reductions in federal government appropriations or other significant adverse changes in industry or market conditions. During 2023, we determined there were no impairment indicators requiring us to perform an interim goodwill impairment test.

When testing goodwill for impairment, we compare the fair values of each of our reporting units to their respective carrying values. To determine the fair value of our reporting units, we primarily use the income approach based on the cash flows we expect the reporting units to generate in the future, consistent with our operating plans. This income valuation method requires management to project sales, operating expenses, working capital, capital spending and cash flows for the reporting units over a multi-year period, as well as to determine the weighted-average cost of capital (WACC) used as a discount rate and terminal value assumptions. The WACC takes into account the relative weights of each component of our consolidated capital structure (equity and debt) and represents the expected cost of new capital adjusted as appropriate to consider lower risk profiles associated with longer-term contracts and barriers to market entry. The terminal value assumptions are applied to the final year of the discounted cash flow model. We use industry multiples (including relevant control premiums) of operating earnings to corroborate the fair values of our reporting units determined under the market valuation method of the income approach.

We test for impairment of our long-lived assets when events or changes in circumstances indicate that the carrying amount of these assets may not be recoverable. Our assessment is based on our projection of the undiscounted future

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operating cash flows of the related asset group. If such projections indicate that future undiscounted cash flows are not sufficient to recover the carrying amount, we recognize a non-cash impairment charge to reduce the carrying amount to fair value. There were no impairment charges recorded in the years ended December 31, 2023, 2022 and 2021.

Impairment assessment inherently involves management judgments as to assumptions about expected future cash flows and the impact of market conditions on those assumptions. Due to the many variables inherent in developing the estimates used in our impairment analyses, differences in assumptions may have a material effect on the results of those impairment analyses.

Item 7A. Quantitative and Qualitative Disclosures About Market Risk

EQUITY RISK

We have been and continue to be exposed to market risk with respect to our portfolio of marketable securities with a fair value of \$339 million at December 31, 2023. These securities are exposed to market volatilities, changes in price and interest rates.

INTEREST RATE RISK

We are exposed to interest rate risk on variable-rate short-term credit facilities for which there were no borrowings outstanding at December 31, 2023. At December 31, 2023, we have \$13.9 billion of long-term debt, primarily consisting of fixed-rate debt, with a fair value of approximately \$13.4 billion. The terms of our fixed-rate debt obligations do not generally allow investors to demand payment of these obligations prior to maturity. Therefore, we do not have significant exposure to interest rate risk for our fixed-rate debt; however, we do have exposure to fair value risk if we repurchase or exchange long-term debt prior to maturity. Additionally, if we were to refinance our long-term debt, it may be refinanced at higher interest rates.

FOREIGN CURRENCY RISK

In certain circumstances, we are exposed to foreign currency risk. We enter into foreign currency forward contracts to manage a portion of the exchange rate risk related to receipts from customers and payments to suppliers denominated in foreign currencies. We do not hold or issue derivative financial instruments for trading purposes. At December 31, 2023, foreign currency forward contracts with a notional amount of \$286 million were outstanding. At December 31, 2023, a 10 percent unfavorable foreign exchange rate movement would not have a material impact on our consolidated financial position, annual results of operations and/or cash flows.

INFLATION RISK

The global macroeconomic environment has experienced extraordinary challenges, including the highest rates of inflation in 40 years. The company, its subcontractors and other suppliers, have experienced, and continue to experience, increased pressures from heightened levels of inflation and the challenges of the current macroeconomic environment, which we have not been able to fully mitigate on a number of our fixed-price contracts, in particular on the LRIP phase of the B-21 program at Aeronautics Systems. We cannot predict how long these inflationary pressures will continue, or how they may change over time, but we expect to see continued impacts on the global economy, our customers, our industry and our company. If inflationary pressures continue to persist, they may continue to have an adverse impact on our consolidated financial position, results of operations and/or cash flow.

Item 8. Financial Statements and Supplementary Data

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Board of Directors and Shareholders of
Northrop Grumman Corporation
Falls Church, Virginia

Opinion on the Financial Statements

We have audited the accompanying consolidated statements of financial position of Northrop Grumman Corporation and subsidiaries (the “Company”) as of December 31, 2023 and 2022, the related consolidated statements of earnings and comprehensive income, changes in shareholders’ equity, and cash flows for each of the three years in the period ended December 31, 2023, and the related notes (collectively referred to as the “financial statements”). In our opinion, the financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2023 and 2022, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2023, in conformity with accounting principles generally accepted in the United States of America.

We have also audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the Company’s internal control over financial reporting as of December 31, 2023, based on the criteria established in *Internal Control - Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission and our report dated January 24, 2024 expressed an unqualified opinion on the Company’s internal control over financial reporting.

Basis for Opinion

These financial statements are the responsibility of the Company’s management. Our responsibility is to express an opinion on the Company’s financial statements based on our audits. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud. Our audits included performing procedures to assess the risks of material misstatement of the financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial statements. We believe that our audits provide a reasonable basis for our opinion.

Critical Audit Matters

The critical audit matters communicated below are matters arising from the current-period audit of the financial statements that were communicated or required to be communicated to the audit and risk committee and that (1) relate to accounts or disclosures that are material to the financial statements and (2) involved our especially challenging, subjective, or complex judgments. The communication of critical audit matters does not alter in any way our opinion on the financial statements, taken as a whole, and we are not, by communicating the critical audit matters below, providing separate opinions on the critical audit matters or on the accounts or disclosures to which they relate.

Revenue Recognition - Cost and Revenue Estimates for Development Contracts - Refer to Note 1 to the financial statements

Critical Audit Matter Description

As more fully described in Note 1 to the financial statements, the Company recognizes substantially all revenue as control is transferred to the customer on their long-term contracts over time using the cost-to-cost method (cost incurred relative to total cost estimated at completion). Use of the cost-to-cost-method requires the Company to make reasonably dependable estimates regarding the revenue and costs associated with the design, manufacture and delivery of their products or services. The Company estimates profit on these contracts as the difference between total estimated sales and total estimated costs at completion and recognizes that profit as costs are incurred. Cost

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estimates on contracts requiring development work are inherently more uncertain as to future events than production contracts, and, as a result, there is typically more variability in those estimates. Certain of these contracts are fixed price in nature, which results in greater financial risk associated with unanticipated cost growth. Alternatively, cost-type contracts may have award or incentive fees that are subject to uncertainty and may be earned over extended periods or towards the end of the contract. As a result, the estimation of costs required to complete these contracts and the expected revenues that will be earned is complex and requires significant judgment.

Given the judgment necessary to make reasonably dependable estimates regarding the revenue and costs associated with such contracts, auditing these estimates required extensive audit effort due to the complexity of the underlying programs and a high degree of auditor judgment when performing audit procedures and evaluating the results of those procedures.

How the Critical Audit Matter Was Addressed in the Audit

Our auditing procedures related to the cost and revenue estimates for these development contracts included the following, among others:

- We tested the effectiveness of controls over the estimates of total costs and revenues on such contracts, including development costs and any related award or incentive fee estimates for the relevant performance obligations.
- We selected certain long-term contracts for testing and performed the following procedures:
 - Evaluated whether the recognition of revenue over time on such contracts was appropriate based on the terms and conditions of each contract, including whether continuous transfer of control to the customer occurred as progress was made toward fulfilling the performance obligation.
 - Tested management’s identification of distinct performance obligations by evaluating whether the underlying goods and services were highly interdependent and interrelated.
 - Tested management’s determination of the transaction price, including any award or incentive fees, based on the consideration expected to be received in accordance with the rights and obligations established under the contracts and any contractual modifications.
 - Evaluated the estimates of total cost and revenue for the performance obligation by:
 - Conducting inquiries of relevant program teams regarding any challenges related to the program.
 - Comparing costs incurred to date to the costs management estimated to be incurred to date.
 - Evaluating management’s ability to achieve the estimates of cost and revenue by performing corroborating inquiries with the Company’s program and business management, and testing management’s process used to develop the estimates based on their work plans, engineering specifications, program labor, and supplier contracts. This includes management’s process to identify macroeconomic impacts to certain programs, which could include forecasted cost impacts and assumptions on the ability to recover those costs.
 - Evaluating selected changes to the estimates of costs and obtaining supporting documentation on timing and amounts of these changes in estimates.
 - Tested the mathematical accuracy of management’s calculation of revenue recognized during the period for the performance obligations.

Income Taxes - Uncertain Tax Positions - Refer to Notes 1 and 7 to the financial statements

Critical Audit Matter Description

The Company files income tax returns in the U.S. federal jurisdiction and in various state and foreign jurisdictions. Uncertain tax positions reflect the Company’s expected treatment of tax positions taken in a filed tax return, or planned to be taken in a future tax return or claim, which have not been reflected in measuring income tax expense or taxes payable for financial reporting purposes. Until these positions are sustained by the taxing authorities or the statute of limitations concerning such issues lapses, the Company does not generally recognize the tax benefits resulting from such positions and reports the tax effects as a liability for uncertain tax positions in its consolidated statements of financial position. The Company has recognized increased uncertain tax positions in recent years

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principally related to state apportionment, the methods of accounting associated with the timing of revenue recognition and related costs, and the 2017 Tax Act. Until the matters are resolved, the outcome is inherently uncertain.

Auditing certain assumptions associated with the Company's uncertain tax positions involved especially challenging judgments given the complexity and inherent subjectivity involved in evaluating the potential outcomes of these matters.

How the Critical Audit Matter Was Addressed in the Audit

Our audit procedures related to certain assumptions used in determining uncertain tax positions included the following, among others:

- We tested the effectiveness of controls relating to the identification and completeness of, and recognition for, uncertain tax positions, including management's controls over the underlying key assumptions and inputs used to derive the estimates.
- With the assistance of our income tax specialists, we selected specific uncertain tax positions for testing and performed the following procedures:
 - Inquired of the Company's tax department, financial reporting department, and other personnel directly involved in the development of the estimates.
 - Obtained supporting documentation and evaluated how the Company supported the position, including the assumptions and estimates used for measurement, and how the taxing authorities have historically challenged the tax position, if applicable.
 - Evaluated whether the uncertain tax position met the "more likely than not" recognition threshold.
 - Evaluated the appropriateness and consistency of the methodologies and assumptions used by management when developing these estimates.
- We tested the mathematical accuracy of management's calculations.

/s/ Deloitte & Touche LLP
McLean, Virginia
January 24, 2024
We have served as the Company's auditor since 1975.

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CONSOLIDATED STATEMENTS OF EARNINGS AND COMPREHENSIVE INCOME

<i>\$ in millions, except per share amounts</i>	Year Ended December 31		
	2023	2022	2021
Sales			
Product	\$ 30,897	\$ 28,522	\$ 27,868
Service	8,393	8,080	7,799
Total sales	39,290	36,602	35,667
Operating costs and expenses			
Product	26,226	22,761	22,309
Service	6,513	6,367	6,090
General and administrative expenses	4,014	3,873	3,597
Total operating costs and expenses	36,753	33,001	31,996
Gain on sale of business	—	—	1,980
Operating income	2,537	3,601	5,651
Other (expense) income			
Interest expense	(545)	(506)	(556)
Non-operating FAS pension benefit	530	1,505	1,469
Mark-to-market pension and OPB (expense) benefit	(422)	1,232	2,355
Other, net	246	4	19
Earnings before income taxes	2,346	5,836	8,938
Federal and foreign income tax expense	290	940	1,933
Net earnings	\$ 2,056	\$ 4,896	\$ 7,005
Basic earnings per share	\$ 13.57	\$ 31.61	\$ 43.70
Weighted-average common shares outstanding, in millions	151.5	154.9	160.3
Diluted earnings per share	\$ 13.53	\$ 31.47	\$ 43.54
Weighted-average diluted shares outstanding, in millions	152.0	155.6	160.9
Net earnings (from above)	\$ 2,056	\$ 4,896	\$ 7,005
Other comprehensive income (loss), net of tax			
Change in cumulative translation adjustment	23	(16)	(7)
Change in other, net	2	6	(8)
Other comprehensive income (loss), net of tax	25	(10)	(15)
Comprehensive income	\$ 2,081	\$ 4,886	\$ 6,990

The accompanying notes are an integral part of these consolidated financial statements.

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CONSOLIDATED STATEMENTS OF FINANCIAL POSITION

<i>\$ in millions, except par value</i>	December 31	
	2023	2022
Assets		
Cash and cash equivalents	\$ 3,109	\$ 2,577
Accounts receivable, net	1,454	1,511
Unbilled receivables, net	5,693	5,983
Inventoried costs, net	1,109	978
Prepaid expenses and other current assets	2,341	1,439
Total current assets	13,706	12,488
Property, plant and equipment, net of accumulated depreciation of \$7,964 for 2023 and \$7,258 for 2022	9,653	8,800
Operating lease right-of-use assets	1,818	1,811
Goodwill	17,517	17,516
Intangible assets, net	305	384
Deferred tax assets	1,020	162
Other non-current assets	2,525	2,594
Total assets	\$ 46,544	\$ 43,755
Liabilities		
Trade accounts payable	\$ 2,110	\$ 2,587
Accrued employee compensation	2,251	2,057
Advance payments and billings in excess of costs incurred	4,193	3,609
Other current liabilities	3,388	3,334
Total current liabilities	11,942	11,587
Long-term debt, net of current portion of \$70 for 2023 and \$1,072 for 2022	13,786	11,805
Pension and other postretirement benefit plan liabilities	1,290	1,188
Operating lease liabilities	1,892	1,824
Other non-current liabilities	2,839	2,039
Total liabilities	31,749	28,443
Commitments and contingencies (Note 12)		
Shareholders' equity		
Preferred stock, \$1 par value; 10,000,000 shares authorized; no shares issued and outstanding	—	—
Common stock, \$1 par value; 800,000,000 shares authorized; issued and outstanding: 2023—150,109,271 and 2022—153,157,924	150	153
Paid-in capital	—	—
Retained earnings	14,773	15,312
Accumulated other comprehensive loss	(128)	(153)
Total shareholders' equity	14,795	15,312
Total liabilities and shareholders' equity	\$ 46,544	\$ 43,755

The accompanying notes are an integral part of these consolidated financial statements.

NORTHROP GRUMMAN CORPORATION

CONSOLIDATED STATEMENTS OF CASH FLOWS

<i>\$ in millions</i>	Year Ended December 31		
	2023	2022	2021
Operating activities			
Net earnings	\$ 2,056	\$ 4,896	\$ 7,005
Adjustments to reconcile to net cash provided by operating activities:			
Depreciation and amortization	1,338	1,342	1,239
Mark-to-market pension and OPB expense (benefit)	422	(1,232)	(2,355)
Stock-based compensation	87	99	94
Deferred income taxes	(988)	(321)	603
Gain on sale of business	—	—	(1,980)
B-21 charge	1,559	—	—
Net periodic pension and OPB income	(308)	(1,193)	(1,091)
Pension and OPB contributions	(139)	(136)	(141)
Changes in assets and liabilities:			
Accounts receivable, net	54	(44)	(10)
Unbilled receivables, net	247	(646)	(414)
Inventoried costs, net	(220)	(205)	(52)
Prepaid expenses and other assets	(86)	2	66
Accounts payable and other liabilities	519	572	376
Income taxes payable, net	(658)	(279)	215
Other, net	(8)	46	12
Net cash provided by operating activities	3,875	2,901	3,567
Investing activities			
Divestiture of IT services business	—	—	3,400
Capital expenditures	(1,775)	(1,435)	(1,415)
Proceeds from sale of equipment to a customer	—	155	84
Proceeds from sale of minority investments	197	—	—
Other, net	(4)	39	(11)
Net cash (used in) provided by investing activities	(1,582)	(1,241)	2,058
Financing activities			
Net proceeds from issuance of long-term debt	1,995	—	—
Payments of long-term debt	(1,050)	—	(2,236)
Common stock repurchases	(1,500)	(1,504)	(3,705)
Cash dividends paid	(1,116)	(1,052)	(983)
Payments of employee taxes withheld from share-based awards	(52)	(50)	(34)
Other, net	(38)	(7)	(44)
Net cash used in financing activities	(1,761)	(2,613)	(7,002)
Increase (decrease) in cash and cash equivalents	532	(953)	(1,377)
Cash and cash equivalents, beginning of year	2,577	3,530	4,907
Cash and cash equivalents, end of year	\$ 3,109	\$ 2,577	\$ 3,530

The accompanying notes are an integral part of these consolidated financial statements.

NORTHROP GRUMMAN CORPORATION

CONSOLIDATED STATEMENTS OF CHANGES IN SHAREHOLDERS' EQUITY

<i>\$ in millions, except per share amounts</i>	Year Ended December 31		
	2023	2022	2021
Common stock			
Beginning of year	\$ 153	\$ 156	\$ 167
Common stock repurchased	(3)	(4)	(11)
Shares issued for employee stock awards and options	—	1	—
End of year	150	153	156
Paid-in capital			
Beginning of year	—	—	58
Common stock repurchased	—	—	(60)
Stock compensation	—	—	2
End of year	—	—	—
Retained earnings			
Beginning of year	15,312	12,913	10,482
Common stock repurchased	(1,519)	(1,497)	(3,645)
Net earnings	2,056	4,896	7,005
Dividends declared	(1,114)	(1,052)	(989)
Stock compensation	38	52	60
End of year	14,773	15,312	12,913
Accumulated other comprehensive loss			
Beginning of year	(153)	(143)	(128)
Other comprehensive income (loss), net of tax	25	(10)	(15)
End of year	(128)	(153)	(143)
Total shareholders' equity	\$ 14,795	\$ 15,312	\$ 12,926
Cash dividends declared per share	\$ 7.34	\$ 6.76	\$ 6.16

The accompanying notes are an integral part of these consolidated financial statements.

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

1. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Nature of Operations

Northrop Grumman Corporation is a leading global aerospace and defense technology company. We deliver a broad range of products, services and solutions to U.S. and international customers, and principally to the U.S. Department of Defense and intelligence community. Our broad portfolio is aligned to support national security priorities and our solutions equip our customers with capabilities they need to connect, protect and advance humanity.

The company is a leading provider of space systems, military aircraft, missile defense, advanced weapons and long-range fires capabilities, mission systems, networking and communications, strategic deterrence systems, and breakthrough technologies, such as advanced computing, microelectronics and cyber. We are focused on competing and winning programs that enable continued growth, performing on our commitments and affordably delivering capability our customers need. With the investments we've made in advanced technologies, combined with our talented workforce and digital transformation capabilities, Northrop Grumman is well positioned to meet our customers' needs today and in the future.

Principles of Consolidation

The consolidated financial statements include the accounts of Northrop Grumman and its subsidiaries and joint ventures or other investments for which we consolidate the financial results. Intercompany accounts, transactions and profits are eliminated in consolidation. Investments in equity securities and joint ventures where the company has significant influence, but not control, are accounted for using the equity method.

Basis of Presentation

During the first quarter of 2023, we changed the presentation of the components of other comprehensive income (loss), net of tax in the consolidated statement of earnings and comprehensive income. Prior period amounts have been recast to conform to current period presentation. This change in presentation had no impact on our previously reported comprehensive income in total.

Accounting Estimates

The company's consolidated financial statements are prepared in conformity with U.S. GAAP. The preparation thereof requires management to make estimates and judgments that affect the reported amounts of assets and liabilities and the disclosure of contingencies at the date of the financial statements, as well as the reported amounts of sales and expenses during the reporting period. Estimates have been prepared using the most current and best available information; however, actual results could differ materially from those estimates.

Revenue Recognition

The majority of our sales are derived from long-term contracts with the U.S. government for the development or production of goods, the provision of services, or a combination of both. The company classifies sales as product or service based on the predominant attributes of each performance obligation.

The company recognizes revenue for each separately identifiable performance obligation in a contract representing a promise to transfer a distinct good or service to a customer. In most cases, goods and services provided under the company's contracts are accounted for as single performance obligations due to the complex and integrated nature of our products and services. These contracts generally require significant integration of a group of goods and/or services to deliver a combined output. In some contracts, the company provides multiple distinct goods or services to a customer, most commonly when a contract covers multiple phases of the product life cycle (e.g., development, production, sustainment, etc.). In those cases, the company accounts for the distinct contract deliverables as separate performance obligations and allocates the transaction price to each performance obligation based on its relative standalone selling price, which is generally estimated using cost plus a reasonable margin. Warranties are provided on certain contracts, but do not typically provide for services beyond standard assurances and are therefore not considered to be separate performance obligations. Assets recognized from the costs to obtain or fulfill a contract are not material.

The company recognizes revenue as control is transferred to the customer, either over time or at a point in time. In general, our U.S. government contracts contain termination for convenience and/or other clauses that generally provide the customer rights to goods produced and/or in-process. Similarly, our non-U.S. government contracts generally contain contractual termination clauses or entitle the company to payment for work performed to date for goods and services that do not have an alternative use. For most of our contracts, control is effectively transferred during the period of performance, so we generally recognize revenue over time using the cost-to-cost method (cost incurred relative to total cost estimated at completion). The company believes this represents the most appropriate

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measurement towards satisfaction of its performance obligations. Revenue for contracts in which the control of goods produced does not transfer until delivery to the customer is recognized at a point in time (i.e., typically upon delivery).

Contracts are often modified for changes in contract specifications or requirements, which may result in scope and/or price changes. Most of the company's contract modifications are for goods or services that are not distinct in the context of the contract and are therefore accounted for as part of the original performance obligation through a cumulative EAC adjustment.

Contract Estimates

Use of the cost-to-cost method requires us to make reasonably dependable estimates regarding the revenue and cost associated with the design, manufacture and delivery of our products and services. The company estimates profit on these contracts as the difference between total estimated sales and total estimated cost at completion and recognizes that profit as costs are incurred. Significant judgment is used to estimate total sales and cost at completion.

Contract sales may include estimates of variable consideration, including cost or performance incentives (such as award and incentive fees), un-priced change orders, REAs and contract claims. Variable consideration is included in total estimated sales to the extent it is probable that a significant reversal in the amount of cumulative revenue recognized will not occur when the uncertainty associated with the variable consideration is subsequently resolved. We estimate variable consideration as the most likely amount to which we expect to be entitled.

At the request of the National Aeronautics and Space Administration (NASA), Space Systems submitted an engineering change proposal (ECP) during the fourth quarter of 2023 for scope increases and other aspects of the Habitation and Logistics Outpost (HALO) contract largely stemming from evolving Lunar Gateway architecture and mission requirements. The ECP addresses both work performed and work expected to be performed by the company resulting from scope changes previously approved by NASA, as well as changes NASA has requested the company to propose but has not yet directed the company to perform. The company has begun negotiating with NASA on these various changes and other aspects of the HALO contract. The company's 2023 results include \$100 million of unfavorable EAC adjustments on the HALO contract and reflect our current best estimate of the outcome of the ECP negotiations assuming the terms of the current contract; however, if the outcome is less favorable than what we have assumed, it could have an adverse effect on our financial position, results of operations and/or cash flows.

We recognize changes in estimated contract sales or costs and the resulting changes in contract profit on a cumulative basis. Cumulative EAC adjustments represent the cumulative effect of the changes on current and prior periods; sales and operating margins in future periods are recognized as if the revised estimates had been used since contract inception. If it is determined that a loss is expected to result on an individual performance obligation, the entire amount of the estimable future loss, including an allocation of G&A costs, is charged against income in the period the loss is identified.

B-21 Low-Rate Initial Production Options

In 2015, the U.S. Air Force awarded Northrop Grumman the B-21 contract, which includes a base contract for engineering, manufacturing, and design (EMD) and five low-rate initial production (LRIP) options in varying quantities. The EMD phase of the program is largely cost type and began at contract award. The LRIP options are largely fixed price and are expected to be awarded and executed through approximately the end of the decade. During the fourth quarter of 2023, the B-21 program entered flight testing and the company received an award for the first LRIP lot.

We previously disclosed it was reasonably possible one or more of the LRIP options could be performed at a loss principally due to the company's estimate of the impact macroeconomic factors may have on our cost to complete the LRIP options, as well as ongoing discussions with our suppliers and our customer. During the fourth quarter of 2023, we again reviewed our estimated profitability on the LRIP phase of the program, and we now believe it is probable each of the first five LRIP lots will be performed at a loss. The loss is largely driven by a change in our assumptions regarding funding to mitigate the impact of macroeconomic disruptions on the LRIP phase of the program and higher projected manufacturing costs that reflect recent supplier negotiations and our experience in completing the first aircraft.

The projected loss across the five LRIP lots, which we recognized during the fourth quarter of 2023, is \$1.56 billion. The loss comprises a \$143 million unfavorable EAC adjustment for the first LRIP lot and a \$1.37 billion loss contingency accrual and \$45 million reduction of inventoried costs for the unexercised LRIP lots. As of December 31, 2023, \$631 million of the loss contingency accrual is included in Other current liabilities and \$740 million is included in Other non-current liabilities in the consolidated statement of financial position.

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If our estimated cost to complete the LRIP phase of the program changes or our assumptions regarding contract performance, quantities, or funding to mitigate the impact of macroeconomic disruptions are resolved more or less favorably than what we have estimated, our financial position, results of operations and/or cash flows could be materially affected.

Net EAC Adjustments

The following table presents the effect of aggregate net EAC adjustments:

<i>\$ in millions, except per share data</i>	Year Ended December 31		
	2023	2022	2021
Revenue	\$ 298	\$ 447	\$ 568
Operating income	84	360	527
Net earnings ⁽¹⁾	66	284	416
Diluted earnings per share ⁽¹⁾	0.43	1.83	2.59

⁽¹⁾ Based on a 21% federal statutory tax rate.

EAC adjustments on a single performance obligation can have a significant effect on the company's financial statements. When such adjustments occur, we generally disclose the nature, underlying conditions and financial impact of the adjustments. During the fourth quarter of 2023, we recorded a \$143 million unfavorable EAC adjustment on the first LRIP lot of the B-21 program at Aeronautics Systems as described above. During 2023, we recorded \$100 million of unfavorable EAC adjustments on the HALO program at Space Systems largely due to cost growth stemming from evolving Lunar Gateway architecture and mission requirements combined with macroeconomic challenges. During 2022, we recorded \$133 million of favorable EAC adjustments on the EMD phase of the B-21 program at Aeronautics Systems. During 2021, we recorded \$135 million of unfavorable EAC adjustments on the F-35 program at Aeronautics Systems. No other such adjustments were significant to the financial statements during the years ended December 31, 2023, 2022 and 2021.

Backlog

Backlog represents the future sales we expect to recognize on firm orders received by the company and is equivalent to the company's remaining performance obligations at the end of each period. It comprises both funded backlog (firm orders for which funding is authorized and appropriated) and unfunded backlog. Unexercised contract options and IDIQ contracts are not included in backlog until the time an option or IDIQ task order is exercised or awarded.

Company backlog as of December 31, 2023 was \$84.2 billion. Of our December 31, 2023 backlog, we expect to recognize approximately 40 percent as revenue over the next 12 months and 65 percent as revenue over the next 24 months, with the remainder to be recognized thereafter.

Subsequent Event – In January 2024, the company received a termination for convenience in our restricted Space business. The company expects to reduce backlog by approximately \$2 billion during the first quarter of 2024 related to the termination.

Contract Assets and Liabilities

For each of the company's contracts, the timing of revenue recognition, customer billings, and cash collections results in a net contract asset or liability at the end of each reporting period. Fixed-price contracts are typically billed to the customer either using progress payments, whereby amounts are billed monthly as costs are incurred or work is completed, or performance based payments, which are based upon the achievement of specific, measurable events or accomplishments defined and valued at contract inception. Cost-type contracts are typically billed to the customer on a monthly or semi-monthly basis.

Contract assets are equivalent to and reflected as Unbilled receivables in the consolidated statements of financial position and are primarily related to long-term contracts where revenue recognized under the cost-to-cost method exceeds amounts billed to customers. Unbilled receivables are classified as current assets and include amounts that may be billed and collected beyond one year due to the long-cycle nature of many of our contracts. Accumulated contract costs in unbilled receivables include costs such as direct production costs, factory and engineering overhead, production tooling costs, and allowable G&A. Unbilled receivables also include certain estimates of variable consideration described above. These contract assets are not considered a significant financing component of the company's contracts as the payment terms are intended to protect the customer in the event the company does not perform on its obligations under the contract.

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Contract liabilities are equivalent to and reflected as Advance payments and billings in excess of costs incurred in the consolidated statements of financial position. Certain customers make advance payments prior to the company's satisfaction of its obligations on the contract. These amounts are recorded as contract liabilities until such obligations are satisfied, either over time as costs are incurred or at a point in time when deliveries are made. Contract liabilities are not a significant financing component as they are generally utilized to pay for contract costs within a one-year period or are used to ensure the customer meets contractual requirements.

Net contract assets are as follows:

<i>\$ in millions</i>	December 31, 2023	December 31, 2022	\$ Change	% Change
Unbilled receivables, net	\$ 5,693	\$ 5,983	\$ (290)	(5)%
Advance payments and amounts in excess of costs incurred	(4,193)	(3,609)	(584)	16 %
Net contract assets	\$ 1,500	\$ 2,374	\$ (874)	(37)%

The change in the balances of the company's contract assets and liabilities primarily results from timing differences between revenue recognition and customer billings and/or payments. Net contract assets as of December 31, 2023 decreased 37 percent from the prior year, primarily due to decreases in net contracts assets at Space Systems, Missions Systems and Aeronautics Systems.

The amount of revenue recognized for the years ended December 31, 2023, 2022 and 2021 that was included in the contract liability balance at the beginning of each year was \$3.1 billion, \$2.4 billion and \$2.0 billion, respectively.

Disaggregation of Revenue

See Note 16 for information regarding the company's sales by customer type, contract type and geographic region for each of our segments. We believe those categories best depict how the nature, amount, timing and uncertainty of our revenue and cash flows are affected by economic factors.

General and Administrative Expenses

In accordance with applicable FAR and CAS requirements, most general management and corporate expenses incurred at the segment and corporate locations are considered allowable and allocable costs to our U.S. government contracts. Allowable and allocable G&A costs, including independent research and development (IR&D) and bid and proposal (B&P) costs, are allocated on a systematic basis to contracts in progress and are included as a component of total estimated contract costs.

Research and Development

Company-sponsored research and development activities primarily include efforts related to government programs. Company-sponsored IR&D expenses totaled \$1.2 billion, \$1.2 billion and \$1.1 billion in 2023, 2022 and 2021, respectively, which represented 3.0 percent, 3.3 percent and 3.2 percent of total sales, respectively. Customer-funded research and development activities are charged directly to the related contracts.

Income Taxes

Provisions for federal and foreign income taxes are calculated on reported earnings before income taxes based on current tax law and include the cumulative effect of any changes in tax rates from those used previously in determining deferred tax assets and liabilities. Such provisions differ from the amounts currently payable because certain items of income and expense are recognized in different periods for financial reporting purposes than for income tax purposes. The company recognizes federal and foreign interest accrued related to unrecognized tax benefits in income tax expense. Federal tax penalties are also recognized as a component of income tax expense.

In accordance with applicable FAR and CAS requirements, current state and local income and franchise taxes are generally considered allowable and allocable costs to our U.S. government contracts and are, therefore, recorded in operating costs and expenses. The company generally recognizes changes in deferred state taxes and unrecognized state tax benefits in unallocated corporate expenses.

Uncertain tax positions reflect the company's expected treatment of tax positions taken in a filed tax return, or planned to be taken in a future tax return or claim. Until these positions are sustained by the taxing authorities or the statute of limitations concerning such issues lapses, the company does not generally recognize the tax benefits resulting from such positions and reports the tax effects as a liability for uncertain tax positions in its consolidated statements of financial position.

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Cash and Cash Equivalents

Cash and cash equivalents are comprised of cash in banks and highly liquid instruments with original maturities of three months or less, primarily consisting of bank time deposits and investments in institutional money market funds. Cash in bank accounts often exceeds federally insured limits.

Fair Value of Financial Instruments

The company measures the fair value of its financial instruments using observable and unobservable inputs. Observable inputs reflect market data obtained from independent sources, while unobservable inputs reflect internal market assumptions.

These two types of inputs create the following fair value hierarchy:

Level 1 - Quoted prices for identical instruments in active markets.

Level 2 - Quoted prices for similar instruments in active markets; quoted prices for identical or similar instruments in markets that are not active; and model-derived valuations whose inputs are observable or whose significant value drivers are observable.

Level 3 - Significant inputs to the valuation model are unobservable.

The company holds a portfolio of marketable securities to partially fund non-qualified employee benefit plans. A portion of these securities are held in common/collective trust funds and are measured at fair value using NAV per share as a practical expedient. Marketable securities accounted for as trading are recorded at fair value on a recurring basis and are included in Other non-current assets in the consolidated statements of financial position. Changes in unrealized gains and losses on trading securities are included in Other, net in the consolidated statements of earnings and comprehensive income. Investments in held-to-maturity instruments with original maturities greater than three months are recorded at amortized cost.

Derivative financial instruments are recognized as assets or liabilities in the financial statements and measured at fair value on a recurring basis. Changes in the fair value of derivative financial instruments that are designated as fair value hedges are recorded in Other, net in the consolidated statements of earnings and comprehensive income, while changes in the fair value of derivative financial instruments that are designated as cash flow hedges are recorded as a component of other comprehensive income until settlement. For derivative financial instruments not designated as hedging instruments, gains or losses resulting from changes in the fair value are reported in Other, net in the consolidated statements of earnings and comprehensive income.

The company uses derivative financial instruments to manage its exposure to foreign currency exchange risk related to receipts from customers and payments to suppliers denominated in foreign currencies (i.e., foreign currency forward contracts). For foreign currency forward contracts, where model-derived valuations are appropriate, the company utilizes the income approach to determine the fair value using internal models based on observable market inputs such as forward rates, interest rates, our own credit risk and our counterparties' credit risks.

The company does not use derivative financial instruments for trading or speculative purposes, nor does it use leveraged financial instruments. Credit risk related to derivative financial instruments is considered minimal and is managed through the use of multiple counterparties with high credit standards and periodic settlements of positions, as well as by entering into master netting agreements with most of our counterparties.

Inventoried Costs

Inventoried costs generally comprise costs associated with unsatisfied performance obligations on contracts accounted for using point in time revenue recognition, costs incurred in excess of existing contract requirements that are probable of recovery and other accrued contract costs that are expected to be recoverable when allocated to specific contracts. Product inventory primarily consists of raw materials and is stated at the lower of cost or net realizable value, generally using the average cost method.

Inventoried costs include direct production costs, factory and engineering overhead, production tooling costs, and allowable G&A. G&A included in Inventoried costs, net was \$65 million and \$59 million as of December 31, 2023 and 2022, respectively. Inventoried costs are classified as current assets and include amounts related to contracts having production cycles longer than one year due to the long-cycle nature of our business.

Cash Surrender Value of Life Insurance Policies

The company maintains whole life insurance policies on a group of executives, which are recorded at their cash surrender value as determined by the insurance carrier. The company also has split-dollar life insurance policies on former officers and executives from acquired businesses, which are recorded at the lesser of their cash surrender value or premiums paid. These policies are utilized as a partial funding source for deferred compensation and other

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non-qualified employee retirement plans. As of December 31, 2023 and 2022, the carrying values associated with these policies were \$399 million and \$367 million, respectively, and are recorded in Other non-current assets in the consolidated statements of financial position.

Property, Plant and Equipment

Property, plant and equipment (PP&E) are depreciated over the estimated useful lives of individual assets. Machinery and other equipment is primarily depreciated using declining-balance methods. The other asset categories are generally depreciated using the straight-line method. Depreciation expense is generally an allowable and allocable cost in accordance with applicable FAR and CAS requirements and is recorded in the same segment where the related assets are held. However, the additional depreciation expense related to the step-up in fair value of PP&E acquired through business combinations is recorded in unallocated corporate expense within operating income as such depreciation is not allocable to government contracts and not considered part of management's evaluation of segment operating performance. Major classes of PP&E and their useful lives are as follows:

<i>Useful life in years, \$ in millions</i>	Useful Life	December 31	
		2023	2022
Land and land improvements	Up to 40 ⁽¹⁾	\$ 742	\$ 741
Buildings and improvements	Up to 45	3,605	3,272
Machinery and other equipment	Up to 20	9,641	8,774
Capitalized software costs	3-5	553	524
Leasehold improvements	Lease Term ⁽²⁾	3,076	2,747
Property, plant and equipment, at cost		17,617	16,058
Accumulated depreciation		(7,964)	(7,258)
Property, plant and equipment, net		\$ 9,653	\$ 8,800

⁽¹⁾ Land is not a depreciable asset.

⁽²⁾ Leasehold improvements are depreciated over the shorter of the useful life of the asset or lease term.

During the fourth quarter of 2020, the company completed a sale of equipment to a customer on a restricted Aeronautics Systems program for \$444 million. The company previously intended to use the equipment for internal purposes so we recognized the acquisition costs as capital expenditures and included the equipment in PP&E. As we regularly sell this type of equipment to customers in the ordinary course of business, we recorded the sale as a revenue transaction and included the net book value of the equipment in Operating costs and expenses. Although we generally classify proceeds from revenue transactions as cash inflows from operating activities, we recognized the proceeds from this transaction as cash inflows from investing activities, consistent with our prior recognition of the cost to acquire the equipment as capital expenditures. The company received cash payments of \$155 million and \$84 million related to the equipment sale during 2022 and 2021, respectively, and included it in Proceeds from sale of equipment to a customer in the consolidated statements of cash flows. The company received no cash payments in 2023 related to the equipment sale.

During the year ended December 31, 2022, the company acquired \$46 million of internal use software through long-term financing directly with the supplier. The software was recorded in PP&E as a non-cash investing activity and the related liability was recorded in long-term debt as a non-cash financing activity. During the years ended December 31, 2023 and 2022, the company received lease incentives for landlord funded leasehold improvements of \$55 million and \$96 million, respectively, related to Space Systems real estate leases, which were recorded in PP&E and included in non-cash investing activities.

On December 28, 2022 the company acquired certain leased land in exchange for company-owned land, which had been used previously for production-related activities at Space Systems. The exchange was accounted for as a nonmonetary transaction, and the acquired land, valued at approximately \$155 million, was recorded in PP&E as a non-cash investing activity. The transaction resulted in a \$96 million gain, which was reflected in operating costs and expenses in the consolidated statements of earnings and comprehensive income.

Non-cash investing activities also include capital expenditures incurred but not yet paid of \$75 million, \$113 million and \$91 million as of December 31, 2023, 2022 and 2021, respectively.

Sale of Minority Investment

In July 2023, the company sold its minority investment in an Australian business for AUD \$235 million (the equivalent of \$157 million upon settlement). The sale resulted in a pre-tax gain of \$97 million, which is reflected in

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Other, net on the consolidated statements of earnings and comprehensive income for the year ended December 31, 2023. Proceeds from the sale are included in investing activities on the consolidated statement of cash flows for the year ended December 31, 2023.

Goodwill and Other Purchased Intangible Assets

Goodwill and other purchased intangible asset balances are included in the identifiable assets of their assigned business segment. However, the company includes the amortization of other purchased intangible assets in unallocated corporate expense within operating income as such amortization is not allocable to government contracts and not considered part of management's evaluation of segment operating performance. The company's customer-related intangible assets are generally amortized over their respective useful lives based on the pattern in which the future economic benefits of the intangible assets are expected to be consumed. Other intangible assets are generally amortized on a straight-line basis over their estimated useful lives.

Leases

The company leases certain buildings, land and equipment. At contract inception, we determine whether a contract is or contains a lease and whether the lease should be classified as an operating or finance lease. Operating lease balances are included in Operating lease right-of-use assets, Other current liabilities, and Operating lease liabilities in our consolidated statements of financial position.

The company recognizes operating lease right-of-use assets and operating lease liabilities based on the present value of the future minimum lease payments over the lease term at commencement date. We use our incremental borrowing rate based on the information available at commencement date to determine the present value of future payments and the appropriate lease classification. Many of our leases include renewal options aligned with our contract terms. We define the initial lease term to include renewal options determined to be reasonably certain. We do not recognize a right-of-use asset and a lease liability for leases with an initial term of 12 months or less; we recognize lease expense for these leases on a straight-line basis over the lease term. We elected the practical expedient to not separate lease components from nonlease components and applied that practical expedient to all material classes of leased assets.

Many of the company's real property lease agreements contain incentives for tenant improvements, rent holidays or rent escalation clauses. For tenant improvement incentives received, if the incentive is determined to be a leasehold improvement owned by the lessee, the company generally records the incentives as a reduction to the right-of-use asset, which reduces rent expense over the lease term. For rent holidays and rent escalation clauses during the lease term, the company records rental expense on a straight-line basis over the term of the lease. For these lease incentives, the company uses the date of initial possession as the commencement date, which is generally when the company is given the right of access to the space and begins to make improvements in preparation for intended use.

Finance leases are not material to our consolidated financial statements and the company is not a lessor in any material arrangements. We do not have any material restrictions or covenants in our lease agreements, sale-leaseback transactions, land easements or residual value guarantees.

Litigation, Commitments and Contingencies

We accrue for litigation, commitments and contingencies when management, after considering the facts and circumstances of each matter as then known to management, has determined it is probable a liability will be found to have been incurred and the amount of the loss can be reasonably estimated. When only a range of amounts is reasonably estimable and no amount within the range is more likely than another, the low end of the range is recorded. Legal fees are generally expensed as incurred. Due to the inherent uncertainties surrounding gain contingencies, we generally do not recognize potential gains until realized.

Environmental Costs

We accrue for environmental liabilities when management determines that, based on the facts and circumstances known to the company, it is probable the company will incur costs to address environmental impacts and the costs are reasonably estimable. When only a range of amounts is reasonably estimable and no amount within the range is more likely than another, we record the low end of the range. The company typically projects environmental costs for up to 30 years, records environmental liabilities on an undiscounted basis, and excludes asset retirement obligations and certain legal costs. At sites involving multiple parties, we accrue environmental liabilities based upon our expected share of liability, taking into account the financial viability of other liable parties.

Retirement Benefits

The company sponsors various defined benefit pension plans and defined contribution retirement plans covering substantially all of its employees. In most cases, our defined contribution plans provide for a company match of

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employee contributions. The company also provides postretirement benefits other than pensions to eligible retirees and qualifying dependents, consisting principally of health care and life insurance benefits.

The liabilities, unamortized prior service credits and annual income or expense of the company's defined benefit pension and OPB plans are determined using methodologies that involve several actuarial assumptions.

Because U.S. government regulations provide for the costs of pension and OPB plans to be charged to our contracts in accordance with applicable FAR and CAS requirements, we calculate retiree benefit plan costs under both FAS and CAS methods. While both FAS and CAS recognize a normal service cost component in measuring periodic pension cost, there are differences in the way the components of annual pension costs are calculated under each method. Measuring plan obligations under FAS and CAS includes different assumptions and models, such as in estimating returns on plan assets, calculating interest expense and the periods over which gains/losses related to pension assets and actuarial changes are recognized. As a result, annual retiree benefit plan expense amounts for FAS are different from the amounts for CAS in any given reporting period even though the ultimate cost of providing benefits over the life of the plans is the same under either method. CAS retiree benefit plan costs are charged to contracts and are included in segment operating income, and the difference between the service cost component of FAS expense and total CAS expense (the "FAS/CAS operating adjustment") is recorded in operating income at the consolidated company level. Not all net periodic pension expense is recognized in net earnings in the year incurred because it is allocated as production costs and a portion remains in inventory at the end of any given reporting period.

Actuarial gains and losses are immediately recognized in net periodic benefit cost for FAS through MTM (expense) benefit upon annual remeasurement in the fourth quarter, or on an interim basis as triggering events warrant remeasurement. Prior service credits are recognized as a component of Accumulated other comprehensive loss and amortized into earnings in future periods.

Stock Compensation

The company's stock compensation plans are classified as equity plans. Compensation expense for stock awards is measured at the grant date based on the fair value of the award and is recognized over the vesting period (generally three years), net of estimated forfeitures. The company issues stock awards in the form of restricted performance stock rights and restricted stock rights. The fair value of stock awards and performance stock awards is determined based on the closing market price of the company's common stock on the grant date. The fair value of market-based stock awards is determined at the grant date using a Monte Carlo simulation model. For purposes of measuring compensation expense for performance awards, the number of shares ultimately expected to vest is estimated at each reporting date based on management's expectations regarding the relevant performance criteria. At each reporting date, the number of shares used to calculate compensation expense and diluted earnings per share is adjusted to reflect the number ultimately expected to vest.

Accumulated Other Comprehensive Loss

The components of accumulated other comprehensive loss, net of tax, are as follows:

<i>\$ in millions</i>	December 31	
	2023	2022
Cumulative translation adjustment	\$ (138)	\$ (161)
Other, net	10	8
Total accumulated other comprehensive loss	\$ (128)	\$ (153)

Related Party Transactions

For all periods presented, the company had no material related party transactions.

Accounting Standards Updates

On November 27, 2023, the Financial Accounting Standards Board (FASB) issued Accounting Standards Update (ASU) No. 2023-07 *Segment Reporting (Topic 280): Improvements to Reportable Segment Disclosures*. Among other new disclosure requirements, ASU 2023-07 requires companies to disclose significant segment expenses that are regularly provided to the chief operating decision maker. ASU 2023-07 will be effective for annual periods beginning on January 1, 2024 and interim periods beginning on January 1, 2025. ASU 2023-07 must be applied retrospectively to all prior periods presented in the financial statements. We are evaluating the disclosure impact of ASU 2023-07; however, the standard will not have an impact on the company's consolidated financial position, results of operations and/or cash flows.

On December 14, 2023, the FASB issued ASU No. 2023-09 *Income Taxes (Topic 740): Improvements to Income Tax Disclosures*. ASU 2023-09 requires companies to disclose, on an annual basis, specific categories in the effective tax rate reconciliation and provide additional information for reconciling items that meet a quantitative threshold. In addition, ASU 2023-09 requires companies to disclose additional information about income taxes paid. ASU 2023-09 will be effective for annual periods beginning January 1, 2025 and will be applied on a prospective basis with the option to apply the standard retrospectively. We are evaluating the disclosure impact of ASU 2023-09; however, the standard will not have an impact on the company's consolidated financial position, results of operations and/or cash flows.

Other accounting standards updates adopted and/or issued, but not effective until after December 31, 2023, are not expected to have a material effect on the company's consolidated financial position, annual results of operations and/or cash flows.

2. DISPOSITIONS

Disposition of IT and Mission Support Services Business

Effective January 30, 2021, we completed the IT services divestiture for \$3.4 billion in cash and recorded a pre-tax gain of \$2.0 billion. The IT and mission support services business was comprised of the majority of the former Information Solutions and Services (IS&S) division of Defense Systems (excluding the Vinnell Arabia business); select cyber, intelligence and missions support programs, which were part of the former Cyber and Intelligence Mission Solutions (CIMS) division of Mission Systems; and the former Space Technical Services business unit of Space Systems. Operating results include sales and operating income for the IT and mission support services business prior to the Divestiture date; therefore, no sales and operating income were recognized for this business during the years ended December 31, 2023 and 2022. The company recorded sales of \$162 million and pre-tax profit of \$20 million for the IT and mission support services business during the year ended December 31, 2021.

3. EARNINGS PER SHARE, SHARE REPURCHASES AND DIVIDENDS ON COMMON STOCK

Basic Earnings Per Share

We calculate basic earnings per share by dividing net earnings by the weighted-average number of shares of common stock outstanding during each period.

Diluted Earnings Per Share

Diluted earnings per share include the dilutive effect of awards granted to employees under stock-based compensation plans. The dilutive effect of these securities totaled 0.5 million, 0.7 million and 0.6 million shares for the years ended December 31, 2023, 2022 and 2021, respectively.

Share Repurchases

Share Repurchase Programs

On December 4, 2018, the company's board of directors authorized a share repurchase program of up to \$3.0 billion in share repurchases of the company's common stock (the "2018 Repurchase Program"). Repurchases under the 2018 Repurchase Program commenced in March 2020 and were completed in October 2021.

On January 25, 2021, the company's board of directors authorized a new share repurchase program of up to an additional \$3.0 billion in share repurchases of the company's common stock (the "2021 Repurchase Program"). Repurchases under the 2021 Repurchase Program commenced in October 2021 and were completed in April 2023.

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On January 24, 2022, the company's board of directors authorized a new share repurchase program of up to an additional \$2.0 billion in share repurchases of the company's common stock (the "2022 Repurchase Program"). Repurchases under the 2022 Repurchase Program commenced in April 2023 upon completion of the 2021 Repurchase Program. As of December 31, 2023, repurchases under the 2022 Repurchase Program totaled \$0.9 billion; \$1.1 billion remained under this share repurchase authorization. By its terms, the 2022 Repurchase Program will expire when we have used all authorized funds for repurchases.

On December 6, 2023, the company's board of directors authorized a new share repurchase program of up to an additional \$2.5 billion in share repurchases of the company's common stock (the "2023 Repurchase Program"). Repurchases under the 2023 Repurchase Program will commence upon completion of the 2022 Repurchase Program and will expire when we have used all authorized funds for repurchases. As of December 31, 2023, there have been no repurchases under the 2023 Repurchase Program and the company's total outstanding share repurchase authorization was \$3.6 billion.

Accelerated Share Repurchase Agreements

During the first quarter of 2021, the company entered into an accelerated share repurchase (ASR) agreement with Goldman Sachs & Co. LLC (Goldman Sachs) to repurchase \$2.0 billion of the company's common stock as part of the 2018 Repurchase Program. Under the agreement, we made a payment of \$2.0 billion to Goldman Sachs and received an initial delivery of 5.9 million shares valued at \$1.7 billion that were immediately canceled by the company. The remaining balance of \$300 million was settled on June 1, 2021 with a final delivery of 0.2 million shares from Goldman Sachs. The final average purchase price was \$327.29 per share.

During the fourth quarter of 2021, the company entered into an ASR agreement with Goldman Sachs to repurchase \$500 million of the company's common stock as part of the 2021 Repurchase Program. Under the agreement, we made a payment of \$500 million to Goldman Sachs and received an initial delivery of 1.2 million shares valued at \$425 million that were immediately canceled by the company. The remaining balance of \$75 million was settled on February 1, 2022 with a final delivery of 0.1 million shares from Goldman Sachs. The final average purchase price was \$374.79 per share.

During the first quarter of 2023, the company entered into an ASR agreement with Bank of America, N.A. (Bank of America) to repurchase \$500 million of the company's common stock as part of the 2021 and 2022 Repurchase Programs. Under the agreement, we made a payment of \$500 million to Bank of America and received an initial delivery of 0.9 million shares valued at \$400 million that were immediately canceled by the company. The remaining balance of \$100 million was settled on April 27, 2023 with a final delivery of 0.2 million shares from Bank of America. The final average purchase price was \$458.28 per share.

Share repurchases take place from time to time, subject to market and regulatory conditions and management's discretion, in the open market or in privately negotiated transactions. The company retires its common stock upon repurchase and, in the periods presented, has not made any purchases of common stock other than in connection with these publicly announced repurchase programs.

The table below summarizes the company's share repurchases to date under the authorizations described above:

Repurchase Program Authorization Date	Amount Authorized (in millions)	Total Shares Retired (in millions)	Average Price Per Share ⁽¹⁾	Date Completed	Shares Repurchased (in millions)		
					Year Ended December 31		
					2023	2022	2021
December 4, 2018	\$ 3,000	8.9	\$ 337.18	October 2021	—	—	8.4
January 25, 2021	\$ 3,000	7.0	\$ 431.05	April 2023	1.4	3.3	2.2
January 24, 2022	\$ 2,000	1.9	\$ 454.03		1.9	—	—
December 6, 2023	\$ 2,500	—	\$ —		—	—	—
					3.3	3.3	10.6

⁽¹⁾ As a part of the 2023 Repurchase Program, the board of directors approved that the purchases under this program, and the authorization remaining under the 2022 program, be exclusive of brokerage commissions. Commissions paid are included for the 2018 and 2021 Repurchase Programs.

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Dividends on Common Stock

In May 2023, the company increased the quarterly common stock dividend 8 percent to \$1.87 per share from the previous amount of \$1.73 per share.

In May 2022, the company increased the quarterly common stock dividend 10 percent to \$1.73 per share from the previous amount of \$1.57 per share.

In May 2021, the company increased the quarterly common stock dividend 8 percent to \$1.57 per share from the previous amount of \$1.45 per share.

4. ACCOUNTS RECEIVABLE, NET

Accounts receivable, net represent amounts billed and due from customers. Substantially all accounts receivable at December 31, 2023 are expected to be collected in 2024. The company does not believe it has significant exposure to credit risk as the majority of our accounts receivable are due from the U.S. government either as the ultimate customer or in connection with foreign military sales.

Accounts receivable, net consisted of the following:

<i>\$ in millions</i>	December 31	
	2023	2022
Due from U.S. government ⁽¹⁾	\$ 1,184	\$ 1,215
Due from international and other customers	276	304
Accounts receivable, gross	1,460	1,519
Allowance for expected credit losses	(6)	(8)
Accounts receivable, net	\$ 1,454	\$ 1,511

⁽¹⁾ Includes receivables due from the U.S. government associated with foreign military sales, which are contracted with and paid by the U.S. government.

5. UNBILLED RECEIVABLES, NET

Unbilled receivables, net represent revenue recognized under the cost-to-cost method that exceeds amounts billed to customers. A large majority of the company's unbilled receivables at December 31, 2023 are expected to be billed and collected in 2024. Progress and performance-based payments are reflected as an offset to the related unbilled receivable balances.

Unbilled receivables, net consisted of the following:

<i>\$ in millions</i>	December 31	
	2023	2022
Due from U.S. government ⁽¹⁾		
Unbilled receivables	\$ 23,655	\$ 23,304
Progress and performance-based payments received	(18,321)	(17,664)
Total due from U.S. government	5,334	5,640
Due from international and other customers		
Unbilled receivables	1,720	1,822
Progress and performance-based payments received	(1,344)	(1,460)
Total due from international and other customers	376	362
Unbilled receivables, net of progress and performance-based payments received	5,710	6,002
Allowance for expected credit losses	(17)	(19)
Unbilled receivables, net	\$ 5,693	\$ 5,983

⁽¹⁾ Includes unbilled receivables due from the U.S. government associated with foreign military sales, which are contracted with and paid by the U.S. government.

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6. INVENTORIED COSTS, NET

Inventoried costs are principally associated with contracts where the U.S. government is the primary customer, therefore the company does not believe it has significant exposure to recoverability risk related to these amounts. Inventoried costs associated with our commercial businesses, while less significant in total, are subject to a greater level of recoverability risk. The company recorded write-downs of commercial business inventory at Space Systems for which its cost exceeded net realizable value of \$43 million and \$45 million during the years ended December 31, 2023 and 2022, respectively. As discussed in Note 1, the company recognized a \$45 million reduction of inventoried costs related to the B-21 program at Aeronautics Systems during the year ended December 31, 2023.

Inventoried costs, net consisted of the following:

<i>\$ in millions</i>	December 31	
	2023	2022
Contracts in process	\$ 647	\$ 574
Product inventory:		
Raw materials	338	325
Work in process	72	31
Finished goods	52	48
Total product inventory	\$ 462	\$ 404
Inventoried costs, net	\$ 1,109	\$ 978

7. INCOME TAXES

Federal and foreign income tax expense consisted of the following:

<i>\$ in millions</i>	Year Ended December 31		
	2023	2022	2021
Federal income tax expense:			
Current	\$ 949	\$ 1,289	\$ 1,398
Deferred	(670)	(353)	518
Total federal income tax expense	279	936	1,916
Foreign income tax expense:			
Current	15	3	6
Deferred	(4)	1	11
Total foreign income tax expense	11	4	17
Total federal and foreign income tax expense	\$ 290	\$ 940	\$ 1,933

Earnings before income taxes associated with the company's foreign operations are not material in the periods presented.

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Income tax expense differs from the amount computed by multiplying earnings before income taxes by the statutory federal income tax rate due to the following:

<i>\$ in millions</i>	Year Ended December 31					
	2023		2022		2021	
Income tax expense at statutory rate	\$ 493	21.0 %	\$ 1,226	21.0 %	\$ 1,877	21.0 %
Research credit	(210)	(8.9)	(177)	(3.0)	(192)	(2.2)
Foreign derived intangible income	(63)	(2.7)	(66)	(1.1)	(50)	(0.6)
IT services divestiture nondeductible goodwill	—	—	—	—	250	2.8
Settlements with taxing authorities	(1)	—	(86)	(1.5)	—	—
Net interest expense	69	2.9	22	0.4	17	0.2
Other, net	2	0.1	21	0.3	31	0.4
Total federal and foreign income taxes	\$ 290	12.4 %	\$ 940	16.1 %	\$ 1,933	21.6 %

The 2023 ETR decreased to 12.4 percent from 16.1 percent in 2022 primarily due to lower earnings before income taxes as a result of the B-21 charge and MTM expense, which collectively reduced the 2023 ETR by 3.8 percentage points. The 2022 MTM benefit increased the 2022 ETR by 1.2 percentage points.

The 2022 ETR decreased to 16.1 percent from 21.6 percent in 2021 primarily due to an \$86 million benefit resulting from the resolution of the IRS examination of certain legacy OATK tax returns, as well as additional federal income taxes in the prior year resulting from the IT services divestiture. The company's 2022 MTM benefit increased the 2022 ETR by 1.2 percentage points; however, the MTM benefit in 2021 did not significantly impact the 2021 ETR.

Income tax payments, net of refunds received, were \$1.2 billion, \$1.5 billion and \$1.3 billion for the years ended December 31, 2023, 2022 and 2021, respectively. Taxes receivable, which are included in Prepaid expenses and other current assets in the consolidated statements of financial position, were \$1.5 billion and \$850 million as of December 31, 2023 and 2022, respectively.

Uncertain Tax Positions

We file income tax returns in the U.S. federal jurisdiction and in various state and foreign jurisdictions. The Northrop Grumman 2018-2020 federal tax returns are currently under Internal Revenue Service (IRS) examination. During the second quarter of 2023, the company entered into an agreed Revenue Agent's Report ("RAR") for certain matters related to the company's 2014-2017 federal income tax returns, resulting in a \$90 million reduction to our unrecognized tax benefits and an immaterial impact to income tax expense. The matters not addressed by the agreed RAR related to the company's 2014-2017 federal income tax returns and refund claims related to its 2007-2016 federal tax returns are currently under review by the IRS Appeals Office.

In the second quarter of 2023, the California Franchise Tax Board approved a resolution of the state examination primarily related to California state apportionment in the company's 2007 to 2016 tax years, resulting in a \$95 million reduction to our unrecognized tax benefits and an \$11 million reduction to unallocated corporate expense.

Tax returns for open tax years related to state and foreign jurisdictions remain subject to examination. As state income taxes are generally considered allowable and allocable costs, any individual or aggregate state examination impacts are not expected to have a material impact on our financial results. Amounts currently subject to examination related to foreign jurisdictions are not material.

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The change in unrecognized tax benefits during 2023, 2022 and 2021, excluding interest, is as follows:

<i>\$ in millions</i>	December 31		
	2023	2022	2021
Unrecognized tax benefits at beginning of the year	\$ 1,663	\$ 1,630	\$ 1,481
Additions based on tax positions related to the current year	276	262	355
Additions for tax positions of prior years	254	6	47
Reductions for tax positions of prior years	(9)	(124)	(251)
Settlements with taxing authorities	(189)	(110)	(1)
Other, net	(1)	(1)	(1)
Net change in unrecognized tax benefits	331	33	149
Unrecognized tax benefits at end of the year	\$ 1,994	\$ 1,663	\$ 1,630

Our 2023 increase in unrecognized tax benefits was primarily related to our methods of accounting associated with the timing of revenue recognition and related costs and the 2017 Tax Cuts and Jobs Act, which includes related final revenue recognition regulations issued in December 2020 under IRC Section 451(b) and procedural guidance issued in August 2021. As of December 31, 2023, we have approximately \$2.0 billion in unrecognized tax benefits, including \$843 million related to our position on IRC Section 451(b). If these matters, including our position on IRC Section 451(b), are unfavorably resolved, there could be a material impact on our future cash flows. It is reasonably possible that within the next 12 months our unrecognized tax benefits related to these matters may increase by approximately \$120 million.

Our current unrecognized tax benefits, which are included in Other current liabilities in the consolidated statements of financial position, were \$964 million and \$728 million as of December 31, 2023 and 2022, respectively, with the remainder of our unrecognized tax benefits included within Other non-current liabilities. These liabilities include \$305 million and \$216 million of accrued interest and penalties as of December 31, 2023 and 2022, respectively. If the income tax benefits from these tax positions are ultimately realized, \$848 million of federal and foreign tax benefits would reduce the company's ETR.

Net interest expense within the company's federal, foreign and state income tax provisions was \$62 million, \$29 million, and \$25 million for the years ended December 31, 2023, 2022, and 2021, respectively.

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Deferred Income Taxes

Deferred income taxes reflect the net tax effects of temporary differences between the carrying amounts of assets and liabilities for financial reporting purposes and tax purposes. Net deferred tax assets and liabilities are classified as non-current in the consolidated statements of financial position.

The tax effects of temporary differences and carryforwards that gave rise to year-end deferred federal, state and foreign tax balances, as presented in the consolidated statements of financial position, are as follows:

<i>\$ in millions</i>	December 31	
	2023	2022
Deferred Tax Assets		
Retiree benefits	\$ 115	\$ 117
Capitalized research and experimental expenditures	3,380	1,671
Accrued employee compensation	400	378
Provisions for accrued liabilities	509	65
Inventory	279	484
Stock-based compensation	35	37
Operating lease liabilities	575	556
Tax credits	557	464
Other	215	144
Gross deferred tax assets	6,065	3,916
Less: valuation allowance	(517)	(428)
Net deferred tax assets	5,548	3,488
Deferred Tax Liabilities		
Goodwill	534	534
Purchased intangibles	83	98
Property, plant and equipment, net	805	854
Operating lease right-of-use assets	563	545
Contract accounting differences	2,437	1,348
Other	106	79
Deferred tax liabilities	4,528	3,458
Total net deferred tax assets	\$ 1,020	\$ 30

Realization of deferred tax assets is primarily dependent on generating sufficient taxable income in future periods. The company believes it is more-likely-than-not our net deferred tax assets will be realized.

At December 31, 2023, the company has available tax credits and unused net operating losses of \$615 million and \$358 million, respectively, that may be applied against future taxable income. The majority of tax credits and net operating losses expire in 2024 through 2046, however, some may be carried forward indefinitely. Due to the uncertainty of the realization of the tax credits and net operating losses, the company has recorded valuation allowances of \$344 million and \$46 million, respectively, as of December 31, 2023.

Undistributed Foreign Earnings

As of December 31, 2023, the company has accumulated undistributed earnings generated by our foreign subsidiaries and most have been taxed in the U.S. We intend to indefinitely reinvest these earnings, as well as future earnings from our foreign subsidiaries to fund our international operations. In addition, we expect future U.S. cash generation will be sufficient to meet future U.S. cash needs.

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8. GOODWILL AND OTHER PURCHASED INTANGIBLE ASSETS

Goodwill

Changes in the carrying amounts of goodwill for the years ended December 31, 2022 and 2023, were as follows:

<i>\$ in millions</i>	Aeronautics Systems	Defense Systems	Mission Systems	Space Systems	Total
Balance as of December 31, 2021	\$ 3,467	\$ 3,412	\$ 5,881	\$ 4,755	\$ 17,515
Other ⁽¹⁾	—	1	—	—	1
Balance as of December 31, 2022	\$ 3,467	\$ 3,413	\$ 5,881	\$ 4,755	\$ 17,516
Other ⁽¹⁾	—	1	—	—	1
Balance as of December 31, 2023	\$ 3,467	\$ 3,414	\$ 5,881	\$ 4,755	\$ 17,517

⁽¹⁾ Other consists primarily of adjustments for foreign currency translation.

At December 31, 2023 and 2022, accumulated goodwill impairment losses totaled \$417 million and \$153 million at Aeronautics Systems and Space Systems, respectively.

Other Purchased Intangible Assets

Net customer-related and other intangible assets are as follows:

<i>\$ in millions</i>	December 31	
	2023	2022
Gross customer-related and other intangible assets	\$ 3,365	\$ 3,364
Less accumulated amortization	(3,060)	(2,980)
Net customer-related and other intangible assets	\$ 305	\$ 384

Amortization expense for 2023, 2022 and 2021, was \$80 million, \$197 million and \$204 million, respectively. As of December 31, 2023, the expected future amortization of purchased intangibles for each of the next five years is as follows:

<i>\$ in millions</i>	
2024	\$ 57
2025	45
2026	42
2027	31
2028	31

9. FAIR VALUE OF FINANCIAL INSTRUMENTS

The following table presents the financial assets and liabilities the company records at fair value on a recurring basis identified by the level of inputs used to determine fair value. See Note 1 for the definitions of these levels and for further information on our financial instruments.

<i>\$ in millions</i>	December 31, 2023				December 31, 2022			
	Level 1	Level 2	Level 3	Total	Level 1	Level 2	Level 3	Total
Financial Assets								
Marketable securities	\$ 321	\$ 1	\$ 8	\$ 330	\$ 310	\$ 1	\$ 8	\$ 319
Marketable securities valued using NAV				9				13
Total marketable securities	321	1	8	339	310	1	8	332
Derivatives	—	5	—	5	—	7	—	7

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The notional value of the company's foreign currency forward contracts at December 31, 2023 and 2022 was \$286 million and \$221 million, respectively. The portion of notional value designated as a cash flow hedge at December 31, 2023 and 2022 was \$162 million and \$87 million, respectively.

The derivative fair values and related unrealized gains/losses at December 31, 2023 and 2022 were not material.

There were no transfers of financial instruments into or out of Level 3 of the fair value hierarchy during the years ended December 31, 2023 and 2022.

The carrying value of cash and cash equivalents and commercial paper approximates fair value.

10. DEBT

Commercial Paper

The company maintains a commercial paper program that serves as a source of short-term financing with capacity to issue unsecured commercial paper notes up to \$2.5 billion. There were no commercial paper borrowings outstanding at December 31, 2023 and December 31, 2022, respectively.

Credit Facility

The company maintains a five-year senior unsecured credit facility in an aggregate principal amount of \$2.5 billion (the "2022 Credit Agreement") that matures in August 2027. The revolving credit facility established under the 2022 Credit Agreement is intended to support the company's commercial paper program and other general corporate purposes. Commercial paper borrowings reduce the amount available for borrowing under the 2022 Credit Agreement. At December 31, 2023, there were no borrowings outstanding under this facility.

The 2022 Credit Agreement contains generally customary terms and conditions, including covenants restricting the company's ability to sell all or substantially all of its assets, merge or consolidate with another entity or undertake other fundamental changes and incur liens. The company also cannot permit the ratio of its debt to capitalization (as set forth in the credit agreement) to exceed 65 percent. At December 31, 2023, the company was in compliance with all covenants under its credit agreement.

Unsecured Senior Notes

Issuance of Senior Notes

In February 2023, the company issued \$2.0 billion of unsecured senior notes for general corporate purposes, including debt repayment, share repurchases, and working capital, as follows:

- \$1.0 billion of 4.70% senior notes due 2033 (the "2033 Notes") and
- \$1.0 billion of 4.95% senior notes due 2053 (the "2053 Notes").

We refer to the 2033 Notes and the 2053 Notes, together, as the "notes." Interest on the notes is payable semi-annually in arrears. The notes are generally subject to redemption, in whole or in part, at the company's discretion at any time, or from time to time, prior to maturity at a redemption price equal to the greater of 100% of the principal amount of the notes to be redeemed or an applicable "make-whole" amount, plus accrued and unpaid interest.

Repayments of Senior Notes

In August 2023, the company repaid \$1.05 billion of 3.25 percent unsecured senior notes upon maturity.

In March 2021, the company repaid \$700 million of 3.50 percent unsecured notes upon maturity.

In March 2021, the company redeemed \$1.5 billion of 2.55 percent unsecured notes due October 2022. The company recorded a pre-tax charge of \$54 million principally related to the premium paid on the redemption, which was recorded in Other, net in the consolidated statements of earnings and comprehensive income.

Debt Exchange

On September 2, 2021, the company completed an exchange offer to eligible holders of the outstanding notes of our direct wholly owned subsidiary, Northrop Grumman Systems Corporation ("NGSC"), maturing through 2036. An aggregate principal amount of \$422 million of the NGSC notes was exchanged for \$422 million of unregistered Northrop Grumman Corporation notes (the "Unregistered Notes") with the same interest rates and maturity dates as the NGSC notes exchanged.

On June 15, 2022, the company completed a registered exchange offer pursuant to which the company exchanged an aggregate principal amount of \$414 million of the Unregistered Notes for \$414 million of new notes registered under the Securities Act of 1933, as amended, (the "Registered Notes") with the same interest rates and maturity dates as the Unregistered Notes.

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Because the debt instruments were not substantially different in either of the exchange offers, both exchanges were treated as debt modifications for accounting purposes with no gain or loss recognized.

Long-term debt consists of the following:

<i>\$ in millions</i>		December 31	
		2023	2022
Fixed-rate notes and debentures, maturing in	Interest rate		
2023	3.25%	\$ —	\$ 1,050
2025	2.93%	1,500	1,500
2026	7.75% - 7.88%	527	527
2027	3.20%	750	750
2028	3.25%	2,000	2,000
2030	4.40%	750	750
2031	7.75%	466	466
2033	4.70%	1,000	—
2040	5.05% - 5.15%	800	800
2043	4.75%	950	950
2045	3.85%	600	600
2047	4.03%	2,250	2,250
2050	5.25%	1,000	1,000
2053	4.95%	1,000	—
Other	Various	332	293
Debt issuance costs		(69)	(59)
Total long-term debt		13,856	12,877
Less: current portion ⁽¹⁾		70	1,072
Long-term debt, net of current portion		\$ 13,786	\$ 11,805

⁽¹⁾ The current portion of long-term debt is recorded in Other current liabilities in the consolidated statements of financial position.

The estimated fair value of long-term debt was \$13.4 billion and \$12.1 billion as of December 31, 2023 and 2022, respectively. We calculated the fair value of long-term debt using Level 2 inputs, based on interest rates available for debt with terms and maturities similar to the company's existing debt arrangements.

Indentures underlying long-term debt issued by the company or its subsidiaries contain various restrictions with respect to the issuer, including one or more restrictions relating to limitations on liens, sale-leaseback arrangements and funded debt of subsidiaries. The majority of these fixed rate notes and debentures are subject to redemption at the company's discretion at any time prior to maturity in whole or in part at the principal amount plus any make-whole premium and accrued and unpaid interest. Interest on these fixed rate notes and debentures are payable semi-annually in arrears.

Total interest payments, net of interest received and capitalized, were \$437 million, \$474 million and \$570 million for the years ended December 31, 2023, 2022 and 2021, respectively. The company capitalized interest expense of \$95 million, \$53 million and \$17 million during the years ended December 31, 2023, 2022 and 2021, respectively.

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Maturities of long-term debt as of December 31, 2023, are as follows:

\$ in millions

Year Ending December 31	
2024	\$ 70
2025	1,582
2026	530
2027	754
2028	2,043
Thereafter	8,963
Total principal payments	13,942
Unamortized premium on long-term debt, net of discount	(17)
Debt issuance costs	(69)
Total long-term debt	\$ 13,856

11. INVESTIGATIONS, CLAIMS AND LITIGATION

For over 25 years, the company has worked closely with the United States Navy, the United States Environmental Protection Agency, the New York State Department of Environmental Conservation, the New York State Department of Health and other federal, state and local governmental authorities, to address environmental conditions allegedly resulting from historic operations at the former United States Navy and Grumman facilities in Bethpage, New York. We have incurred, and expect to continue to incur, as included in Note 12, substantial remediation costs related to these Bethpage environmental conditions. It is also possible that applicable remediation standards and other requirements to which we are subject may continue to change, and that our costs may increase materially. In 2022, we resolved several disputes and regulatory proceedings concerning the scope and allocation of remediation responsibilities and costs related to this site. The company continues to be involved in related disputes, none of which are material individually or in the aggregate. We are also a party to various individual lawsuits and a putative class action in the Eastern District of New York alleging personal injury and property damage related to the legacy Bethpage environmental conditions. The court has stayed the filed individual lawsuits, pending its decision on class certification. We are also a party, and may become a party, to other lawsuits brought by or against insurance carriers, and by other individual plaintiffs and/or putative classes, as well as other parties. We cannot at this time predict or reasonably estimate the potential cumulative outcomes or ranges of possible liability of these Bethpage lawsuits.

The company received from the U.S. Department of Justice (DOJ) a criminal subpoena on December 9, 2022, and a civil investigative demand on February 2, 2023, both seeking information regarding financial and cost accounting and controls that appears focused on the interest rate assumptions the company used to determine our CAS pension expense, which we discuss in Note 12 below. The company is engaging with the government and responding to the requests. We cannot at this point predict the outcome of these matters.

The company is a party to various other investigations, lawsuits, arbitration, claims, enforcement actions and other legal proceedings, including government investigations and claims, that arise in the ordinary course of our business. The nature of legal proceedings is such that we cannot assure the outcome of any particular matter. However, based on information available to the company to date, the company does not believe that the outcome of any of these other matters pending against the company is likely to have a material adverse effect on the company's consolidated financial position as of December 31, 2023, or its annual results of operations and/or cash flows.

12. COMMITMENTS AND CONTINGENCIES

U.S. Government Cost Claims and Contingencies

From time to time, the company is advised of claims by the U.S. government concerning certain potential disallowed costs, plus, at times, penalties and interest. When such findings are presented, the company and U.S. government representatives engage in discussions to enable the company to evaluate the merits of these claims, as well as to assess the amounts being claimed. Where appropriate, provisions are made to reflect the company's estimated exposure for such potential disallowed costs. Such provisions are reviewed periodically using the most recent information available. The company believes it has adequately reserved for disputed amounts that are probable and reasonably estimable, and that the outcome of any such matters would not have a material adverse effect on its consolidated financial position as of December 31, 2023, or its annual results of operations and/or cash flows.

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In 2019, the Defense Contract Management Agency (DCMA) raised questions about an interest rate assumption used by the company to determine our CAS pension expense. On June 1, 2020, DCMA provided written notice that the assumptions the company used during the period 2013-2019 were potentially noncompliant with CAS. We submitted a formal response on July 31, 2020, which we believed demonstrates the appropriateness of the assumptions used. On November 24, 2020, DCMA replied to the company's response, disagreeing with our position and requesting additional input, which we provided on February 22, 2021. We have continued to exchange correspondence and engage with DCMA on this matter, including responding to requests for and providing additional information. As noted in Note 11 above, the company received from the DOJ a criminal subpoena on December 9, 2022, and a CID on February 2, 2023, both seeking information that appears related to the interest rate assumptions at issue in our discussions with DCMA. The company is engaging with the government and responding to the requests. We cannot at this point predict the outcome of these matters. As previously described, the sensitivity to changes in interest rate assumptions makes it reasonably possible the outcome of the DCMA matter could have a material adverse effect on our financial position, results of operations and/or cash flows, although we are not currently able to estimate a range of any potential loss.

Environmental Matters

The table below summarizes the amount accrued for environmental remediation costs, management's estimate of the amount of reasonably possible future costs in excess of accrued costs and the deferred costs expected to be recoverable through overhead charges on U.S. government contracts as of December 31, 2023 and 2022:

<i>\$ in millions</i>	Accrued Costs ⁽¹⁾⁽²⁾	Reasonably Possible Future Costs in Excess of Accrued Costs ⁽²⁾	Deferred Costs ⁽³⁾
December 31, 2023	\$ 584	\$ 387	\$ 518
December 31, 2022	565	353	486

⁽¹⁾ As of December 31, 2023, \$223 million is recorded in Other current liabilities and \$361 million is recorded in Other non-current liabilities.

⁽²⁾ Estimated remediation costs are not discounted to present value. The reasonably possible future costs in excess of accrued costs do not take into consideration amounts expected to be recoverable through overhead charges on U.S. government contracts.

⁽³⁾ As of December 31, 2023, \$206 million is deferred in Prepaid expenses and other current assets and \$312 million is deferred in Other non-current assets. These amounts are evaluated for recoverability on a routine basis.

Although management cannot predict whether (i) new information gained as our environmental remediation projects progress, (ii) changes in remediation standards or other requirements to which we are subject, or (iii) other changes in facts and circumstances will materially affect the estimated liability accrued, we do not anticipate that future remediation expenditures associated with our currently identified projects will have a material adverse effect on the company's consolidated financial position as of December 31, 2023, or its annual results of operations and/or cash flows.

Financial Arrangements

In the ordinary course of business, the company uses standby letters of credit and guarantees issued by commercial banks and surety bonds issued principally by insurance companies to guarantee the performance on certain obligations. At December 31, 2023, there were \$411 million of stand-by letters of credit and guarantees and \$263 million of surety bonds outstanding.

Indemnifications

The company has provided indemnifications for certain environmental, income tax and other potential liabilities in connection with certain of its divestitures. The settlement of these liabilities is not expected to have a material adverse effect on the company's consolidated financial position as of December 31, 2023, or its annual results of operations and/or cash flows.

13. RETIREMENT BENEFITS

Plan Descriptions

U.S. Defined Benefit Pension Plans – The company sponsors several defined benefit pension plans in the U.S. Pension benefits for most participants are based on years of service, age and compensation. It is our policy to fund at

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least the minimum amount required for qualified plans, using actuarial cost methods and assumptions acceptable under U.S. government regulations, by making payments into benefit trusts separate from the company.

U.S. Defined Contribution Plans – The company also sponsors defined contribution plans covering the majority of its employees, including certain employees covered under collective bargaining agreements. Company contributions vary depending on date of hire, with a majority of employees being eligible for employer matching of employee contributions. Based on date of hire, certain employees are eligible to receive a company non-elective contribution or an enhanced matching contribution in lieu of a defined benefit pension plan benefit. The company's contributions to these defined contribution plans for the years ended December 31, 2023, 2022 and 2021, were \$634 million, \$558 million and \$588 million, respectively.

Non-U.S. Benefit Plans – The company sponsors several benefit plans for non-U.S. employees. These plans are designed to provide benefits appropriate to local practice and in accordance with local regulations. Some of these plans are funded using benefit trusts separate from the company.

Medical and Life Benefits – The company funds a portion of the costs for certain health care and life insurance benefits for a substantial number of its active and retired employees. In addition to a company and employee cost-sharing feature, the health plans also have provisions for deductibles, co-payments, coinsurance percentages, out-of-pocket limits, conformance to a schedule of reasonable fees, the use of managed care providers and coordination of benefits with other plans. The plans also provide for a Medicare carve-out. The company reserves the right to amend or terminate the plans at any time.

Certain covered employees and dependents are eligible to participate in plans upon retirement if they meet specified age and years of service requirements. The company provides subsidies to reimburse certain retirees for a portion of the cost of individual Medicare-supplemental coverage purchased directly by the retiree through a private insurance exchange. The company has capped the amount of its contributions for substantially all of its remaining postretirement medical and life benefit plans. In addition, after January 1, 2005 (or earlier at some businesses), newly hired employees are not eligible for subsidized postretirement medical and life benefits.

Summary Plan Results

The cost to the company of its retirement benefit plans is shown in the following table:

<i>\$ in millions</i>	Year Ended December 31					
	Pension Benefits			Medical and Life Benefits		
	2023	2022	2021	2023	2022	2021
Components of net periodic benefit cost (benefit)						
Service cost	\$ 236	\$ 367	\$ 414	\$ 5	\$ 9	\$ 16
Interest cost	1,568	1,136	1,054	67	47	53
Expected return on plan assets	(2,098)	(2,641)	(2,512)	(85)	(110)	(105)
Amortization of prior service credit	—	—	(9)	(1)	(1)	(1)
Mark-to-market expense (benefit)	442	(1,262)	(1,921)	(20)	30	(434)
Other	—	—	(1)	—	—	—
Net periodic benefit cost (benefit)	\$ 148	\$ (2,400)	\$ (2,975)	\$ (34)	\$ (25)	\$ (471)

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The table below summarizes the components of changes in unamortized prior service credit (cost) for the years ended December 31, 2021, 2022 and 2023:

<i>\$ in millions</i>	Pension Benefits	Medical and Life Benefits	Total
Changes in unamortized prior service credit (cost)			
Amortization of prior service credit (cost)	\$ 9	\$ 1	\$ 10
Tax expense	(2)	—	(2)
Change in unamortized prior service credit (cost) – 2021	7	1	8
Amortization of prior service credit (cost)	—	1	1
Tax expense	—	—	—
Change in unamortized prior service credit (cost) – 2022	—	1	1
Amortization of prior service credit (cost)	—	1	1
Tax expense	—	—	—
Change in unamortized prior service credit (cost) – 2023	\$ —	\$ 1	\$ 1

The following table sets forth the funded status and amounts recognized in the consolidated statements of financial position for the company's defined benefit retirement plans. Pension benefits data includes the qualified plans, foreign plans and U.S. unfunded non-qualified plans for benefits provided to directors, officers and certain employees. The company uses a December 31 measurement date for its plans.

<i>\$ in millions</i>	Pension Benefits		Medical and Life Benefits	
	2023	2022	2023	2022
Plan Assets				
Fair value of plan assets at beginning of year	\$ 28,920	\$ 36,236	\$ 1,226	\$ 1,588
Net gain (loss) on plan assets	3,104	(5,422)	146	(257)
Employer contributions	105	101	34	35
Participant contributions	6	7	27	24
Benefits paid	(1,894)	(1,973)	(159)	(164)
Other	10	(29)	—	—
Fair value of plan assets at end of year	30,251	28,920	1,274	1,226
Projected Benefit Obligation				
Projected benefit obligation at beginning of year	29,067	38,888	1,264	1,685
Service cost	236	367	5	9
Interest cost	1,568	1,136	67	47
Participant contributions	6	7	27	24
Actuarial loss (gain)	1,447	(9,325)	42	(337)
Benefits paid	(1,894)	(1,973)	(159)	(164)
Other	13	(33)	—	—
Projected benefit obligation at end of year	30,443	29,067	1,246	1,264
Funded status	\$ (192)	\$ (147)	\$ 28	\$ (38)

The increase in the fair value of our plan assets for the year ended December 31, 2023 was principally driven by net plan asset returns of 11.1 percent, partially offset by \$2.1 billion of benefit payments. The increase in our projected benefit obligation for the year ended December 31, 2023, was primarily driven by \$1.6 billion of interest cost and a 39 basis point decrease in the discount rate from year end 2022, partially offset by \$2.1 billion of benefit payments.

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<i>\$ in millions</i>	Pension Benefits		Medical and Life Benefits	
	2023	2022	2023	2022
Classification of amounts recognized in the consolidated statements of financial position				
Non-current assets	\$ 1,042	\$ 982	\$ 289	\$ 240
Current liability	(178)	(177)	(27)	(42)
Non-current liability	(1,056)	(952)	(234)	(236)

The accumulated benefit obligation for all defined benefit pension plans was \$30.1 billion and \$28.8 billion at December 31, 2023 and 2022, respectively.

Amounts for pension plans with accumulated benefit obligations in excess of fair value of plan assets are as follows:

<i>\$ in millions</i>	December 31	
	2023	2022
Projected benefit obligation	\$ 1,152	\$ 1,126
Accumulated benefit obligation	1,143	1,117
Fair value of plan assets	3	2

Plan Assumptions

On a weighted-average basis, the following assumptions were used to determine benefit obligations at December 31 of each year and net periodic benefit cost for the following year:

	Pension Benefits			Medical and Life Benefits		
	2023	2022	2021	2023	2022	2021
Discount rate	5.15 %	5.54 %	2.98 %	5.20 %	5.57 %	2.93 %
Expected long-term return on plan assets	7.50 %	7.50 %	7.50 %	7.12 %	7.23 %	7.19 %
Initial cash balance crediting rate assumed for the next year	4.02 %	3.96 %	2.25 %			
Rate to which the cash balance crediting rate is assumed to increase/decrease (the ultimate rate)	4.02 %	3.88 %	2.25 %			
Year that the cash balance crediting rate reaches the ultimate rate	2029	2028	2027			
Rate of compensation increase	3.00 %	3.00 %	3.00 %			
Initial health care cost trend rate assumed for the next year				6.20 %	6.50 %	5.30 %
Rate to which the health care cost trend rate is assumed to decline (the ultimate trend rate)				5.00 %	5.00 %	5.00 %
Year that the health care cost trend rate reaches the ultimate trend rate				2028	2028	2023

Plan Assets and Investment Policy

Plan assets are invested in various asset classes that are expected to produce a sufficient level of diversification and investment return over the long term. Liability studies are conducted on a regular basis to provide guidance in setting investment goals with an objective to balance risk. Risk targets are established and monitored against acceptable ranges.

Our investment policies and procedures are designed to ensure the plans' investments are in compliance with ERISA. Guidelines are established defining permitted investments within each asset class. Derivatives are used for transitioning assets, asset class rebalancing, managing currency risk and for management of fixed-income and alternative investments.

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For the majority of the plans' assets, the investment policies require that the asset allocation be maintained within the following ranges as of December 31, 2023:

	Asset Allocation Ranges
Cash and cash equivalents	0% - 12%
Global public equities	21% - 41%
Fixed-income securities	35% - 55%
Alternative investments	12% - 32%

The table below provides the fair values of the company's pension and Voluntary Employees' Beneficiary Association (VEBA) trust plan assets at December 31, 2023 and 2022, by asset category. The table also identifies the level of inputs used to determine the fair value of assets in each category. See Note 1 for the definitions of these levels. Certain investments that are measured at fair value using NAV per share (or its equivalent) as a practical expedient are not required to be categorized in the fair value hierarchy table. The total fair value of these investments is included in the table below to permit reconciliation of the fair value hierarchy to amounts presented in the funded status table. As of December 31, 2023 and 2022, there were no investments expected to be sold at a value materially different than NAV.

<i>\$ in millions</i>	Level 1		Level 2		Level 3		Total	
	2023	2022	2023	2022	2023	2022	2023	2022
Asset category								
Cash and cash equivalents	\$ 85	\$ 115	\$ 830	\$ 1,076			\$ 915	\$ 1,191
U.S. equities	1,712	2,138	1	1			1,713	2,139
International equities	1,506	1,784					1,506	1,784
Fixed-income securities								
U.S. Treasuries	—	22	3,890	2,977			3,890	2,999
U.S. Government Agency			124	145			124	145
Non-U.S. Government			176	172			176	172
Corporate debt	74	28	4,432	4,717			4,506	4,745
Asset backed			436	353			436	353
High yield debt	13	12	20	19			33	31
Bank loans			15	13			15	13
Other assets	64		43	2	\$ 2	\$ 2	109	4
Investments valued using NAV as a practical expedient								
U.S. equities							1,294	1,043
International equities							3,972	3,904
Fixed-income funds							4,057	2,569
Hedge funds							38	44
Opportunistic investments							3,176	2,983
Private equity funds							3,466	3,299
Real estate funds							2,123	2,753
Payables, net							(24)	(25)
Fair value of plan assets at the end of the year	\$ 3,454	\$ 4,099	\$ 9,967	\$ 9,475	\$ 2	\$ 2	\$ 31,525	\$ 30,146

There were no transfers of plan assets into or out of Level 3 of the fair value hierarchy during the years ended December 31, 2023 and 2022.

Generally, investments are valued based on information in financial publications of general circulation, statistical and valuation services, records of security exchanges, appraisal by qualified persons, transactions and bona fide offers. Cash and cash equivalents are predominantly held in money market or short-term investment funds. U.S. and

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international equities consist primarily of common stocks and institutional common trust funds. Investments in certain equity securities, which include domestic and international securities and registered investment companies, and exchange-traded funds with fixed income strategies are valued at the last reported sales or quoted price on the last business day of the reporting period. Fair values for certain fixed-income securities, which are not exchange-traded, are valued using third-party pricing services.

Other assets include derivative assets with a fair value of \$172 million and \$71 million, derivative liabilities with a fair value of \$101 million and \$117 million, and net notional amounts of \$4.9 billion and \$3.2 billion, as of December 31, 2023 and 2022, respectively. Derivative instruments may include exchange traded futures contracts, interest rate swaps, options on futures and swaps, currency contracts, total return swaps and credit default swaps. Notional amounts do not quantify risk or represent assets or liabilities of the pension and VEBA trusts, but are used in the calculation of cash settlement under the contracts. The volume of derivative activity is commensurate with the amounts disclosed at year-end. Certain derivative financial instruments within the pension trust are subject to master netting agreements with certain counterparties.

Investments in certain equity and fixed-income funds, which include common/collective trust funds, and alternative investments, including hedge funds, opportunistic investments, private equity funds and real estate funds, are valued based on the NAV derived by the investment managers, as a practical expedient, and are described further below.

U.S. and International equities: Generally, redemption periods are daily, monthly or quarterly with a notice requirement less than 90 days. As of December 31, 2023 and 2022, there were no unfunded commitments.

Fixed-income funds: Generally, redemption periods are daily, monthly or quarterly with a notice requirement of two days. As of December 31, 2023 and 2022 there were no unfunded commitments.

Hedge funds: Consist of closed-end funds with a 5-10 year life as well as funds that allow redemption requests subject to the liquidity limitations of the underlying investments. As of December 31, 2023 and 2022, unfunded commitments were \$6 million.

Opportunistic investments: Primarily held in partnerships with a 5-10 year life. As of December 31, 2023 and 2022, unfunded commitments were \$1.6 billion and \$1.5 billion, respectively.

Private equity funds: The term of each fund is typically 10 or more years and the fund's investors do not have an option to redeem their interest in the fund. As of December 31, 2023 and 2022, unfunded commitments were \$1.9 billion and \$2.0 billion, respectively.

Real estate funds: Consist primarily of open-end funds that generally allow investors to redeem their interests in the funds. Certain closed-end real estate funds have terms of 10 or more years. As of December 31, 2023 and 2022, unfunded commitments were \$28 million and \$44 million, respectively.

For the years ended December 31, 2023 and 2022, the defined benefit pension and VEBA trusts did not hold any Northrop Grumman common stock.

Benefit Payments

The following table reflects estimated future benefit payments for the next ten years, based upon the same assumptions used to measure the benefit obligation, and includes expected future employee service, as of December 31, 2023:

<i>\$ in millions</i>	Pension Plans	Medical and Life Plans	Total
Year Ending December 31			
2024	\$ 2,012	\$ 134	\$ 2,146
2025	2,058	137	2,195
2026	2,095	131	2,226
2027	2,129	107	2,236
2028	2,151	103	2,254
2029 through 2033	10,820	455	11,275

In 2024, the company expects to contribute the required minimum funding of approximately \$99 million to its pension plans and approximately \$35 million to its medical and life benefit plans. During the year ended December 31, 2023, the company made no discretionary pension contributions.

14. STOCK COMPENSATION PLANS AND OTHER COMPENSATION ARRANGEMENTS

Stock Compensation Plans

At December 31, 2023, the company had stock-based compensation awards outstanding under the following shareholder-approved plans: the 2011 Long-Term Incentive Stock Plan (2011 Plan), applicable to employees and non-employee directors, and the 1993 Stock Plan for Non-Employee Directors (1993 SPND).

Employee Plans – In May 2015, the company’s shareholders approved amendments to the 2011 Plan. These amendments provided that shares issued under the plan would be counted against the aggregate share limit on a one-for-one basis. As amended, 5.1 million shares plus 2.4 million of newly authorized shares were available for issuance under the 2011 Plan; as of December 31, 2023, 4.4 million shares remain available for issuance.

The 2011 Plan provides for the following equity awards: stock options, stock appreciation rights (SARs) and stock awards. Under the 2011 Plan, no SARs have been granted and there are no outstanding stock options. Stock awards include restricted performance stock rights (RPSR) and restricted stock rights (RSR). RPSRs generally vest and are paid following the completion of a three-year performance period, based primarily on achievement of certain performance metrics determined by the Board. RSRs generally vest 100% after three years. Each includes dividend equivalents, which are paid concurrently with the RPSR or RSR. The terms of equity awards granted under the 2011 Plan provide for accelerated vesting, and in some instances forfeiture, of all or a portion of an award upon termination of employment.

Non-Employee Director Plans – Awards to non-employee directors are made pursuant to the Northrop Grumman Corporation Equity Grant Program for Non-Employee Directors under the 2011 Plan (the Director Program), which was amended and restated effective January 1, 2016. Under the amended Director Program, each non-employee director is awarded an annual equity grant in the form of Automatic Stock Units, which vest on the one-year anniversary of the grant date. Directors may elect to have all or any portion of their Automatic Stock Units paid on (A) the earlier of (i) the beginning of a specified calendar year after the vesting date or (ii) their separation from service as a member of the Board, or (B) on the vesting date.

Directors also may elect to defer to a later year all or a portion of their remaining cash retainer or committee retainer fees into a stock unit account as Elective Stock Units or in alternative investment options. Elective Stock Units are awarded on a quarterly basis. Directors may elect to have all or a portion of their Elective Stock Units paid on the earlier of (i) the beginning of a specified calendar year or (ii) their separation from service as a member of the Board. Stock units awarded under the Director Program are paid out in an equivalent number of shares of Northrop Grumman common stock. Directors are credited with dividend equivalents in connection with the accumulated stock units until the shares of common stock relating to such stock units are issued.

Compensation Expense

Stock-based compensation expense for the years ended December 31, 2023, 2022 and 2021 was \$87 million, \$99 million and \$94 million, respectively. The related tax benefits (deficiencies) for stock-based compensation for the years ended December 31, 2023, 2022 and 2021 were \$9 million, \$10 million and \$(2) million, respectively.

At December 31, 2023, there was \$96 million of unrecognized compensation expense related to unvested stock awards granted under the company’s stock-based compensation plans. These amounts are expected to be charged to expense over a weighted-average period of 1.3 years.

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Stock Awards

Stock award activity for the years ended December 31, 2021, 2022 and 2023, is presented in the table below. Vested awards do not include any adjustments to reflect the final performance measure for issued shares.

	Stock Awards (in thousands)	Weighted- Average Grant Date Fair Value Per Share	Weighted- Average Remaining Contractual Term (in years)
Outstanding at January 1, 2021	603	\$ 311	1.4
Granted	304	296	
Vested	(269)	286	
Forfeited	(58)	318	
Outstanding at December 31, 2021	580	\$ 314	1.4
Granted	238	397	
Vested	(226)	327	
Forfeited	(31)	320	
Outstanding at December 31, 2022	561	\$ 344	1.4
Granted	216	478	
Vested	(249)	315	
Forfeited	(29)	373	
Outstanding at December 31, 2023	499	\$ 417	1.3

The majority of our stock awards are granted annually during the first quarter.

The grant date fair value of shares issued in settlement of fully vested stock awards was \$99 million, \$93 million and \$103 million during the years ended December 31, 2023, 2022 and 2021, respectively.

Cash Awards

The company grants certain employees cash units (CUs) and cash performance units (CPUs). Depending on actual performance against financial objectives, recipients of CPUs earn between 0 and 200 percent of the original grant. The following table presents the minimum and maximum aggregate payout amounts related to those cash awards granted for the periods presented:

<i>\$ in millions</i>	Year Ended December 31		
	2023	2022	2021
Minimum aggregate payout amount	\$ 34	\$ 32	\$ 31
Maximum aggregate payout amount	192	183	178

The majority of our cash awards are granted annually during the first quarter. CUs typically vest and settle in cash on the third anniversary of the grant date, while CPUs generally vest and pay out in cash based primarily on the achievement of certain performance metrics over a three-year period. At December 31, 2023, there was \$116 million of unrecognized compensation expense related to cash awards.

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15. LEASES

Total Lease Cost

Total lease cost is included in Product and Service costs in the consolidated statement of earnings and comprehensive income and is recorded net of immaterial sublease income. Total lease cost is comprised of the following:

<i>\$ in millions</i>	Year Ended December 31		
	2023	2022	2021
Operating lease cost	\$ 358	\$ 332	\$ 315
Variable lease cost	48	35	31
Short-term lease cost	69	51	80
Total lease cost	\$ 475	\$ 418	\$ 426

Supplemental Balance Sheet Information

Supplemental operating lease balance sheet information consists of the following:

<i>\$ in millions</i>	Year Ended December 31	
	2023	2022
Operating lease right-of-use assets	\$ 1,818	\$ 1,811
Other current liabilities	300	299
Operating lease liabilities	1,892	1,824
Total operating lease liabilities	\$ 2,192	\$ 2,123

Other Supplemental Information

Other supplemental operating lease information consists of the following:

<i>\$ in millions</i>	Year Ended December 31	
	2023	2022
Cash paid for amounts included in the measurement of operating lease liabilities	\$ 341	\$ 316
Right-of-use assets obtained in exchange for new lease liabilities	314	438
Weighted average remaining lease term	11.0 years	11.2 years
Weighted average discount rate	3.9 %	3.4 %

NORTHROP GRUMMAN CORPORATION

Maturities of Lease Liabilities

Maturities of operating lease liabilities as of December 31, 2023 are as follows:

\$ in millions

Year Ending December 31	
2024	\$ 363
2025	354
2026	307
2027	252
2028	222
Thereafter	1,235
Total lease payments	2,733
Less: imputed interest	(541)
Present value of operating lease liabilities	\$ 2,192

As of December 31, 2023, we have approximately \$270 million in rental commitments for real estate leases that have not yet commenced. These leases are expected to commence in 2024 and 2025 with lease terms of 5 to 20 years.

16. SEGMENT INFORMATION

The company is aligned in four operating sectors, which also comprise our reportable segments: Aeronautics Systems, Defense Systems, Mission Systems and Space Systems.

The following table presents sales and operating income by segment:

<i>\$ in millions</i>	Year Ended December 31		
	2023	2022	2021
Sales			
Aeronautics Systems	\$ 10,786	\$ 10,531	\$ 11,259
Defense Systems	5,862	5,579	5,776
Mission Systems	10,895	10,396	10,134
Space Systems	13,946	12,275	10,608
Intersegment eliminations	(2,199)	(2,179)	(2,110)
Total sales	39,290	36,602	35,667
Operating income			
Aeronautics Systems	(473)	1,116	1,093
Defense Systems	710	664	696
Mission Systems	1,609	1,618	1,579
Space Systems	1,212	1,158	1,121
Intersegment eliminations	(298)	(303)	(272)
Total segment operating income	2,760	4,253	4,217
FAS/CAS operating adjustment	(82)	(200)	130
Unallocated corporate (expense) income	(141)	(452)	1,304
Total operating income	\$ 2,537	\$ 3,601	\$ 5,651
Other (expense) income			
Interest expense	(545)	(506)	(556)
Non-operating FAS pension benefit	530	1,505	1,469
Mark-to-market pension and OPB (expense) benefit	(422)	1,232	2,355
Other, net	246	4	19
Earnings before income taxes	\$ 2,346	\$ 5,836	\$ 8,938

NORTHROP GRUMMAN CORPORATION

FAS/CAS Operating Adjustment

For financial statement purposes, we account for our employee pension plans in accordance with FAS. However, the cost of these plans is charged to our contracts in accordance with applicable FAR and CAS requirements. The FAS/CAS operating adjustment reflects the difference between CAS pension expense included as cost in segment operating income and the service cost component of FAS expense included in total operating income.

Unallocated Corporate (Expense) Income

Unallocated corporate (expense) income includes the portion of corporate costs not considered allowable or allocable under applicable FAR and CAS requirements, and therefore not allocated to the segments, such as changes in deferred state income taxes and a portion of management and administration, legal, environmental, compensation, retiree benefits, advertising and other corporate unallowable costs. Unallocated corporate (expense) income also includes costs not considered part of management's evaluation of segment operating performance, such as amortization of purchased intangible assets and the additional depreciation expense related to the step-up in fair value of PP&E acquired through business combinations, as well as certain compensation and other costs.

During the first quarter of 2021, the \$2.0 billion pre-tax gain on the sale of our IT services business and \$192 million of unallowable state taxes and transaction costs associated with the divestiture were recorded in Unallocated corporate (expense) income.

NORTHROP GRUMMAN CORPORATION

Disaggregation of Revenue

Sales by Customer Type

<i>\$ in millions</i>	Year Ended December 31					
	2023		2022		2021	
	\$	% ⁽³⁾	\$	% ⁽³⁾	\$	% ⁽³⁾
Aeronautics Systems						
U.S. government ⁽¹⁾	\$ 9,132	85 %	\$ 8,930	85 %	\$ 9,631	85 %
International ⁽²⁾	1,379	13 %	1,344	13 %	1,421	13 %
Other customers	35	— %	18	— %	18	— %
Intersegment sales	240	2 %	239	2 %	189	2 %
Aeronautics Systems sales	10,786	100 %	10,531	100 %	11,259	100 %
Defense Systems						
U.S. government ⁽¹⁾	3,497	60 %	3,344	61 %	3,595	62 %
International ⁽²⁾	1,491	25 %	1,358	24 %	1,317	23 %
Other customers	76	1 %	71	1 %	75	1 %
Intersegment sales	798	14 %	806	14 %	789	14 %
Defense Systems sales	5,862	100 %	5,579	100 %	5,776	100 %
Mission Systems						
U.S. government ⁽¹⁾	7,999	73 %	7,471	72 %	7,223	71 %
International ⁽²⁾	1,757	16 %	1,809	17 %	1,846	18 %
Other customers	85	1 %	101	1 %	72	1 %
Intersegment sales	1,054	10 %	1,015	10 %	993	10 %
Mission Systems sales	10,895	100 %	10,396	100 %	10,134	100 %
Space Systems						
U.S. government ⁽¹⁾	13,254	95 %	11,578	94 %	9,885	93 %
International ⁽²⁾	278	2 %	337	3 %	398	4 %
Other customers	307	2 %	241	2 %	186	2 %
Intersegment sales	107	1 %	119	1 %	139	1 %
Space Systems sales	13,946	100 %	12,275	100 %	10,608	100 %
Total						
U.S. government ⁽¹⁾	33,882	86 %	31,323	86 %	30,334	85 %
International ⁽²⁾	4,905	13 %	4,848	13 %	4,982	14 %
Other customers	503	1 %	431	1 %	351	1 %
Total Sales	\$ 39,290	100 %	\$ 36,602	100 %	\$ 35,667	100 %

⁽¹⁾ Sales to the U.S. government include sales from contracts for which we are the prime contractor, as well as those for which we are a subcontractor and the ultimate customer is the U.S. government. Each of the company's segments derives substantial revenue from the U.S. government.

⁽²⁾ International sales include sales from contracts for which we are the prime contractor, as well as those for which we are a subcontractor and the ultimate customer is an international customer. These sales include foreign military sales contracted through the U.S. government.

⁽³⁾ Percentages calculated based on total segment sales.

NORTHROP GRUMMAN CORPORATION
Sales by Contract Type

Year Ended December 31

<i>\$ in millions</i>	2023		2022		2021	
	\$	% ⁽¹⁾	\$	% ⁽¹⁾	\$	% ⁽¹⁾
Aeronautics Systems						
Cost-type	\$ 5,235	50 %	\$ 5,013	49 %	\$ 5,419	49 %
Fixed-price	5,311	50 %	5,279	51 %	5,651	51 %
Intersegment sales	240		239		189	
Aeronautics Systems sales	10,786		10,531		11,259	
Defense Systems						
Cost-type	1,591	31 %	1,497	31 %	1,739	35 %
Fixed-price	3,473	69 %	3,276	69 %	3,248	65 %
Intersegment sales	798		806		789	
Defense Systems sales	5,862		5,579		5,776	
Mission Systems						
Cost-type	4,116	42 %	3,622	39 %	3,139	34 %
Fixed-price	5,725	58 %	5,759	61 %	6,002	66 %
Intersegment sales	1,054		1,015		993	
Mission Systems sales	10,895		10,396		10,134	
Space Systems						
Cost-type	10,037	73 %	8,579	71 %	7,731	74 %
Fixed-price	3,802	27 %	3,577	29 %	2,738	26 %
Intersegment sales	107		119		139	
Space Systems sales	13,946		12,275		10,608	
Total						
Cost-type	20,979	53 %	18,711	51 %	18,028	51 %
Fixed-price	18,311	47 %	17,891	49 %	17,639	49 %
Total Sales	\$ 39,290		\$ 36,602		\$ 35,667	

⁽¹⁾ Percentages calculated based on external customer sales.

NORTHROP GRUMMAN CORPORATION
Sales by Geographic Region

Year Ended December 31

	2023		2022		2021	
	\$	% ⁽²⁾	\$	% ⁽²⁾	\$	% ⁽²⁾
<i>\$ in millions</i>						
Aeronautics Systems						
United States	\$ 9,167	87 %	\$ 8,948	87 %	\$ 9,649	87 %
Asia/Pacific	607	6 %	708	7 %	896	8 %
Europe	736	7 %	585	6 %	461	4 %
All other ⁽¹⁾	36	— %	51	— %	64	1 %
Intersegment sales	240		239		189	
Aeronautics Systems sales	10,786		10,531		11,259	
Defense Systems						
United States	3,573	71 %	3,415	71 %	3,670	74 %
Asia/Pacific	419	8 %	454	10 %	465	9 %
Europe	601	12 %	477	10 %	314	6 %
All other ⁽¹⁾	471	9 %	427	9 %	538	11 %
Intersegment sales	798		806		789	
Defense Systems sales	5,862		5,579		5,776	
Mission Systems						
United States	8,084	82 %	7,572	81 %	7,295	80 %
Asia/Pacific	460	5 %	531	6 %	518	6 %
Europe	959	10 %	977	10 %	1,004	10 %
All other ⁽¹⁾	338	3 %	301	3 %	324	4 %
Intersegment sales	1,054		1,015		993	
Mission Systems sales	10,895		10,396		10,134	
Space Systems						
United States	13,561	98 %	11,819	97 %	10,071	96 %
Asia/Pacific	82	1 %	109	1 %	60	1 %
Europe	159	1 %	213	2 %	328	3 %
All other ⁽¹⁾	37	— %	15	— %	10	— %
Intersegment sales	107		119		139	
Space Systems sales	13,946		12,275		10,608	
Total						
United States	34,385	88 %	31,754	87 %	30,685	86 %
Asia/Pacific	1,568	4 %	1,802	5 %	1,939	5 %
Europe	2,455	6 %	2,252	6 %	2,107	6 %
All other ⁽¹⁾	882	2 %	794	2 %	936	3 %
Total Sales	\$ 39,290		\$ 36,602		\$ 35,667	

⁽¹⁾ All other is principally comprised of the Middle East.

⁽²⁾ Percentages calculated based on external customer sales.

NORTHROP GRUMMAN CORPORATION

Intersegment Sales and Operating Income

Sales between segments are recorded at values that include intercompany operating income for the performing segment based on that segment's estimated average operating margin rate for external sales. Such intercompany operating income is eliminated in consolidation, so that the company's total sales and total operating income reflect only those transactions with external customers. See Note 1 for additional information.

The following table presents intersegment sales and operating income:

<i>\$ in millions</i>	Year Ended December 31					
	2023		2022		2021	
	Sales	Operating Income	Sales	Operating Income	Sales	Operating Income
Intersegment sales and operating income						
Aeronautics Systems	\$ 240	\$ 22	\$ 239	\$ 27	\$ 189	\$ 19
Defense Systems	798	97	806	95	789	89
Mission Systems	1,054	167	1,015	167	993	150
Space Systems	107	12	119	14	139	14
Total	\$ 2,199	\$ 298	\$ 2,179	\$ 303	\$ 2,110	\$ 272

Capital Expenditures and Depreciation and Amortization

The following table presents capital expenditures and depreciation and amortization by segment:

<i>\$ in millions</i>	Year Ended December 31					
	2023	2022	2021	2023	2022	2021
	Capital Expenditures			Depreciation and Amortization		
Aeronautics Systems	\$ 504	\$ 490	\$ 465	\$ 384	\$ 322	\$ 266
Defense Systems	111	110	133	107	101	91
Mission Systems	288	248	236	246	242	233
Space Systems	798	529	530	447	396	344
Corporate ⁽¹⁾	74	58	51	154	281	305
Total	\$ 1,775	\$ 1,435	\$ 1,415	\$ 1,338	\$ 1,342	\$ 1,239

⁽¹⁾ Corporate amounts include the amortization of purchased intangible assets and the additional depreciation expense related to the step-up in fair value of PP&E acquired through business combinations as they are not considered part of management's evaluation of segment operating performance.

Assets

Our chief operating decision maker does not use assets by segment to evaluate segment performance or allocate resources. Therefore, we do not disclose assets by segment.

NORTHROP GRUMMAN CORPORATION

Item 9. Changes in and Disagreements with Accountants on Accounting and Financial Disclosure

None.

Item 9A. Controls and Procedures

DISCLOSURE CONTROLS AND PROCEDURES

Our principal executive officer (Chair, Chief Executive Officer and President) and principal financial officer (Corporate Vice President and Chief Financial Officer) have evaluated the company's disclosure controls and procedures (as defined in Rule 13a-15(e) and Rule 15d-15(e) of the Securities Exchange Act of 1934 (the Exchange Act)) as of December 31, 2023, and have concluded that these controls and procedures are effective to ensure that information required to be disclosed by us in the reports that we file or submit under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in the SEC's rules and forms. These disclosure controls and procedures include, without limitation, controls and procedures designed to ensure that information required to be disclosed in the reports that we file or submit is accumulated and communicated to management, including the principal executive officer and the principal financial officer, as appropriate to allow timely decisions regarding required disclosure.

CHANGES IN INTERNAL CONTROL OVER FINANCIAL REPORTING

During the three months ended December 31, 2023, no change occurred in our internal control over financial reporting that materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

Item 9B. Other Information

MANAGEMENT'S REPORT ON INTERNAL CONTROL OVER FINANCIAL REPORTING

The management of Northrop Grumman Corporation (the company) prepared and is responsible for the consolidated financial statements and all related financial information contained in this Annual Report. This responsibility includes establishing and maintaining effective internal control over financial reporting. The company's internal control over financial reporting is designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with accounting principles generally accepted in the United States of America.

To comply with the requirements of Section 404 of the Sarbanes–Oxley Act of 2002, the company designed and implemented a structured and comprehensive assessment process to evaluate its internal control over financial reporting across the enterprise. The assessment of the effectiveness of the company's internal control over financial reporting is based on criteria established in *Internal Control—Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission. Because of its inherent limitations, a system of internal control over financial reporting can provide only reasonable assurance and may not prevent or detect misstatements. Management regularly monitors its internal control over financial reporting, and actions are taken to correct deficiencies as they are identified. Based on its assessment, management has concluded that the company's internal control over financial reporting was effective as of December 31, 2023.

Deloitte & Touche LLP issued an attestation report dated January 24, 2024, concerning the company's internal control over financial reporting, which is contained in this Annual Report. The company's consolidated financial statements as of and for the year ended December 31, 2023, have been audited by the independent registered public accounting firm of Deloitte & Touche LLP in accordance with the standards of the Public Company Accounting Oversight Board (United States).

/s/ Kathy J. Warden
Chair, Chief Executive Officer and President

/s/ David F. Keffer
Corporate Vice President and Chief Financial Officer
January 24, 2024

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Board of Directors and Shareholders of
Northrop Grumman Corporation
Falls Church, Virginia

Opinion on Internal Control over Financial Reporting

We have audited the internal control over financial reporting of Northrop Grumman Corporation and subsidiaries (the “Company”) as of December 31, 2023, based on criteria established in *Internal Control - Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). In our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2023, based on the criteria established in *Internal Control - Integrated Framework (2013)* issued by COSO.

We have also audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the consolidated financial statements as of and for the year ended December 31, 2023 of the Company and our report dated January 24, 2024 expressed an unqualified opinion on those financial statements.

Basis for Opinion

The Company’s management is responsible for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying Management’s Report on Internal Control over Financial Reporting. Our responsibility is to express an opinion on the Company’s internal control over financial reporting based on our audit. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audit in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects. Our audit included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, testing and evaluating the design and operating effectiveness of internal control based on the assessed risk, and performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

Definition and Limitations of Internal Control over Financial Reporting

A company’s internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company’s internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company’s assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

/s/ Deloitte & Touche LLP
McLean, Virginia
January 24, 2024

CERTAIN TRADING AGREEMENTS

During the quarter ended December 31, 2023, none of our directors or officers (as defined in Rule 16a-1(f) of the Exchange Act) adopted or terminated a “Rule 10b5-1 trading arrangement” or “non-Rule 10b5-1 trading arrangement”, as those terms are defined in Item 408 of Regulation S-K.

Item 9C. Disclosure Regarding Foreign Jurisdictions that Prevent Inspections

None.

PART III

Item 10. Directors, Executive Officers and Corporate Governance

DIRECTORS

Information about our Directors will be incorporated herein by reference to the Proxy Statement for the 2024 Annual Meeting of Shareholders, to be filed with the SEC within 120 days after the end of the company's fiscal year.

INFORMATION ABOUT OUR EXECUTIVE OFFICERS

Our executive officers as of January 24, 2024, are listed below, along with their ages on that date, positions and offices held with the company, and principal occupations and employment, focused primarily on the past five years.

<u>Name</u>	<u>Age</u>	<u>Office Held</u>	<u>Since</u>	<u>Recent Business Experience</u>
Kathy J. Warden	52	Chair, Chief Executive Officer and President	2019	Chief Executive Officer and President (2019); President and Chief Operating Officer (2018)
Mark A. Caylor	59	Corporate Vice President and President, Mission Systems Sector	2018	
Robert J. Fleming	51	Corporate Vice President and President, Space Systems Sector	2023	Vice President and General Manager, Strategic Space Systems Division, Space Systems Sector (2021-2023); Vice President, Business Development and Strategy, Space Systems Sector (2020-2021); Vice President, Space Programs, Strategic Force Programs, Mission Systems Sector (2019-2020)
Michael A. Hardesty	52	Corporate Vice President, Controller, and Chief Accounting Officer	2013	
Thomas H. Jones	57	Corporate Vice President and President, Aeronautics Systems Sector	2021	Vice President and General Manager, Airborne C4ISR Division, Mission Systems Sector (2017-2020)
David F. Keffer	46	Corporate Vice President and Chief Financial Officer	2020	General Partner, Blue Delta Capital Partners (2018-2020); Chief Financial Officer and Executive Vice President, CSRA, Inc. (2015-2018)
Roshan S. Roeder	44	Corporate Vice President and President, Defense Systems Sector	2022	Vice President and General Manager, Airborne Multifunction Sensors, Mission Systems Sector (2020-2022); Vice President Program Management, Communications Business Unit, Mission Systems Sector (2018-2020); Vice President Program Management, Advanced Ground Sensors, Mission Systems Sector (2016-2018)
Kathryn G. Simpson	60	Corporate Vice President and General Counsel	2023	Vice President, Associate General Counsel, Mission Systems Sector (2021-2023); Vice President, Deputy General Counsel (2012-2021)

AUDIT COMMITTEE FINANCIAL EXPERT

The information as to the Audit and Risk Committee and the Audit and Risk Committee Financial Expert will be incorporated herein by reference to the Proxy Statement for the 2024 Annual Meeting of Shareholders.

CODE OF ETHICS

We have adopted Standards of Business Conduct for all of our employees, including the principal executive officer, principal financial officer and principal accounting officer. The Standards of Business Conduct can be found on our

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internet website at www.northropgrumman.com under “Who We Are – Investors – Corporate Governance – Overview – Standards of Business Conduct.” A copy of the Standards of Business Conduct is available to any stockholder who requests it by writing to: Northrop Grumman Corporation, c/o Office of the Secretary, 2980 Fairview Park Drive, Falls Church, VA 22042. We disclose amendments to provisions of our Standards of Business Conduct by posting amendments on our website. Waivers of the provisions of our Standards of Business Conduct that apply to our directors and executive officers are disclosed in a Current Report on Form 8-K.

The website and information contained on it or incorporated in it are not intended to be incorporated in this Annual Report on Form 10-K or other filings with the SEC.

OTHER DISCLOSURES

Other disclosures required by this Item will be incorporated herein by reference to the Proxy Statement for the 2024 Annual Meeting of Shareholders.

Item 11. Executive Compensation

Information concerning Executive Compensation required by this Item 11, including information concerning Compensation Committee Interlocks and Insider Participation and the Compensation Committee Report, will be incorporated herein by reference to the Proxy Statement for the 2024 Annual Meeting of Shareholders.

Item 12. Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters

The information as to Securities Authorized for Issuance Under Equity Compensation Plans and Security Ownership of Certain Beneficial Owners and Management will be incorporated herein by reference to the Proxy Statement for the 2024 Annual Meeting of Shareholders.

For a description of securities authorized under our equity compensation plans, see Note 14 to the consolidated financial statements.

Item 13. Certain Relationships and Related Transactions, and Director Independence

The information as to Certain Relationships and Related Transactions and Director Independence will be incorporated herein by reference to the Proxy Statement for the 2024 Annual Meeting of Shareholders.

Item 14. Principal Accountant Fees and Services

The information as to Principal Accountant Fees and Services will be incorporated herein by reference to the Proxy Statement for the 2024 Annual Meeting of Shareholders.

PART IV

Item 15. Exhibits, Financial Statement Schedules

- (a) 1. Report of Independent Registered Public Accounting Firm (PCAOB ID No. 34)

Financial Statements

Consolidated Statements of Earnings and Comprehensive Income
Consolidated Statements of Financial Position
Consolidated Statements of Cash Flows
Consolidated Statements of Changes in Shareholders' Equity
Notes to Consolidated Financial Statements

2. Financial Statement Schedules

All schedules have been omitted because they are not applicable, not required, or the information has been otherwise supplied in the consolidated financial statements or notes to the consolidated financial statements.

3. Exhibits

- 2(a) Agreement and Plan of Merger dated as of September 17, 2017, among Northrop Grumman Corporation, Neptune Merger, Inc. and Orbital ATK, Inc. (incorporated by reference to Exhibit 2.1 to Form 8-K filed September 18, 2017, File No. 001-16411)
- 2(b) Transaction Agreement dated as of April 28, 2014, among Alliant Techsystems Inc., Vista Spinco Inc., Vista Merger Sub Inc. and Orbital Sciences Corporation (incorporated by reference to Exhibit 2.1 to Alliant Techsystems Inc. (now known as Northrop Grumman Innovation Systems, Inc.) Form 8-K filed May 2, 2014, File No. 001-16411)
- 3(a) Amended and Restated Certificate of Incorporation of Northrop Grumman Corporation dated May 17, 2023 (incorporated by reference to Exhibit 3.1 to Form 8-K filed May 19, 2023, File No. 001-16411)
- 3(b) Amended and Restated Bylaws of Northrop Grumman Corporation dated May 17, 2023 (incorporated by reference to Exhibit 3.2 to Form 8-K filed May 19, 2023, File No. 001-16411)
- 4(a) Indenture dated as of October 15, 1994, between Northrop Grumman Corporation (now Northrop Grumman Systems Corporation) and The Chase Manhattan Bank (National Association), Trustee (incorporated by reference to Exhibit 4.1 to Form 8-K filed October 25, 1994, File No. 001-3229)
- 4(b) First Supplemental Indenture dated as of March 30, 2011 by and among Northrop Grumman Systems Corporation, The Bank of New York Mellon (successor trustee to JPMorgan Chase Bank and The Chase Manhattan Bank, N.A.), Titan II, Inc. (formerly known as Northrop Grumman Corporation), and Titan Holdings II, L.P., to Indenture dated as of October 15, 1994, between Northrop Grumman Corporation (now Northrop Grumman Systems Corporation) and The Chase Manhattan Bank, N.A., Trustee (incorporated by reference to Exhibit 4.1 to Form 10-Q for the quarter ended March 31, 2011, filed April 27, 2011, File No. 001-16411)
- 4(c) Second Supplemental Indenture dated as of March 30, 2011 by and among Northrop Grumman Systems Corporation, The Bank of New York Mellon (successor trustee to JPMorgan Chase Bank and The Chase Manhattan Bank, N.A.), Titan Holdings II, L.P., and Northrop Grumman Corporation (formerly known as New P, Inc.), to Indenture dated as of October 15, 1994, between Northrop Grumman Corporation (now Northrop Grumman Systems Corporation) and The Chase Manhattan Bank, N.A., Trustee (incorporated by reference to Exhibit 4.2 to Form 10-Q for the quarter ended March 31, 2011, filed April 27, 2011, File No. 001-16411)
- 4(d) Form of Officers' Certificate (without exhibits) establishing the terms of Northrop Grumman Corporation's (now Northrop Grumman Systems Corporation's) 7.875% Debentures due 2026 (incorporated by reference to Exhibit 4.3 to Form S-4 Registration Statement No. 333-02653 filed April 19, 1996)
- 4(e) Form of Northrop Grumman Corporation's (now Northrop Grumman Systems Corporation's) 7.875% Debentures due 2026 (incorporated by reference to Exhibit 4.6 to Form S-4 Registration Statement No. 333-02653 filed April 19, 1996)

NORTHROP GRUMMAN CORPORATION

- 4(f) Form of Officers' Certificate establishing the terms of Northrop Grumman Corporation's (now Northrop Grumman Systems Corporation's) 7.75% Debentures due 2031 (incorporated by reference to Exhibit 10.9 to Form 8-K filed April 17, 2001, File No. 001-16411)
- 4(g) Senior Indenture dated as of December 15, 1991, between Litton Industries, Inc. (predecessor-in-interest to Northrop Grumman Systems Corporation) and The Bank of New York, as trustee, under which its 7.75% and 6.98% debentures due 2026 and 2036 were issued, and specimens of such debentures (incorporated by reference to Exhibit 4.1 to the Form 10-Q of Litton Industries, Inc. for the quarter ended April 30, 1996, filed June 11, 1996, File No. 001-3998)
- 4(h) Supplemental Indenture with respect to Senior Indenture dated December 15, 1991, dated as of April 3, 2001, among Litton Industries, Inc. (predecessor-in-interest to Northrop Grumman Systems Corporation), Northrop Grumman Corporation, Northrop Grumman Systems Corporation and The Bank of New York, as trustee (incorporated by reference to Exhibit 4.7 to Form 10-Q for the quarter ended March 31, 2001, filed May 10, 2001, File No. 001-16411)
- 4(i) Supplemental Indenture with respect to Senior Indenture dated December 15, 1991, dated as of December 20, 2002, among Litton Industries, Inc. (predecessor-in-interest to Northrop Grumman Systems Corporation), Northrop Grumman Corporation, Northrop Grumman Systems Corporation and The Bank of New York, as trustee (incorporated by reference to Exhibit 4(t) to Form 10-K for the year ended December 31, 2002, filed March 24, 2003, File No. 001-16411)
- 4(j) Third Supplemental Indenture dated as of March 30, 2011 by and among Northrop Grumman Systems Corporation (successor-in-interest to Litton Industries, Inc.), The Bank of New York Mellon (formerly known as The Bank of New York), as trustee, Titan II, Inc. (formerly known as Northrop Grumman Corporation), and Titan Holdings II, L.P., to Senior Indenture dated December 15, 1991, between Litton Industries, Inc. and The Bank of New York, as trustee (incorporated by reference to Exhibit 4.5 to Form 10-Q for the quarter ended March 31, 2011, filed April 27, 2011, File No. 001-16411)
- 4(k) Fourth Supplemental Indenture dated as of March 30, 2011 by and among Northrop Grumman Systems Corporation (successor-in-interest to Litton Industries, Inc.), The Bank of New York Mellon (formerly known as The Bank of New York) as trustee, Titan Holdings II, L.P., and Northrop Grumman Corporation (formerly known as New P, Inc.), to Senior Indenture dated December 15, 1991, between Litton Industries, Inc. and The Bank of New York, as trustee (incorporated by reference to Exhibit 4.6 to Form 10-Q for the quarter ended March 31, 2011, filed April 27, 2011, File No. 001-16411)
- 4(l) Indenture between TRW Inc. (predecessor-in-interest to Northrop Grumman Systems Corporation) and Mellon Bank, N.A., as trustee, dated as of May 1, 1986 (incorporated by reference to Exhibit 2 to the Form 8-A Registration Statement of TRW Inc. dated July 3, 1986, File No. 001-02384)
- 4(m) First Supplemental Indenture between TRW Inc. (predecessor-in-interest to Northrop Grumman Systems Corporation) and Mellon Bank, N.A., as trustee, dated as of August 24, 1989 (incorporated by reference to Exhibit 4(b) to Form S-3 Registration Statement No. 33-30350 of TRW Inc.)
- 4(n) Fifth Supplemental Indenture between TRW Inc. (predecessor-in-interest to Northrop Grumman Systems Corporation) and The Chase Manhattan Bank, as successor trustee, dated as of June 2, 1999 (incorporated by reference to Exhibit 4(f) to Form S-4 Registration Statement No. 333-83227 of TRW Inc. filed July 20, 1999)
- 4(o) Ninth Supplemental Indenture dated as of December 31, 2009 among Northrop Grumman Space & Mission Systems Corp. (predecessor-in-interest to Northrop Grumman Systems Corporation); The Bank of New York Mellon, as successor trustee; Northrop Grumman Corporation; and Northrop Grumman Systems Corporation (incorporated by reference to Exhibit 4(p) to Form 10-K for the year ended December 31, 2009, filed February 9, 2010, File No. 001-16411)

NORTHROP GRUMMAN CORPORATION

- 4(p) Tenth Supplemental Indenture dated as of March 30, 2011, by and among Northrop Grumman Systems Corporation (successor-in-interest to Northrop Grumman Space & Mission Systems Corp. and TRW, Inc.), The Bank of New York Mellon, as successor trustee to JPMorgan Chase Bank and to Mellon Bank, N.A., Titan II Inc. (formerly known as Northrop Grumman Corporation), and Titan Holdings II, L.P., to Indenture between TRW Inc. and Mellon Bank, N.A., as trustee, dated as of May 1, 1986 (incorporated by reference to Exhibit 4.7 to Form 10-Q for the quarter ended March 31, 2011, filed April 27, 2011, File No. 001-16411)
- 4(q) Eleventh Supplemental Indenture dated as of March 30, 2011, by and among Northrop Grumman Systems Corporation (successor-in-interest to Northrop Grumman Space & Mission Systems Corp. and TRW Inc.), The Bank of New York Mellon, as successor trustee to JPMorgan Chase Bank and to Mellon Bank, N.A., Titan Holdings II, L.P., and Northrop Grumman Corporation (formerly known as New P, Inc.) to Indenture between TRW Inc. and Mellon Bank, N.A., as trustee, dated as of May 1, 1986 (incorporated by reference to Exhibit 4.8 to Form 10-Q for the quarter ended March 31, 2011, filed April 27, 2011, File No. 001-16411)
- 4(r) Twelfth Supplemental Indenture, dated as of August 25, 2021, to the Indenture dated as of May 1, 1986, by and among Northrop Grumman Systems Corporation, Northrop Grumman Corporation and The Bank of New York Mellon, as trustee (incorporated by reference to Exhibit 4.1 to Form 8-K filed August 27, 2021, File No. 001-16411)
- 4(s) Thirteenth Supplemental Indenture, dated as of August 25, 2021, to the Indenture dated as of May 1, 1986, by and among Northrop Grumman Systems Corporation, Northrop Grumman Corporation and The Bank of New York Mellon, as trustee (incorporated by reference to Exhibit 4.2 to Form 8-K filed August 27, 2021, File No. 001-16411)
- 4(t) Indenture dated as of November 21, 2001, between Northrop Grumman Corporation and JPMorgan Chase Bank, as trustee (incorporated by reference to Exhibit 4.1 to Form 8-K filed November 21, 2001, File No. 001-16411)
- 4(u) Second Supplemental Indenture dated as of November 8, 2010, between Northrop Grumman Corporation and The Bank of New York Mellon, as successor trustee, to Indenture dated as of November 21, 2001 (incorporated by reference to Exhibit 4(a) to Form 8-K filed November 8, 2010, File No. 001-16411)
- 4(v) Form of Northrop Grumman Corporation's 5.050% Senior Note due 2040 (incorporated by reference to Exhibit C to Exhibit 4(a) to Form 8-K filed November 8, 2010, File No. 001-16411)
- 4(w) Third Supplemental Indenture dated as of March 30, 2011, by and among Titan II, Inc. (formerly known as Northrop Grumman Corporation), The Bank of New York Mellon, as successor trustee to JPMorgan Chase Bank, and Titan Holdings II, L.P., to Indenture dated as of November 21, 2001 between Northrop Grumman Corporation and JPMorgan Chase Bank, as trustee (incorporated by reference to Exhibit 4.9 to Form 10-Q for the quarter ended March 31, 2011, filed April 27, 2011, File No. 001-16411)
- 4(x) Fourth Supplemental Indenture dated as of March 30, 2011, by and among Titan Holdings II, L.P., The Bank of New York Mellon, as successor trustee to JPMorgan Chase Bank, and Northrop Grumman Corporation (formerly known as New P, Inc.), to Indenture dated as of November 21, 2001 between Northrop Grumman Corporation and JPMorgan Chase Bank, as trustee (incorporated by reference to Exhibit 4.10 to Form 10-Q for the quarter ended March 31, 2011, filed April 27, 2011, File No. 001-16411)
- 4(y) Fifth Supplemental Indenture, dated as of May 31, 2013, between Northrop Grumman Corporation and The Bank of New York Mellon, as successor to JPMorgan Chase Bank, Trustee, to Indenture dated as of November 21, 2001 (incorporated by reference to Exhibit 4(a) to Form 8-K filed May 31, 2013, File No. 001-16411)
- 4(z) Form of 4.750% Senior Note due 2043 (incorporated by reference to Exhibit C to Exhibit 4(a) to Form 8-K filed May 31, 2013, File No. 001-16411)
- 4(aa) Sixth Supplemental Indenture, dated as of February 6, 2015, between Northrop Grumman Corporation and The Bank of New York Mellon, as successor to JPMorgan Chase Bank, Trustee, to Indenture dated as of November 21, 2001 (incorporated by reference to Exhibit 4.1 to Form 8-K filed February 6, 2015, File No. 001-16411)
- 4(bb) Form of 3.850% Senior Note due 2045 (incorporated by reference to Exhibit A to Exhibit 4.1 to Form 8-K filed February 6, 2015, File No. 001-16411)

NORTHROP GRUMMAN CORPORATION

- 4(cc) Seventh Supplemental Indenture, dated as of December 1, 2016, between Northrop Grumman Corporation and The Bank of New York Mellon, as successor to JPMorgan Chase Bank, Trustee, to Indenture dated as of November 21, 2001 (incorporated by reference to Exhibit 4.1 to Form 8-K filed December 1, 2016, File No. 001-16411)
- 4(dd) Form of 3.200% Senior Note due 2027 (incorporated by reference to Exhibit A to Exhibit 4.1 to Form 8-K filed December 1, 2016, File No. 001-16411)
- 4(ee) Eighth Supplemental Indenture, dated as of October 13, 2017, between Northrop Grumman Corporation and The Bank of New York Mellon, as successor to JPMorgan Chase Bank, Trustee, to Indenture dated as of November 21, 2001 (incorporated by reference to Exhibit 4.1 to Form 8-K filed October 13, 2017, File No. 001-16411)
- 4(ff) Ninth Supplemental Indenture, dated as of March 23, 2020, between Northrop Grumman Corporation and The Bank of New York Mellon, as successor to JPMorgan Chase, Trustee, to Indenture dated as of November 21, 2001 (incorporated by reference to Exhibit 4.1 to Form 8-K filed March 24, 2020, File No. 001-16411)
- 4(gg) Form of 2.930% Senior Note due 2025 (incorporated by reference to Exhibit C to Exhibit 4.1 to Form 8-K filed October 13, 2017, File No. 001-16411)
- 4(hh) Form of 3.250% Senior Note due 2028 (incorporated by reference to Exhibit D to Exhibit 4.1 to Form 8-K filed October 13, 2017, File No. 001-16411)
- 4(ii) Form of 4.030% Senior Note due 2047 (incorporated by reference to Exhibit E to Exhibit 4.1 to Form 8-K filed October 13, 2017, File No. 001-16411)
- 4(jj) Form of 4.400% Senior Note due 2030 (incorporated by reference to Exhibit 4.1 to Form 8-K filed March 24, 2020, File No. 001-16411)
- 4(kk) Form of 5.150% Senior Note due 2040 (incorporated by reference to Exhibit 4.1 to Form 8-K filed March 24, 2020, File No. 001-16411)
- 4(ll) Form of 5.250% Senior Note due 2050 (incorporated by reference to Exhibit 4.1 to Form 8-K filed March 24, 2020, File No. 001-16411)
- 4(mm) Tenth Supplemental Indenture, dated as of September 2, 2021, between Northrop Grumman Corporation and The Bank of New York Mellon, as successor to JPMorgan Chase Bank, Trustee, to Indenture dated as of November 21, 2001 (incorporated by reference to Exhibit 4.1 to Form 8-K filed September 3, 2021, File No. 001-16411)
- 4(nn) Form of 7.875% Senior Note due 2026 (incorporated by reference to Exhibit A in Exhibit 4.1 to Form 8-K filed September 3, 2021, File No. 001-16411)
- 4(oo) Form of 7.750% Senior Note due 2026 (incorporated by reference to Exhibit B in Exhibit 4.1 to Form 8-K filed September 3, 2021, File No. 001-16411)
- 4(pp) Form of 6.650% Senior Note due 2028 (incorporated by reference to Exhibit C in Exhibit 4.1 to Form 8-K filed September 3, 2021, File No. 001-16411)
- 4(qq) Form of 7.750% Senior Note due 2029 (incorporated by reference to Exhibit D in Exhibit 4.1 to Form 8-K filed September 3, 2021, File No. 001-16411)
- 4(rr) Form of 7.750% Senior Note due 2031 (incorporated by reference to Exhibit E in Exhibit 4.1 to Form 8-K filed September 3, 2021, File No. 001-16411)
- 4(ss) Form of 6.980% Senior Note due 2036 (incorporated by reference to Exhibit F in Exhibit 4.1 to Form 8-K filed September 3, 2021, File No. 001-16411)
- 4(tt) Description of Securities (incorporated by reference to Exhibit 4(ll) to Form 10-K for the year ended December 31, 2019, filed January 30, 2020, File No. 001-16411)
- 4(uu) Eleventh Supplemental Indenture, dated as of February 8, 2023, between Northrop Grumman Corporation and The Bank of New York Mellon, as successor to JPMorgan Chase Bank, Trustee, to Indenture dated as of November 21, 2001 (incorporated by reference to Exhibit 4.1 to Form 8-K filed February 8, 2023, File No. 001-16411)

NORTHROP GRUMMAN CORPORATION

- 4(vv) Form of 4.700% Senior Note due 2033 (incorporated by reference to Exhibit A included in Exhibit 4.1 to Form 8-K filed February 8, 2023, File No. 001-16411)
- 4(ww) Form of 4.950% Senior Note due 2053 (incorporated by reference to Exhibit B included in Exhibit 4.1 to Form 8-K filed February 8, 2023, File No. 001-16411)
- 10(a) Credit Agreement, dated as of August 23, 2022, among Northrop Grumman Corporation, as Borrower; Northrop Grumman Systems Corporation, as Guarantor; the lenders party thereto and JPMorgan Chase Bank, N.A., as Administrative Agent (incorporated by reference to Exhibit 10.1 to Form 8-K filed August 23, 2022, File No. 001-16411)
- 10(b) Form of Guarantee dated as of April 3, 2001, by Northrop Grumman Corporation of the indenture indebtedness issued by Litton Industries, Inc. (predecessor-in-interest to Northrop Grumman Systems Corporation) (incorporated by reference to Exhibit 10.10 to Form 8-K filed April 17, 2001, File No. 001-16411)
- 10(c) Form of Guarantee dated as of April 3, 2001, by Northrop Grumman Corporation of Northrop Grumman Systems Corporation indenture indebtedness (incorporated by reference to Exhibit 10.11 to Form 8-K and filed April 17, 2001, File No. 001-16411)
- 10(d) Form of Guarantee dated as of March 27, 2003, by Northrop Grumman Corporation, as Guarantor, in favor of JP Morgan Chase Bank, as trustee, of certain debt securities issued by the former Northrop Grumman Space & Mission Systems Corp. (predecessor-in-interest to Northrop Grumman Systems Corporation) (incorporated by reference to Exhibit 4.2 to Form 10-Q for the quarter ended March 31, 2003, filed May 14, 2003, File No. 001-16411)
 - (i) First Amendment to Guarantee, dated as of August 25, 2021, to the Guarantee dated as of March 27, 2003, by and among Northrop Grumman Systems Corporation, Northrop Grumman Corporation and The Bank of New York Mellon, as trustee (incorporated by reference to Exhibit 10.1 to Form 8-K filed August 27, 2021, File No. 001-16411)
- +10(e) Northrop Grumman Corporation 1993 Stock Plan for Non-Employee Directors (as Amended and Restated January 1, 2010) (incorporated by reference to Exhibit 10.1 to Form 10-Q for the quarter ended June 30, 2009, filed July 23, 2009, File No. 001-16411)
- +10(f) Amended and Restated 2011 Long-Term Incentive Stock Plan (as amended and restated effective as of May 20, 2015) (incorporated by reference to Appendix B to the Company's Proxy Statement on Schedule 14A for the 2015 Annual Meeting of Shareholders filed April 6, 2015, File No. 001-16411)
 - (i) Northrop Grumman Corporation Equity Grant Program for Non-Employee Directors under the Northrop Grumman 2011 Long-Term Incentive Stock Plan, Amended and Restated Effective as of January 1, 2016 (incorporated by reference to Exhibit 10.1 to Form 10-Q for the quarter ended September 30, 2015, filed October 28, 2015, File No. 001-16411)
 - (ii) 2020 Restricted Stock Rights Grant Agreement Granted Under the 2011 Long-Term Incentive Stock Plan (incorporated by reference to Exhibit 10.1 to Form 10-Q for the quarter ended March 31, 2020, filed April 29, 2020, File No. 001-16411)
 - (iii) 2020 Restricted Performance Stock Rights Grant Agreement Granted Under the 2011 Long-Term Incentive Stock Plan (incorporated by reference to Exhibit 10.2 to Form 10-Q for the quarter ended March 31, 2020, filed April 29, 2020, File No. 001-16411)
 - (ii) 2021 Restricted Stock Rights Grant Agreement Granted Under the 2011 Long-Term Incentive Stock Plan (incorporated by reference to Exhibit 10.2 to Form 10-Q for the quarter ended March 31, 2021, filed April 29, 2021, File No. 001-16411)
 - (iii) 2021 Restricted Performance Stock Rights Grant Agreement Granted Under the 2011 Long-Term Incentive Stock Plan (incorporated by reference to Exhibit 10.3 to Form 10-Q for the quarter ended March 31, 2021, filed April 29, 2021, File No. 001-16411)

NORTHROP GRUMMAN CORPORATION

- (iv) 2022 Restricted Stock Rights Grant Agreement Granted Under the 2011 Long-Term Incentive Stock Plan (incorporated by reference to Exhibit 10.2 to Form 10-Q for the quarter ended March 31, 2022, filed April 28, 2022, File No. 001-16411)
 - (v) 2022 Restricted Performance Stock Rights Grant Agreement Granted Under the 2011 Long-Term Incentive Stock Plan (incorporated by reference to Exhibit 10.3 to Form 10-Q for the quarter ended March 31, 2022, filed April 28, 2022, File No. 001-16411)
 - (vi) 2023 Restricted Stock Rights Grant Agreement Granted Under the 2011 Long-Term Incentive Stock Plan (incorporated by reference to Exhibit 10.1 to Form 10-Q for the quarter ended March 31, 2023, filed April 26, 2023, File No. 001-16411)
 - (vii) 2023 Restricted Performance Stock Rights Grant Agreement Granted Under the 2011 Long-Term Incentive Stock Plan (incorporated by reference to Exhibit 10.2 to Form 10-Q for the quarter ended March 31, 2023, filed April 26, 2023, File No. 001-16411)
 - *(viii) Special 2023 Restricted Stock Rights Grant Agreement Granted to Roshan Roeder Under the 2011 Long-Term Incentive Stock Plan
- +10(g) Northrop Grumman 2011 Long-Term Incentive Stock Plan (As Amended Through December 4, 2014) (incorporated by reference to Exhibit 10(h) to Form 10-K for the year ended December 31, 2014, filed February 2, 2015, File No. 001-16411)
- (i) Summary of Non-Employee Director Award Terms Under the 2011 Long-Term Incentive Stock Plan effective December 21, 2011 (incorporated by reference to Exhibit 10(j)(ii) to Form 10-K for the year ended December 31, 2011, filed February 8, 2012, File No. 001-16411)
 - (ii) Northrop Grumman Corporation Equity Grant Program for Non-Employee Directors under the Northrop Grumman 2011 Long-Term Incentive Stock Plan, Amended and Restated Effective January 1, 2015 (incorporated by reference to Exhibit 10(h)(ii) to Form 10-K for the year ended December 31, 2014, filed February 2, 2015, File No. 001-16411)
- +10(h) Northrop Grumman Supplemental Plan 2 (Amended and Restated Effective as of January 1, 2014) (incorporated by reference to Exhibit 10(l) to Form 10-K for the year ended December 31, 2013, Filed February 3, 2014, File No. 001-16411)
- (i) Appendix B to the Northrop Grumman Supplemental Plan 2: ERISA Supplemental Program 2 (Amended and Restated Effective as of January 1, 2014) (incorporated by reference to Exhibit 10(l)(i) to Form 10-K for the year ended December 31, 2013, filed February 3, 2014, File No. 001-16411)
 - (ii) Appendix G to the Northrop Grumman Supplemental Plan 2: Officers Supplemental Executive Retirement Program (Amended and Restated Effective as of January 1, 2012) (incorporated by reference to Exhibit 10(k)(iv) to Form 10-K for the year ended December 31, 2011, filed February 8, 2012, File No. 001-16411)
 - (iii) Appendix I to the Northrop Grumman Supplemental Plan 2: Officers Supplemental Executive Retirement Program II (Amended and Restated January 1, 2014) (incorporated by reference to Exhibit 10(k)(iv) to Form 10-K for the year ended December 31, 2015, filed February 1, 2016, File No. 001-16411)
 - (iv) First Amendment to the Northrop Grumman Supplemental Plan 2, dated December 20, 2017 (Effective as of December 31, 2017) (incorporated by reference to Exhibit 10(j)(v) to Form 10-K for the year ended December 31, 2017, filed January 29, 2018, File No. 001-16411)
 - (v) First Amendment to Appendix F to the Northrop Grumman Supplemental Plan 2, CPC Supplemental Executive Retirement Program, effective December 30, 2019 (incorporated by reference to Exhibit 10(h)(v) to Form 10-K for the year ended December 31, 2019, filed January 30, 2020, File No. 001-16411)

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- +10(i) Northrop Grumman Supplementary Retirement Income Plan (formerly TRW Supplementary Retirement Income Plan) (Amended and Restated Effective January 1, 2014) (incorporated by reference to Exhibit 10(m) to Form 10-K for the year ended December 31, 2013, filed February 3, 2014, File No. 001-16411)
- +10(j) Severance Plan for Elected and Appointed Officers of Northrop Grumman Corporation (Amended and Restated Effective December 31, 2019) (incorporated by reference to Exhibit 10(j) to Form 10-K for the year ended December 31, 2019, filed January 30, 2020, File No. 001-16411)
- +10(k) Non-Employee Director Compensation Term Sheet, effective May 17, 2023 (incorporated by reference to Exhibit 10.1 to Form 10-Q for the quarter ended June 30, 2023, filed July 26, 2023, File No. 001-16411)
- +10(l) Non-Employee Director Compensation Term Sheet, effective May 18, 2022 (incorporated by reference to Exhibit 10.1 to Form 10-Q for the quarter ended June 30, 2022, filed July 28, 2022, File No. 001-16411)
- +10(m) Form of Indemnification Agreement between Northrop Grumman Corporation and its directors and executive officers (incorporated by reference to Exhibit 10.3 to Form 10-Q for the quarter ended March 31, 2012, filed April 25, 2012, File No. 001-16411)
- +10(n) Northrop Grumman Deferred Compensation Plan (Amended and Restated Effective as of April 1, 2016) (incorporated by reference to Exhibit 10.3 to Form 10-Q for the quarter ended March 31, 2016, filed April 27, 2016, File No. 001-16411)
- +10(o) Northrop Grumman 2006 Annual Incentive Plan and Incentive Compensation Plan, as amended and restated effective January 1, 2024
- +10(p) Northrop Grumman Innovation Systems Nonqualified Deferred Compensation Plan, as amended and restated January 1, 2019 (incorporated by reference to Exhibit 10(r) to Form 10-K for the year ended December 31, 2018, filed January 31, 2019, File No. 001-16411)
- +10(q) Northrop Grumman Savings Excess Plan (Amended and Restated Effective as of July 1, 2023) (incorporated by reference to Exhibit 10.2 to Form 10-Q for the quarter ended June 30, 2023, filed July 26, 2023, File No. 001-16411)
- +10(r) Northrop Grumman Officers Retirement Account Contribution Plan (Amended and Restated Effective as of January 1, 2019) (incorporated by reference to Exhibit 10(v) to Form 10-K for the year ended December 31, 2018, filed January 31, 2019, File No. 001-16411)
- +10(s) Northrop Grumman Innovation Systems Defined Benefit Supplemental Executive Retirement Plan, as amended and restated effective January 1, 2019 (incorporated by reference to Exhibit 10(x) to Form 10-K for the year ended December 31, 2018, filed January 31, 2019, File No. 001-16411)
 - (i) First Amendment to Northrop Grumman Innovation Systems Defined Benefit Supplemental Executive Retirement Plan, effective December 31, 2019 (incorporated by reference to Exhibit 10(v)(i) to Form 10-K for the year ended December 31, 2019, filed January 30, 2020, File No. 001-16411)
- +10(t) Northrop Grumman Innovation Systems Defined Contribution Supplemental Executive Retirement Plan, as amended and restated effective January 1, 2019 (incorporated by reference to Exhibit 10(y) to Form 10-K for the year ended December 31, 2018, filed January 31, 2019, File No. 001-16411)
- +10(u) Executive Basic Life Insurance and Accidental Death and Dismemberment Insurance Policy dated January 1, 2019 (incorporated by reference to Exhibit 10.4 to Form 10-Q for the quarter ended March 31, 2019, filed April 24, 2019, File No. 001-16411)
- +10(v) Executive Long-Term Disability Insurance Policy dated January 1, 2019 (incorporated by reference to Exhibit 10.5 to Form 10-Q for the quarter ended March 31, 2019, filed April 24, 2019, File No. 001-16411)
- +10(w) Executive Supplemental Individual Disability Insurance Plan dated June 10, 2022

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- +10(x) Group Personal Excess Liability Policy effective as of January 1, 2023 (incorporated by reference to Exhibit 10.3 to Form 10-Q for the quarter ended March 31, 2023, filed April 26, 2023, File No. 001-16411)
- +10(y) Letter dated February 3, 2020 from Northrop Grumman Corporation to David Keffer regarding compensation effective February 17, 2020 (incorporated by reference to Exhibit 10.4 to Form 10-Q for the quarter ended March 31, 2020, filed April 29, 2020, File No. 001-16411)
- +10(z) Transition and Retirement Agreement dated as of September 9, 2022, as revised, by and between Northrop Grumman Systems Corporation and Mary D. Petryszyn (incorporated by reference to Exhibit 10(dd) to Form 10-K for the year ended December 31, 2022, filed January 25, 2023, File No. 001-16411)
- *21 Subsidiaries
- *23 Consent of Independent Registered Public Accounting Firm
- *24 Power of Attorney
- *31.1 Certification of Kathy J. Warden pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
- *31.2 Certification of David F. Keffer pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
- **32.1 Certification of Kathy J. Warden pursuant to Section 906 of the Sarbanes-Oxley Act of 2002
- **32.2 Certification of David F. Keffer pursuant to Section 906 of the Sarbanes-Oxley Act of 2002
- *97 Northrop Grumman Policy Regarding the Recoupment of Certain Incentive Compensation Payments
- *101 Northrop Grumman Corporation Annual Report on Form 10-K for the fiscal year ended December 31, 2023, formatted as inline XBRL (Extensible Business Reporting Language); (i) the Cover Page, (ii) the Consolidated Statements of Earnings and Comprehensive Income, (iii) Consolidated Statements of Financial Position, (iv) Consolidated Statements of Cash Flows, (v) Consolidated Statements of Changes in Shareholders' Equity, and (vi) Notes to Consolidated Financial Statements. The instance document does not appear in the Interactive Data File because its XBRL tags are embedded within the Inline XBRL document.
- *104 Cover Page Interactive Data File (formatted as Inline XBRL and contained in Exhibit 101)
- + Management contract or compensatory plan or arrangement
- * Filed with this Report
- ** Furnished with this Report

Item 16. Form 10-K Summary

None.

Use of Non-GAAP Financial Measures

This Annual Report contains non-GAAP (accounting principles generally accepted in the United States of America) financial measures, as defined by Securities and Exchange Commission (SEC) Regulation G. While we believe investors and other users of our financial statements may find these non-GAAP financial measures useful in evaluating our financial performance and operational trends, they should be considered as supplemental in nature and therefore, should not be considered in isolation or as a substitute for financial information prepared in accordance with GAAP. Definitions and reconciliations for the non-GAAP financial measures contained in this Annual Report are provided below. Other companies may define these measures differently or may utilize different non-GAAP financial measures.

Adjusted Free Cash Flow:

Net cash provided by or used in operating activities, less capital expenditures, plus proceeds from the sale of equipment to a customer (not otherwise included in net cash provided by or used in operating activities) and the after-tax impact of discretionary pension contributions, if any. Adjusted free cash flow includes proceeds from the sale of equipment to a customer as such proceeds were generated in a customer sales transaction. It also includes the after tax impact of discretionary pension contributions for consistency and comparability of financial performance. We use adjusted free cash flow as a key factor in our planning for, and consideration of, acquisitions, the payment of dividends and stock repurchases. This non-GAAP measure may be useful to investors and other users of our financial statements as a supplemental measure of our cash performance, but should not be considered in isolation, as a measure of residual cash flow available for discretionary purposes, or as an alternative to operating cash flows presented in accordance with GAAP.

\$ in millions	2023	2022	2021
Net cash provided by operating activities	\$3,875	\$2,901	\$3,567
Capital expenditures	(1,775)	(1,435)	(1,415)
Proceeds from sale of equipment to a customer	—	155	84
Adjusted free cash flow	\$ 2,100	\$ 1,621	\$ 2,236

General Information

Northrop Grumman Corporation on the Internet

Information on Northrop Grumman and its sectors, including press releases, this Annual Report and other reports, can be found at www.northropgrumman.com

Annual Meeting of Shareholders

**Wednesday, May 15, 2024
8 a.m. EDT**

The 2024 Annual Meeting of Shareholders of Northrop Grumman Corporation will be held virtually on Wednesday, May 15, 2024 at 8 a.m. Eastern. Details are available in our Notice of 2024 Annual Meeting and Proxy Statement.

Independent Auditors

Deloitte & Touche LLP

Stock Listing

Northrop Grumman Corporation common stock is listed on the New York Stock Exchange (trading symbol NOC).

Transfer Agent, Registrar and Dividend Paying Agent

Computershare
P.O. Box 43006
Providence, RI 02940-3006
(877) 498-8861

www.computershare.com/investor

Dividend Reinvestment Program

Registered owners of Northrop Grumman Corporation common stock are eligible to participate in the company's Automatic Dividend Reinvestment Plan. Under this plan, shares are purchased with reinvested cash dividends and voluntary cash payments of up to a specified amount per calendar year.

For information on the company's Dividend Reinvestment Service, contact our Transfer Agent and Registrar, Computershare.

Company Shareholder Services

Shareholders with questions regarding stock ownership should contact our Transfer Agent and Registrar, Computershare. Stock ownership inquiries may also be directed to Northrop Grumman's Shareholder Services via email at sharesrv@ngc.com.

Duplicate Mailings

Shareholders with more than one account or who share the same address with another shareholder may receive more than one Annual Report. To eliminate duplicate mailings or to consolidate accounts, contact Computershare. Separate dividend checks and proxy materials will continue to be sent for each account on our records.

Investor Relations

Securities analysts, institutional investors and portfolio managers should contact Northrop Grumman Investor Relations at investors@ngc.com.

Media Relations

Inquiries from the media should be directed to Northrop Grumman Corporate Communications at (703) 280-4456 or send an email to newsbureau@ngc.com.

Electronic Delivery of Future Shareholder Communications

If you would like to help conserve natural resources and reduce the costs incurred by Northrop Grumman Corporation in mailing proxy materials, you can consent to receiving all future proxy statements, proxy cards and Annual Reports electronically via e-mail or the Internet. To sign up for electronic delivery, registered shareholders may log onto www.computershare.com/investor.

Look for our other reports:

