

NORTHROP GRUMMAN CORP /DE/

Form 10-K

February 01, 2016

UNITED STATES

SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

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FORM 10-K

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

For the fiscal year ended December 31, 2015

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)

80-0640649

(I.R.S. Employer  
Identification Number)

2980 Fairview Park Drive

Falls Church, Virginia

(Address of principal executive offices)

(703) 280-2900

(Registrant's telephone number, including area code)

22042

(Zip code)

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

Title of each class

Common Stock, \$1 par value

Securities registered pursuant to Section 12(g) of the Act:

None

Name of each exchange on which registered

New York Stock Exchange

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 and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files).

Yes ☒

No ☐

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K is not contained herein, and will not be contained, to the best of registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K. ☐

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, or a smaller reporting company. See the definitions of "large accelerated filer," "accelerated filer" and "smaller reporting

company” in Rule 12b-2 of the Exchange Act.

Large accelerated filer ☒ Accelerated filer \* Non-accelerated filer \* Smaller reporting company \*

(Do not check if a smaller reporting company)

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, 2015, 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 \$29.8 billion.

As of January 28, 2016, 180,943,220 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 2016 Annual Meeting of Stockholders are incorporated by reference in Part III of this Form 10-K.

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## NORTHROP GRUMMAN CORPORATION

### 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 security company. We offer a broad portfolio of capabilities and technologies that enable us to deliver innovative products, systems and solutions for applications that range from undersea to outer space and into cyberspace. We provide products, systems and solutions in unmanned systems; cyber; command, control, communications and computers (C4), intelligence, surveillance, and reconnaissance (C4ISR); strike aircraft; and logistics and modernization to government and commercial customers worldwide. We participate in many high-priority defense and government programs in the United States (U.S.) and abroad. We conduct most of our business with the U.S. Government, principally the Department of Defense (DoD) and intelligence community. We also conduct business with foreign, state and local governments and commercial customers. For a discussion of risks associated with our operations, see Risk Factors in Part I, Item 1A.

The company originally was formed in Hawthorne, California in 1939, as Northrop Aircraft Incorporated and was reincorporated in Delaware in 1985, as Northrop Corporation. Northrop Aircraft Incorporated was a principal developer of flying wing technology, including the B-2 Stealth Bomber. The company developed into one of the largest defense contractors in the world through a series of acquisitions, as well as organic growth. In 1994, we acquired Grumman Corporation (Grumman), after which time the company was renamed Northrop Grumman Corporation. Grumman was a premier military aircraft systems integrator and builder of the Lunar Module that first delivered humans to the surface of the moon. In 1996, we acquired the defense and electronics businesses of Westinghouse Electric Corporation, a world leader in the development and production of sophisticated radar and other electronic systems for the nation’s defense, civil aviation, and other U.S. and international applications. In 2001, we acquired Litton Industries, a global electronics and information technology company, and one of the nation's leading full service shipbuilders. In 2002, we acquired TRW Inc., a leading developer of military and civil space systems and satellite payloads, as well as a leading global integrator of complex, mission-enabling systems and services. In 2011, the company completed the spin-off to its shareholders of Huntington Ingalls Industries, Inc. (HII). HII operates our former Shipbuilding business, which was acquired in 2001, through the acquisitions of Newport News Shipbuilding and Litton Industries.

###### Organization

At December 31, 2015, the company was aligned into four sectors: Aerospace Systems, Electronic Systems, Information Systems, and Technical Services.

Subsequent Realignment - Effective January 1, 2016, the company streamlined our sectors from four to three to better align our business with the evolving needs of our customers and enhance innovation across the company. Two new sectors were created by merging elements of our former Electronic Systems, Information Systems and Technical Services sectors. The new Mission Systems sector is composed of the majority of our former Electronic Systems sector and the businesses from our former Information Systems sector focused on the development of new capabilities for our military and intelligence customers. The services portfolio in the former Information Systems sector was combined with the former Technical Services sector to form the new Technology Services sector. Among other operations that were realigned, the military and civil space hardware business in Azusa, California, previously reporting to the Electronic Systems sector, moved to the Aerospace Systems sector, and the electronic attack business previously in the Aerospace Systems sector moved to the Mission Systems sector. This realignment is not reflected in the business descriptions below or in any of the financial information contained in this report.

###### AEROSPACE SYSTEMS

Aerospace Systems, headquartered in Redondo Beach, California, is a leader in the design, development, integration and production of manned aircraft, unmanned systems, spacecraft, high-energy laser systems, microelectronics and other systems and subsystems. Aerospace Systems' customers, primarily U.S. Government agencies, use these systems

in mission areas including intelligence, surveillance and reconnaissance (ISR), communications, battle management, strike operations, electronic warfare, earth observation, satellite communications, space science and space exploration. The segment consists of four business areas: Unmanned Systems, Military Aircraft Systems, Space Systems, and Strategic Programs & Technology.

Unmanned Systems - designs, develops, manufactures, and integrates ISR unmanned systems for tactical and strategic missions. Key ISR programs include the RQ-4 Global Hawk reconnaissance system, a proven high-altitude

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## NORTHROP GRUMMAN CORPORATION

long-endurance system providing near real-time high resolution imagery of large geographical areas; the Triton aircraft system providing real-time ISR over vast ocean and coastal regions; the trans-Atlantic North Atlantic Treaty Organization (NATO) Alliance Ground Surveillance (AGS) system for multinational theater operations, peacekeeping missions, and disaster relief efforts; the Fire Scout aircraft system providing unprecedented situational awareness and precision targeting support; the Navy Unmanned Combat Air System demonstrating an unmanned combat air vehicle for carrier-based operations; and the Common Mission Management System, providing high performance service based on ground control solutions enabling unmanned mission capabilities.

**Military Aircraft Systems** - designs, develops, manufactures, and integrates airborne C4ISR, electronic warfare mission systems, and long range strike and tactical aircraft systems. Key airborne C4ISR programs include the E-2D Advanced Hawkeye and Joint Surveillance Target Attack Radar System (JSTARS). Electronic warfare includes the EA-18G Growler and EA-6B Prowler airborne electronic attack weapon systems in addition to the design, development, and integration of laser weapon systems for air, sea, and ground platforms. This business area also designed, developed and manufactured the B-2 Spirit bomber and now provides sustainment and modernization services for the B-2, the nation's most advanced long range strike aircraft system. Tactical aircraft includes the design, development, manufacture and integration of F/A-18 aft sections and F-35 center sections.

**Space Systems** - designs, develops, manufactures, and integrates spacecraft systems, subsystems, sensors and communications payloads in support of space science and C4ISR. Key programs include the James Webb Space Telescope, a large infrared telescope being built for the National Aeronautics and Space Administration that will be deployed in space to study the origins of the universe; Advanced Extremely High Frequency payloads providing survivable, protected communications to U.S. forces; and restricted programs.

**Strategic Programs & Technology** - creates and matures advanced technologies and innovative concepts to provide affordable solutions addressing current and future customer needs. This business area maintains a broad portfolio of contracts ranging from basic research to the development of technologies, components, prototypes, and initial operational systems across the air, land and space domains.

### ELECTRONIC SYSTEMS

Electronic Systems, headquartered in Linthicum, Maryland, is a leader in the design, development, manufacture and support of solutions for sensing, understanding, anticipating and controlling the operating environment for our global military, civil and commercial customers. Electronic Systems provides a variety of defense electronics and systems, airborne fire control radars, situational awareness systems, early warning systems, electronic warfare systems, air defense radars and management systems, navigation systems, communications systems, marine power and propulsion systems, space systems and logistics services. The segment consists of four business areas: Airborne Intelligence, Surveillance, Reconnaissance & Targeting Systems, Space Intelligence, Surveillance, & Reconnaissance Systems, Land & Self Protection Systems, and Navigation & Maritime Systems.

**Airborne Intelligence, Surveillance, Reconnaissance & Targeting Systems** - delivers products and services for airborne and ground-based surveillance, multi-sensor processing, analysis and dissemination for combat units and national agencies, both U.S. and international. These systems provide battle space awareness, command and control, combat avionics (fire control radars, multi-function apertures and pods), and airborne electro-optical/infrared (EO/IR) targeting systems. Key programs include airborne fire control radars such as the Scalable Agile Beam Radar (SABR), which provides Active Electronically Scanned Array (AESA) capabilities for U.S. and international fighters; the F-35 fire control radar, a multi-function AESA radar for the U.S. Armed Forces and a large number of international partners; electro-optical infrared (EO/IR) systems such as the LITENING targeting pod and the Distributed Aperture System (DAS), a 360 degree spherical situational awareness system; and airborne surveillance radars such as the Multirole and Electronically Scanned Array (MESA) for Airborne Early Warning & Control (AEW&C), which provides air-to-air and air-to-surface coverage.

**Space Intelligence, Surveillance, & Reconnaissance Systems** - delivers products and services for radar and EO/IR space satellite applications for the DoD and national intelligence agencies. These systems provide missile warning, missile defense, situational awareness, and ground software systems for intelligence community decision makers. Key

programs include space systems such as the Space-Based Infrared System (SBIRS), which provides data for missile surveillance, missile defense, technical intelligence and battlespace characterization; Advanced Technology Microwave Sounder (ATMS) for environmental sensing on JPSS satellites; Joint Tactical Army Ground Station (JTAGS), Joint OPIR Ground (JOG) solutions; and a large number of restricted programs for the intelligence community.

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Land & Self Protection Systems - delivers products, systems and services that support ground-based, helicopter and fixed wing platforms (manned and unmanned) with sensor and protection systems. A major product line of this business area consists of systems that perform threat detection and countermeasures that defeat infrared and radio frequency (RF) guided missile and tracking systems. This business area also provides integrated electronic warfare capability, communications and intelligence systems, unattended ground sensors, automatic test equipment, advanced threat simulators, ground-based air defense and multi-function radars, situational awareness systems, laser/electro-optical systems and digitized and open architecture cockpits and applications. Key programs include the Ground/Air Task Oriented Radar (G/ATOR), which is a ground-based multi-mission radar designed to detect and track a wide variety of threats; the TPS-78 ground-based radar, which provides air defense and air surveillance for the global market; the Large Aircraft Infrared Countermeasures (LAIRCM), which is an infrared countermeasure system designed to protect aircraft against man-portable (shoulder-launched) infrared-guided surface-to-air missiles; and the AN/APR-39, which provides rapid identification and continuous radar threat warning for today's complex battlefields. Navigation & Maritime Systems - delivers products and services to U.S. and international defense, civil and commercial customers supporting smart navigation, shipboard radar surveillance, ship control, machinery control and integrated combat management systems for naval surface ships; high-resolution undersea sensors for mine hunting, situational awareness and other applications; unmanned marine vehicles; shipboard missile and encapsulated payload launch systems, propulsion and power generation systems, nuclear reactor instrumentation and control and acoustic sensors for submarines and aircraft carriers; inertial navigation systems for all domains (air, land, sea, and space); embedded Global Positioning Systems; and postal automation systems. Key programs include the AN/SPQ-9B Anti-Ship Missile Defense radar, which provides the US Navy's cruisers and destroyers with situational awareness and contact information from aircraft, cruise missiles, surface vessels and periscope detection; and inertial navigation and positioning products for a range of platforms including ships, aircraft, spacecraft and weapons systems. In addition to the product and service lines discussed above, our Electronic Systems segment also includes Advanced Concepts & Technologies (AC&T), which develops next-generation systems to position the segment in key developing markets. AC&T focuses on understanding customer mission needs; conceiving affordable, innovative and open solutions; and demonstrating the readiness and effectiveness of Electronic Systems' products. AC&T focuses on the following enterprise-wide and cross cutting technology development thrust areas: RF systems; EO/IR systems; multi-function systems; modular open systems architectural approaches and designs; precision navigation and timing capabilities; and secure and trusted solutions.

### INFORMATION SYSTEMS

Information Systems, headquartered in McLean, Virginia, is a leading provider of advanced solutions for the DoD, national intelligence, federal civilian, state, international and commercial customers. Products and services focus on the fields of command and control (C2), communications, cyber, air and missile defense, intelligence processing, civil security, health technology and government support systems. The segment consists of seven business areas: Cyber, C2, Communications, ISR, Integrated Air and Missile Defense (IAMD), Civil and Health.

Cyber - provides full spectrum solutions that address cyber security threats, cyber mission management and special cyber systems. Cyber offerings span intelligence, defense, federal, state, international and commercial customers, providing dynamic cyber defense and specialized cyber systems and services in support of critical government missions. This business specializes in active defense, malware detection, analytics platforms and large scale cyber solutions for national security applications.

C2 - provides net-enabled C2, battle management, command center integration, combat support systems, mission-enabling solutions and critical infrastructure protection systems. C2 systems support operations, managing assets and forces employed to accomplish national and military missions, and optimizing legacy platforms, sensors and weapons systems. These systems are installed in operational and command centers world-wide and across DoD services, joint commands and the international security community.

Communications - provides the underlying networks, network management, gateway systems and radio frequency devices that support national military C4ISR missions and help make C4ISR more integrated and interoperable.

Communications capabilities include gateways and products for aircraft interoperability, multi-function avionics, software defined radios and protected communications.

ISR - delivers systems and services in Signals Intelligence (SIGINT), airborne reconnaissance, geospatial intelligence and data fusion, specializing in the collection, processing, and exploitation of data to achieve a deep

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understanding of the environment. Offerings include intelligence integration, large scale information processing, multi-source intelligence, big data applications and geo-location techniques.

IAMD - provides integration and interoperability of net-enabled battle management, sensors, targeting and surveillance systems, air and missile defense C2, missile warning systems and critical situational awareness for weapons and fire control systems. This business provides solutions for both U.S. and international customers, advanced IAMD integration with land and air assets, and cost effective flexible architectures.

Civil - provides civilian information technology (IT) solutions, civil financial operations, public safety systems, law enforcement and state programs. This business is a provider in global homeland security and public safety, federal law enforcement information sharing and analysis, and IT systems and services that enable civil missions and satisfy infrastructure and back office requirements.

Health - provides healthcare expertise combined with IT capabilities to support effective healthcare services and efficient health and human services systems. Capabilities include benefits management, population health, clinical data integration and health analytics. This business provides system engineering and integration, affordable national healthcare IT, and solutions to meet health and human services challenges.

Key programs for the Information Systems segment include the Joint National Integration Center Research and Development (JRDC) contract, which supports the technical infrastructure, modeling and simulation, test and evaluation, and management of the Missile Defense Agency network at multiple sites; the Battlefield Airborne Communications Node (BACN), a high-altitude, airborne communications and information gateway system that provides situational awareness and C2 coordination between warfighters and commanders; the Communications, Navigation and Identification (CNI) integrated avionics system for the F-35 Joint Strike Fighter based on software-defined technology with advanced capabilities for interoperability; and the Integrated Air and Missile Defense Battle Command System (IBCS), a C2 system that delivers a single, unambiguous view of the battlespace with enhanced aircraft and missile tracking improving the ability of combatant commanders and air defenders to make critical decisions within seconds.

### TECHNICAL SERVICES

Technical Services, headquartered in Herndon, Virginia, is a leader in innovative logistics, modernization and sustainment and also provides an array of other advanced technology and engineering services, including space, missile defense, nuclear security, training and simulation. The segment consists of two business areas: Integrated Logistics and Modernization and Mission Solutions and Readiness.

Integrated Logistics and Modernization - provides complete life cycle support and weapon system sustainment and modernization products and services, and provides direct support to warfighters while delivering aircraft and subsystem maintenance, repair and overhaul (MRO). Competencies include aircraft and electronics sustaining engineering, supply chain management services, manned and unmanned weapons systems deployed logistics support, field services and on-going maintenance and technical assistance, and delivering rapid response in support of global customers. Key programs include KC-10 Contractor Logistics Support (CLS), which provides total weapons systems CLS to the Air Force for the entire fleet of 59 KC-10 aircraft; Intercontinental Ballistic Missile (ICBM) Systems, which provides systems engineering and integration for the land-based leg of the U.S. nuclear deterrent force; UK Airborne Warning and Control System (AWACS), which provides through life management of the UK Royal Air Force fleet of E-3D AWACS aircraft; KC-30A Multi-Role Tanker Transport (MRTT), which provides through life support for the Royal Australian Air Force (RAAF) KC-30A air to air refueling aircraft; MQ5B Hunter Contractor Logistics Support (CLS), which provides maintenance and continuous modernization of the Army's fielded Hunter Unmanned Aerial Vehicles (UAV); and AAQ24 LAIRCM, which provides repair, testing, component spare procurement, logistics, and data collection related to directional infrared counter measures systems used on multiple fixed and rotary wing aircraft.

Mission Solutions and Readiness - provides realistic and comprehensive training through live, virtual and constructive domains, innovative and diverse training applications ranging from battle command to professional military education, sustainment and modernization of tactical vehicles, high technology and engineering services in the areas of nuclear

security, space and launch services, civil engineering and military range-sensor-instrumentation operations. Key programs include Ministry of the National Guard Training Support (MNG TSC), through our interest in a joint venture for which we consolidate the financial results, which provides equipment fielding, training and maintenance, simulator training and operations, tactical exercise development, logistics and operations support and English language training to the Saudi Arabian National Guard; the Mission Command Training Program (MCTP), the Army's premier leadership and staff training exercise program at the tactical and operational level; and

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## NORTHROP GRUMMAN CORPORATION

Fort Irwin Logistics Services Support, which provides a full range of logistics support services and operates a large-scale maintenance and repair program of both tracked and tactical wheeled vehicles.

### SELECTED FINANCIAL DATA AND SEGMENT OPERATING RESULTS

For a more complete understanding of our business, see Selected Financial Data in Part II, Item 6. For a more complete understanding of our segment financial information, see Segment Operating Results in Part II, Item 7 and Note 3 to the consolidated financial statements in Part II, Item 8.

### CUSTOMER CONCENTRATION

Our largest customer is the U.S. Government. Sales to the U.S. Government accounted for 83 percent, 84 percent and 86 percent of sales during the years ended December 31, 2015, 2014 and 2013, respectively. For further information on sales by customer category, see Note 1 to the consolidated financial statements in Part II, Item 8. No single program accounted for more than ten percent of total sales during any period presented. See Risk Factors in Part I, Item 1A.

### COMPETITIVE CONDITIONS

We compete with many companies in the defense, intelligence and federal markets. BAE Systems, Boeing, Booz Allen Hamilton, Finmeccanica, General Dynamics, Harris, L-3 Communications, Leidos, Lockheed Martin, Raytheon and Thales 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 bid protests (competitor protests of U.S. Government procurement awards) and the number of competitors bidding on program opportunities.

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, become a subcontractor for 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, 2015, total backlog was \$35.9 billion, compared with \$38.2 billion at the end of 2014. For further information, see Backlog in Part II, Item 7.

### RESEARCH AND DEVELOPMENT

See Note 1 to the consolidated financial statements in Part II, Item 8.

### INTELLECTUAL PROPERTY

We routinely apply for and own a number of U.S. and foreign patents related to the products and services we provide. 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 and 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 in Part I, Item 1A.

### RAW MATERIALS

We have not experienced significant delays in the supply or availability of raw materials, nor have we experienced a significant price increase for raw materials. See Risk Factors in Part I, Item 1A.

### EMPLOYEE RELATIONS

We believe that we maintain good relations with our approximately 65,000 employees. Approximately 2,600 are covered by 12 collective agreements in the U.S., of which we negotiated renewals of four in 2015 and expect to negotiate renewals of five in 2016. See Risk Factors in Part I, Item 1A.

### REGULATORY MATTERS

Government Contract Security Restrictions

Certain programs with the U.S. Government that are prohibited by the customer from being publicly discussed are generally referred to as “restricted” in this Annual Report on Form 10-K. The consolidated financial statements and

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## NORTHROP GRUMMAN CORPORATION

financial information in this Annual Report on Form 10-K reflect the operating results of our entire company, including restricted programs, under accounting principles generally accepted in the United States of America (GAAP).

## 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 under the requirements of the Federal Acquisition Regulation (FAR) and U.S. Government Cost Accounting Standards (CAS). Examples of costs incurred by us and not billed to the U.S. Government in accordance with the FAR and CAS include, but are not limited to, lobbying costs, certain legal costs, charitable donations, advertising costs, interest expense and unallowable employee compensation and benefits costs. Our long-term contracts typically fall into one of two broad categories:

Cost-type contracts – Cost-type contracts include cost plus fixed fee, award fee and/or incentive fee contracts.

Cost-type contracts provide for reimbursement of the contractor's allowable costs incurred plus fee. Cost-type contracts generally require that the contractor use its best efforts to accomplish the scope of the work within some specified time and some stated dollar limitation. Fees on cost-type contracts can be fixed in terms of dollar value or percentage of costs. Award and incentive fees 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, and are intended to provide motivation for excellence in contract performance. Incentive fees that are based on cost provide for an initially negotiated fee to be adjusted later, typically using a formula to measure performance against the associated criteria, based on the relationship of total allowable costs to total target costs. Award and incentive fees that can reasonably be estimated and are deemed reasonably assured are recorded over the performance period of the contract.

Fixed-price contracts – A firm fixed-price contract is a contract in which the specified scope of work is agreed to for a price that is a pre-determined, negotiated amount and not generally subject to adjustment regardless of costs incurred by the contractor, absent changes in scope by the customer. 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 types of fixed-price incentive fee 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.

See Note 1 to the consolidated financial statements in Part II, Item 8 and Risk Factors in Part I, Item 1A.

The following table summarizes sales for the year ended December 31, 2015, recognized by contract type and customer:

(\$ in millions)	U.S. Government <sup>(1)</sup>	International and Other Customers <sup>(2)</sup>	Total	Percentage of Total Sales	
Cost-type contracts	\$ 11,558	\$ 641	\$ 12,199	52	%
Fixed-price contracts	7,900	3,427	11,327	48	%
Total sales	\$ 19,458	\$ 4,068	\$ 23,526	100	%

Sales to the U.S. Government include sales from contracts for which Northrop Grumman is the prime contractor,

<sup>(1)</sup> as well as those for which the company is 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.

<sup>(2)</sup> Sales to International and Other Customers include foreign military sales contracted through the U.S. Government, direct commercial sales with governments outside the U.S., sales to state and local governments, and sales to commercial customers.

Profit margins may vary materially depending on, among other things, negotiated contract fee arrangements, achievement of performance objectives and the stage of performance at which the right to receive fees, particularly under incentive and award fee contracts, is determined.

We monitor our policies and procedures with respect to our contracts on a regular basis to enhance consistent application under similar terms and conditions, as well as compliance with applicable government regulations and laws. In addition, costs incurred and allocated to contracts with the U.S. Government are routinely audited by the Defense Contract Audit Agency.

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## NORTHROP GRUMMAN CORPORATION

### Environmental

Our operations are subject to and affected by federal, state, local and foreign laws and regulations relating to the protection of the environment. In 2010, we established goals for the reduction of greenhouse gas emissions and implementation of best management practices for water use and solid waste; those goals were achieved as of December 31, 2014. In 2015, we announced our 2020 environmental sustainability goals: to reduce absolute greenhouse gas emissions by 30 percent from 2010 levels; to reduce potable water use by 20 percent from 2014 levels; and achieve a 70 percent solid waste diversion rate (from landfills).

We have recorded liabilities and 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 in Part I, Item 1A and Notes 1 and 11 to the consolidated financial statements in Part II, Item 8.

### EXECUTIVE OFFICERS

See Part III, Item 10, 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 on the Internet is [www.northropgrumman.com](http://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 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](http://www.sec.gov) that contains reports, proxy statements and other information about SEC registrants, including Northrop Grumman Corporation. You may also obtain these materials at the SEC's Public Reference Room at 100 F Street, N.E., Washington, D.C. 20549. You can obtain information on the operation of the Public Reference Room by calling the SEC at 1-800-SEC-0330.

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 urge 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.

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 83 percent, 84 percent and 86 percent of our sales during the years ended December 31, 2015, 2014 and 2013, respectively. The U.S. Government has been implementing significant reductions in government spending and other significant program changes. We cannot predict the impact on existing, follow-on, replacement or future programs from potential changes in priorities due to changes in defense spending levels, military strategy and planning and/or changes in social-political priorities. The U.S. Government generally has the ability to terminate contracts, in whole or in part, without prior notice, for its convenience or for default based on performance. In the event of termination for the U.S. Government's convenience, contractors are generally protected by provisions covering reimbursement for costs incurred on the contracts and profit on those costs up to the amount authorized under the contract, but not the anticipated profit that would have been earned had the contract been completed. Termination by the U.S. Government of a contract due to our default could require us 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 of a contract due to our default could have a material adverse effect on our reputation and our ability to compete for other contracts.

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## NORTHROP GRUMMAN CORPORATION

The U.S. Government also has the ability to stop work under a contract for a limited period of time for its convenience. It is possible that the U.S. Government 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 on the contract to date and for costs associated with the temporary stoppage of work on the contract. However, such temporary stoppages and delays could introduce inefficiencies and result in financial and other damages for which we may not be able to negotiate full recovery from the U.S. Government. They could also ultimately result in termination for convenience or reduced future orders.

A significant shift in government priorities to programs in which we do not participate and/or reductions in funding for or the termination of programs in which we do participate, unless offset by other programs and opportunities, 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 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.

U.S. Government programs are subject to annual congressional budget authorization and appropriation processes. For many programs, Congress appropriates funds on a fiscal year basis even though the program performance period may extend over several years. Consequently, programs are often partially funded initially and additional funds are committed only as Congress makes further appropriations. If we incur costs in excess of funds obligated on a contract, we may be at risk for reimbursement of those costs unless and until additional funds are obligated to the contract. We cannot predict the extent to which total funding and/or funding for individual programs will be included, increased or reduced as part of the annual budget process ultimately approved by Congress or in separate supplemental appropriations or continuing resolutions, as applicable. Laws and plans adopted by the U.S. Government relating to, along with pressures on and uncertainty surrounding the federal budget, sequestration, the appropriations process, use of continuing resolutions (with restrictions, e.g., on new starts) and the permissible federal debt limit, could adversely affect the funding for individual programs and delay purchasing or payment decisions by our customers. In the event government funding for our significant programs becomes unavailable, or is reduced or delayed, our contract or subcontract under such programs may be terminated or adjusted by the U.S. Government or the prime contractor. On November 2, 2015, the President signed the Bipartisan Budget Act of 2015 (the Budget Act). The Budget Act raises the statutory limit on the amount of permissible federal debt (the debt ceiling) until March 2017 and raises the sequester caps imposed by the Budget Control Act of 2011 (the Budget Control Act) by \$80 billion, split equally between defense and domestic spending, over the next two years (\$50 billion in FY 2016 and \$30 billion in FY 2017). However, unforeseen circumstances could cause an extended debt ceiling breach, which could negatively affect the U.S. Government's timely payment of our billings, resulting in delayed cash collection, and have significant consequences for our company, our employees, our suppliers and the defense industry. On December 18, 2015, Congress passed and the President signed the Consolidated Appropriations Act of 2016, which provides funding for the U.S. government for FY 2016, providing \$1.1 trillion in discretionary funding for federal agencies through September 2016.

The budget environment, including sequestration as currently mandated, and uncertainty surrounding the appropriations processes, remain significant long-term risks. Considerable uncertainty exists regarding how future budget and program decisions will unfold, what challenges budget reductions (required by the Budget Control Act and otherwise) will present for the defense industry and whether an annual appropriations bill will be enacted for FY 2017. If an annual appropriations bill is not enacted for FY 2017 or beyond, the U.S. Government may operate under a continuing resolution, restricting new contract or program starts and we may face a government shutdown of unknown duration. Adverse consequences from operating under a continuing resolution may be greater if the company has a higher percentage of development programs. We believe continued budget pressures will have serious negative consequences for the security of our country, the defense industrial base, including Northrop Grumman, and the customers, employees, suppliers, investors, and communities that rely on companies in the defense industrial base. It is likely budget and program decisions made in this environment will have long-term implications for our company.

and the entire defense industry.

Long term funding for certain programs in which we participate may be reduced, delayed or cancelled. In addition, budget cuts globally could adversely affect the viability of our subcontractors and suppliers, and our employee base. While we believe that our business is well-positioned in areas that the Department of Defense (DoD) and other customers have indicated are areas of focus for future defense spending, the long-term impact of the Budget Control Act, other defense spending cuts, and the ongoing fiscal debates remain uncertain.

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## NORTHROP GRUMMAN CORPORATION

Significant delays or reductions in appropriations; 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 are subject to various investigations, claims and litigation that could ultimately be resolved against us.

The size, nature and complexity of our business make us susceptible to investigations, claims, and litigation, particularly those involving governments. We are and may become subject to investigations, claims and administrative, civil or criminal litigation globally and across a broad array of matters, including, but not limited to, government contracts, false claims, products liability, fraud, environmental, intellectual property, tax, export/import, anti-corruption, labor, health and safety, employee benefits and plans, including plan administration, and improper payments. These matters could divert financial and management resources; result in fines, penalties, compensatory, treble or other damages or non-monetary relief; and otherwise disrupt our business. Government regulations also provide that certain allegations against a contractor may lead to suspension or debarment from government contracts or suspension of export privileges for the company or one or more of its components. Suspension or debarment could have a material adverse effect on the company because of our reliance on government contracts and export authorizations. An investigation, claim or litigation, even if fully indemnified or insured, could also negatively impact our reputation among our customers and the public, and make it more difficult for us to compete effectively or obtain adequate insurance in the future. Investigations, claims or litigation 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.

Sales to customers outside the U.S. are an increasingly important component of our strategy. Our international business (including joint ventures) is subject to numerous political and economic factors, legal requirements, cross-cultural considerations and other risks associated with doing business in foreign countries. These risks differ in some respects from those associated with our U.S. business and our exposure to such risks may increase if our international business continues to grow as we anticipate.

Our international business is subject to both U.S. and foreign laws and regulations, including, without limitation, regulations relating to import-export controls, technology transfer restrictions, repatriation of earnings, data privacy and protection, investment, exchange controls, the Foreign Corrupt Practices Act (FCPA) and other anti-corruption laws, the anti-boycott provisions of the U.S. Export Administration Act, labor and employment, works councils and other labor groups, taxes, security restrictions and intellectual property. Failure by us, our employees, or others working on our behalf to comply with these laws and regulations could result in administrative, civil, or criminal liabilities, including suspension or debarment from government contracts or suspension of our export privileges. Changes in regulations, political leadership and environment, or security risks may dramatically affect our ability to conduct or continue to conduct business in international markets. Our international business may also be impacted by changes in foreign national policies and priorities, government budgets, and economic factors more generally, any of which could impact funding for programs or delay purchasing or payment decisions by customers. Global economic conditions and fluctuations in foreign currency exchange rates could further impact our international business. Our international contracts may also include industrial cooperation agreements requiring specific in-country purchases, investments, manufacturing agreements or other financial obligations, known as offset obligations, and provide for significant penalties if we fail to meet such requirements. Our ability to sell products outside the U.S. could be adversely affected if we are unable to design our products for export on a cost effective basis or to obtain all necessary export licenses and authorizations on a timely basis. Our ability to conduct 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.

The products and services we provide internationally, including those provided by subcontractors and joint ventures in which we have an interest, are sometimes in countries with unstable governments and/or developing legal systems, in areas of military conflict or at military installations. This increases the risk of political dynamics or an incident

resulting in harm or loss of life to our employees, subcontractors or other third parties, or in loss of property or damage to our products. It also exposes the company to additional financial, contractual and legal risks. Accidents or incidents that occur in connection with our international operations could also result in negative publicity, which could adversely affect our reputation and make it more difficult for us to compete for future contracts or attract and retain employees or result in the loss of existing and future contracts.

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## NORTHROP GRUMMAN CORPORATION

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.

Our reputation and our ability to do business may be impacted by the improper conduct of employees, agents, business partners or joint ventures in which we participate.

We have implemented extensive policies, procedures, training and other compliance controls to prevent misconduct by employees, agents or others working on our behalf or with us 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, cost accounting and billing, competition and data privacy. However, we cannot ensure that we will prevent all such misconduct committed by our employees, agents, subcontractors or others working on our behalf or with us, and this risk of improper conduct may increase as we expand globally. In the ordinary course of our business we form and are members of joint ventures. We may be unable to prevent misconduct or other violations of applicable laws by these joint ventures. Improper actions by our employees, agents, subcontractors, business partners or joint ventures could subject us to administrative, civil or criminal investigations and monetary and non-monetary penalties, 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.

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

Contract accounting requires judgment relative to assessing risks, estimating contract revenues and costs, and making assumptions for schedule and technical issues. Due to the size and nature of many of our contracts, the estimation of total revenues and costs at completion is complicated and subject to many variables. Incentives, awards or penalties related to performance on contracts are considered in estimating revenue and profit rates when there is sufficient information to assess anticipated performance. Suppliers' assertions are also assessed and considered in estimating costs and profitability.

Our operating income can be adversely affected when we experience increased estimated contract costs. Reasons for estimated contract cost growth may include: design issues; changes in estimates of the nature and complexity of the work to be performed, including technical or quality issues or requests to perform additional work at the direction of the customer; production challenges, including those resulting from the availability and timeliness of customer funding, unavailability or reduced productivity of labor or the effect of any delays in performance; the availability, performance, quality or financial strength of significant subcontractors; supplier issues, including the costs, timeliness and availability of materials and components; the effect of any changes in laws or regulations; actions deemed necessary for long-term customer satisfaction; and natural disasters or environmental matters. We may file requests for equitable adjustment or claims to seek recovery in whole or in part for our increased costs.

Our risk varies with the type of contract. Due to their nature, fixed-price contracts inherently tend to have more risk than cost type contracts. In 2015, approximately half of our sales were derived from fixed-price contracts. We typically enter into fixed-price contracts where costs can be more reasonably estimated based on actual experience, such as for mature production programs. In addition, our contracts contain provisions relating to cost controls and audit rights. If the terms specified in our contracts are not met, our profitability may be reduced and we may incur a loss. Our fixed-priced contracts may include fixed-price development work. This type of work is inherently more uncertain as to future events than production contracts, and, as a result, there is typically more variability in estimates of the costs to complete the development stage. As work progresses through the development stage into production, the risks associated with estimating the total costs of the contract are typically reduced. While management uses its best judgment to estimate costs associated with fixed price development contracts, future events could result in either upward or downward adjustments to those estimates. Under cost type contracts, allowable costs incurred by the contractor 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 typically have award or incentive fees that are subject to uncertainty and may be earned over extended periods or towards the end of the contract. In

these cases, the associated financial risks are primarily in recognizing profit, which ultimately may not be earned, or program cancellation if cost, schedule, or technical performance issues arise.

Because of the significance of the judgment and estimation processes described above, it is possible that materially different amounts could be obtained if different assumptions were used or if the underlying circumstances were to change. Changes in underlying assumptions, circumstances or estimates, and the failure to prevail on claims for equitable adjustments could have a material adverse effect upon the profitability of one or more of the affected

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## NORTHROP GRUMMAN CORPORATION

contracts and on our overall financial position, results of operations and/or cash flows. See Critical Accounting Policies, Estimates and Judgments in Part II, Item 7.

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

As a defense contractor, we face various cyber and other security threats, including attempts to gain unauthorized access to sensitive information and networks; insider threats; threats to the safety of our directors, officers and employees; threats to the security of our facilities and infrastructure; and threats from terrorist acts or other acts of aggression. Our customers and partners (including subcontractors and joint ventures) face similar threats. Although we utilize various procedures and controls to monitor and mitigate the risk of these threats, there can be no assurance that these procedures and controls will be sufficient. These threats could lead to losses of sensitive information or capabilities, harm to personnel, infrastructure or products, and/or damage to our reputation as well as our partners' ability to perform on our contracts.

Cyber threats are evolving and include, but are not limited to, malicious software, destructive malware, attempts to gain unauthorized access to data, disruption or denial of service attacks, and other electronic security breaches that could lead to disruptions in mission critical systems, unauthorized release of confidential, personal or otherwise protected information (ours or that of our employees, customers or partners), and corruption of data, networks or systems. In addition, we could be impacted by cyber threats or other disruptions or vulnerabilities found in products we use or in our partners' or customers' systems that are used in connection with our business. These events, if not prevented or effectively mitigated, could damage our reputation, require remedial actions and lead to loss of business, regulatory actions, potential liability and other financial losses.

We provide systems, products and services to various customers (government and commercial) who also face cyber threats. Our systems, products and services may themselves be subject to cyber threats and/or they 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.

The impact of these factors is difficult to predict, but one or more of them could result in the loss of information or capabilities, harm to individuals or property, damage to our reputation, loss of business, regulatory actions and potential liability, any one of which could have a material adverse effect on our financial position, results of operations and/or cash flows.

Pension and medical liabilities and related expenses in our financial statements that have been recorded in connection with our retirement benefit plans may fluctuate significantly depending upon future investment performance of plan assets, changes in actuarial assumptions, and legislative or other regulatory actions.

A substantial portion of our current and retired employee population is covered by pension and other post-retirement benefit plans. Pension and medical liabilities and related expenses in our financial statements that have been recorded in connection with these plans are primarily dependent upon future investment performance of plan assets and various assumptions, including discount rates applied to future payment obligations, mortality assumptions, estimated long term rates of return on plan assets, rates of future cost growth and trends for future costs. In addition, funding requirements for benefit obligations of our pension and other post-retirement benefit plans are subject to legislative and other government regulatory actions.

In accordance with government regulations, pension plan cost recoveries under our U.S. Government contracts occur in different periods from when those pension costs are recognized for financial statement purposes or when pension funding is made. These timing differences could have a material adverse effect on our cash flows. The cost accounting rules have been revised in order to partially harmonize the measurement and period of assignment of defined benefit pension plan costs allocable to U.S. Government contracts and the minimum required contribution under the Employee Retirement Income Security Act of 1974 (ERISA), as amended by the Pension Protection Act (PPA) of 2006. These rules better align, but do not eliminate, mismatches between ERISA funding requirements and CAS pension costs for U.S. Government CAS covered contracts.

Future investment performance of plan assets and changes in assumptions associated with our pension and other post-retirement benefit plans 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 performance and financial viability as well as raw material and component availability and pricing.

We rely on other companies to provide raw materials and major components and subsystems for our products and to produce hardware elements and sub-assemblies, provide intellectual property, and perform some of the services we

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NORTHROP GRUMMAN CORPORATION

provide to our customers, and to do so in compliance with all applicable laws and regulations. Disruptions or performance problems caused by our subcontractors and suppliers, or a misalignment between our contractual obligations to our customers and our agreement with our subcontractors and suppliers, could have an adverse effect on our ability to meet our commitments to customers.

Our ability to perform our obligations on time could be adversely affected if one or more of our subcontractors or suppliers were unable to provide the agreed-upon products or materials or perform the agreed-upon services in a timely, compliant and cost-effective manner or otherwise to meet the requirements of the contract. Changes in economic conditions, including changes in defense budgets or credit availability, could adversely affect the financial stability of our subcontractors and suppliers and/or their ability to perform. The inability of our suppliers to perform could also result in the need for us to transition to alternate suppliers, which could result in significant incremental cost and delay or the need for us to provide other supplemental means to support our existing suppliers.

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. In some cases, there may be only one supplier for certain components. If a sole source supplier cannot meet our needs or is otherwise unavailable, we may be unable to find a suitable alternative.

Our procurement practices are intended to reduce the likelihood of our procurement of counterfeit, unauthorized or otherwise non-compliant parts or materials. We rely on our subcontractors and suppliers to comply with applicable laws and regulations regarding the parts or materials we procure from them; in some circumstances, we rely on certifications provided by our subcontractors and suppliers regarding their compliance.

If we are unable to procure or experience significant delays in supplier deliveries of needed materials, components, intellectual property or parts; if our subcontractors or suppliers do not comply with all applicable laws and regulations; if the certifications we receive from them are inaccurate; or if what we receive is counterfeit or otherwise improper, it could have a material adverse effect on our financial position, results of operations and/or cash flows.

Competition within our markets and an increase in 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 extensive or specialized engineering, manufacturing, or marketing capabilities in some areas or financial capacity, or 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 budget reductions for many customers, a continued focus on affordability and competition, and our own success in winning business. We are facing increasing competition in our U.S. and international markets from U.S., foreign and multinational firms. Additionally, some customers, including the DoD, may turn to commercial contractors, rather than traditional defense contractors, for some products and services, or may utilize small business contractors or determine to source work internally rather than hiring a contractor.

We also are seeing an increasing number of bid protests from unsuccessful bidders on new program awards. Bid protests could 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 the loss of an award, the resolution can extend the time until the contract activity can begin, and delay earnings.

If we are unable to continue to compete successfully against our current or future competitors, or prevail in protests, we may experience declines in future revenues and market share, which could, over time, 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 and regulations applicable to our industry and we could be adversely affected by changes in such laws and regulations 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 many significant procurement regulations and other specific legal requirements. These regulations and other

requirements, although customary in government contracts, increase our performance and compliance costs and risks and are regularly evolving. New laws, regulations or procurement requirements or changes to current ones (including, for example, regulations related to limits on recovery of employee compensation costs, counterfeit parts, specialty metals and conflict minerals) can significantly increase our costs and risks and reduce our profitability.

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## NORTHROP GRUMMAN CORPORATION

We operate in a highly regulated environment and are routinely audited and reviewed by the U.S. Government and its agencies, such as the Defense Contract Audit Agency (DCAA), Defense Contract Management Agency (DCMA) and the DoD Inspector General. These agencies review performance under our contracts, our cost structure and our compliance with applicable laws, regulations and standards, as well as the adequacy of our systems and processes in meeting government requirements. Costs ultimately found to be unallowable or improperly allocated to a specific contract will not be reimbursed or must be refunded if already reimbursed. If an audit uncovers improper or illegal activities, we may be subject to civil and criminal penalties, sanctions, forfeiture of profits 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 subject to its review to be inadequate, with significant financial impact. In addition, we could suffer serious reputational harm if allegations of impropriety were made against us.

Our industry has experienced, and we expect it will continue to experience, significant changes to business practices globally as a result of an increased focus on affordability, efficiencies, recovery of costs and a reprioritization of available defense funds to key areas for future defense spending. As a result of certain of these initiatives, we have experienced and may continue to experience an increased number of audits and/or a lengthened period of time required to close open audits. More recently, the thresholds for certain allowable costs in the U.S., including compensation costs, have been significantly reduced; the allowability of other types of costs are being challenged, debated and, in certain cases, modified, all with potentially significant financial costs to the company. In connection with these cost reduction initiatives, the U.S. Government is also pursuing alternatives to shift additional responsibility and performance risks to the contractor.

We (again, 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 laws, including but not limited to the Truth in Negotiations Act, the False Claims Act, the Procurement Integrity Act, CAS, FAR, the International Traffic in Arms Regulations promulgated under the Arms Export Control Act, the Close the Contractor Fraud Loophole Act and the FCPA. If we are found to have violated the law, or are found not to have acted responsibly as defined by the law, we may be subject to reductions of the value of contracts; contract modifications or termination; the withholding of payments from our customer; the loss of export privileges; the assessment of penalties, fines, or compensatory, treble or other damages; or suspension or debarment.

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

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

We have significant operations located in regions that may be exposed to earthquakes, damaging storms and other natural disasters. Our business also may be subject to environmental disasters. Our subcontractors and suppliers are also subject to natural and environmental disasters that could affect their ability to deliver or perform under a contract. Although preventative measures may help to mitigate damage, the damage and disruption resulting from natural and environmental disasters may be significant.

Natural and environmental disasters could also disrupt our and our subcontractors' and suppliers' workforce and the critical industrial infrastructure needed for normal business operations.

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

Our insurance coverage, customer indemnifications or other liability protections may be inadequate to cover all of our significant risks or our insurers may deny coverage of or be unable to pay for material losses we incur, which could adversely affect our profitability and overall financial position.

We endeavor to obtain insurance agreements from financially solid, highly rated counterparties in established markets to cover significant risks and liabilities (including, for example, natural disasters and product liability). Not every risk

or liability can be insured, and, for risks that are insurable, the policy limits and terms of coverage reasonably obtainable in the market may not be sufficient to cover all actual losses or liabilities incurred. Even if insurance coverage is available, we may not be able to obtain it at a price or on terms acceptable to us. Disputes with insurance carriers over policy terms or the insolvency of one or more of our insurers may significantly affect the amount or timing of cash flows and, if litigation over coverage terms with the insurer becomes necessary, an outcome unfavorable to us may adversely affect us.

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In some circumstances we may be entitled to certain legal protections or indemnifications from our customers through contractual provisions, laws, regulations or otherwise. However, these protections are not always available, are typically subject to certain terms or limitations and may not be sufficient to cover all losses or liabilities incurred. If available insurance coverage, customer indemnifications and/or other legal protections are not sufficient to cover our risks or losses, it could have a material adverse effect on our financial position, results of operations and/or cash flows.

We provide products and services 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 in support of nuclear-related operations of third parties. This subjects us to various extraordinary risks, including potential liabilities relating to nuclear-related incidents and the harmful effects on the environment and human health that may result from such nuclear-related activities, operations or incidents, as well as the storage, handling and disposal of radioactive materials. We may be subject to reputational harm and potential liabilities arising out of a nuclear incident, whether or not the cause was within our control. Under some circumstances, the U.S. Government and prime contractors provide for certain indemnification and other protection under certain of our government related contracts, including pursuant to, or in connection with, Public Law 85-804, the Price-Anderson Nuclear Industries Indemnity Act and the Terrorism Risk Insurance Reauthorization Act, for certain nuclear-related risks.

In addition, our customers may otherwise use our products and services in connection with hazardous activities, or in ways that can be unusually hazardous or risky, creating potential liabilities to our customers and/or our company as the provider of such products and services. In the event of an incident, if our customers fail to use our products properly or if our products or services do not operate as intended, we could be subject to reputational harm and potential liabilities.

If there was a nuclear incident or other nuclear-related damages, or incident or other damages related to or caused by the hazardous use of our products and services, and if indemnification or other protection was not available to cover our losses and liabilities, it could adversely affect our reputation and have a material adverse effect on our financial position, results of operations and/or cash flows.

Changes in future business conditions could cause business investments and/or recorded goodwill and other long-lived assets to become impaired, resulting in substantial losses and write-downs that would reduce our operating income.

Goodwill accounts for approximately half of our total assets. Market-based inputs to the calculations in our goodwill impairment test, such as weighted average cost of capital and terminal value (based on market comparisons) could change significantly from our current assumptions. Additionally, the carrying values of our reporting units are significantly influenced by a number of factors, particularly the discount rate used to determine our net pension liability. We continue to monitor the recoverability of the carrying value of our goodwill and other long-lived assets. Significant write-offs of goodwill or other long-lived assets could have a material adverse effect on our financial condition and/or results of operations.

Our future success depends, in part, on our ability to develop new products and new technologies and maintain technologies, facilities, equipment and a qualified workforce to win new competitions and meet the needs of our customers.

Many of the markets in which we operate are characterized by rapidly changing technologies. The product, program and service needs of our customers change and evolve regularly. Our success in the competitive defense industry depends upon our ability to develop technologically advanced, innovative and cost-effective products and services and market these products and services to our customers in the U.S. and internationally. Our success depends on our continued access to assured suppliers of important technologies and components. Our success also depends on our ability to provide the people, technologies, facilities, equipment and financial capacity needed to deliver those products and services with maximum efficiency. If we fail to maintain our competitive position, we could lose a

significant amount of future business to our competitors, which would negatively impact our ability to generate favorable financial results and maintain market share.

Our operating results are heavily dependent upon our ability to attract and retain sufficient personnel with requisite skills and/or security clearances, globally. If qualified personnel become scarce or difficult to attract or retain or if we experience a high level of attrition for geographic, compensation-related or other reasons, or if such personnel

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NORTHROP GRUMMAN CORPORATION

are unable to obtain security clearances on a timely basis, we could experience higher labor, recruiting or training costs in order to attract and retain necessary employees. Failure to maintain a qualified workforce would result in significant difficulty in performing under our contracts.

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. If 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 may be subject to work stoppages. Any such expenses or delays could adversely affect our programs served by employees who are covered by such agreements or representation.

If we are unable to develop new products and technologies or attract and retain a qualified workforce, we may be unable to maintain our competitive position and our future success could be adversely affected.

Many of our contracts contain performance obligations that require innovative design capabilities, are technologically complex, require state-of-the-art manufacturing expertise or are dependent upon factors not wholly within our control. Failure to meet these obligations could adversely affect our profitability 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. Problems and delays in development or delivery, or system failures, as a result of issues with respect to design, technology, intellectual property rights, labor, inability to achieve learning curve assumptions, inability to manage effectively a broad array of programs, manufacturing materials or components could prevent us from meeting requirements and create significant risk.

In addition, our products cannot be tested and proven in all situations and are otherwise subject to unforeseen problems. Examples of unforeseen problems that could negatively affect revenue and profitability include loss on launch of spacecraft, loss of aviation platforms, premature failure of products that cannot be accessed for repair or replacement, problems with design, quality and workmanship, country of origin of procured materials, delivery of subcontractor components or services and degradation of product performance. These failures could result, either directly or indirectly, in loss of life or property. Among the factors that may affect revenue and profitability could be inaccurate cost estimates, design issues, human factors, unforeseen costs and expenses not covered by insurance or indemnification from the customer, diversion of management focus in responding to unforeseen problems, loss of follow-on work, and, in the case of certain contracts, repayment to the government customer of contract cost and fee payments we 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 could be required to forfeit fees previously recognized and/or collected.

If we are unable to meet our performance obligations due to issues regarding the design, development or manufacture of our products or services, or we experience launch, platform or satellite system failures, it could have an adverse impact on our current and future business.

Unforeseen environmental costs could have an adverse effect on 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. In addition, we could be affected by future laws or regulations, including those imposed in response to climate change concerns and other actions. Compliance with current and future environmental laws and regulations currently requires, and is expected to continue to require, significant operating and capital costs. We may be required to incur additional costs in excess of those anticipated as a result of, among other things, new laws and regulations, stricter enforcement of existing laws and regulations, imposition of new cleanup requirements, discovery of previously unknown or more extensive contamination, litigation involving environmental impacts or sanctions or penalties or a determination that certain environmental costs are unallowable. In addition, if other identified responsible parties are insolvent or otherwise unable to pay their share of such costs, we may be required to incur additional costs in excess of those anticipated.

Environmental laws and regulations provide for substantial fines and criminal sanctions for violations. These laws and regulations may limit our operations or require the installation of costly pollution control equipment or operational changes to limit pollution emissions or discharges and/or decrease the likelihood of accidental hazardous substance releases. We also incur, and expect to continue to incur, costs to comply with current environmental laws and regulations related to the cleanup of pollutants previously released into the environment. In addition, if we were

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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 maintained by the General Services Administration of facilities that generally cannot be used in performing on U.S. Government contracts until the violation is corrected.

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

We may be unable adequately to protect our intellectual property rights, which could affect our ability to compete. We own many U.S. and foreign patents, trademarks, copyrights, and other forms of intellectual property, and we license certain intellectual property rights to and from third parties. The U.S. Government generally holds licenses to certain intellectual property that we develop in performance of government contracts, and it may use or authorize others to use certain such intellectual property, typically for government purposes. More recently, we believe the U.S. Government has asserted or sought to obtain more extensive rights in intellectual property. The U.S. Government's efforts could result in a decrease in our ability to control the use of certain of our intellectual property rights in a government contracting environment. Our intellectual property is also subject to challenge, invalidation, misappropriation or circumvention by third parties.

We also rely significantly upon proprietary technology, information, processes and know-how that are not protected by patents. We seek to protect this information through trade secret or confidentiality agreements with our employees, consultants, subcontractors and other parties, as well as through other measures. These agreements and other measures may not provide adequate protection for our unpatented proprietary information. In the event of an infringement of our intellectual property rights, a breach of a confidentiality agreement or divulgence of proprietary information, we may not have adequate legal remedies to maintain our intellectual property. Litigation to determine the scope of intellectual property rights, even if ultimately successful, could be costly and could divert management's attention away from other aspects of our business. In addition, our trade secrets may otherwise become known or be independently developed by competitors. In some instances, we have licensed the proprietary intellectual property of others, but we may be unable in the future to secure the necessary licenses to use such intellectual property on commercially reasonable terms. Moreover, the laws concerning intellectual property rights vary among countries and the protection provided to our intellectual property by these laws and foreign courts may not be the same as the remedies available under U.S. law.

If we are unable adequately to control or protect our intellectual property rights against claims by our customers or others, or otherwise procure necessary intellectual property, it could have an 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 U.S. or foreign tax laws and regulations, or their interpretation and application, including the possibility of retroactive effect, could affect our tax expense and profitability. For example, a change in the U.S. corporate tax rate would result in a remeasurement of our net deferred tax assets through the income tax provision because our deferred tax assets are measured at the current statutory tax rate. In addition, the final determination of any tax audits or related litigation could be materially different from our historical income tax provisions and accruals. Changes in our tax provision or an increase in our tax liabilities, whether due to changes in applicable law and regulations, the interpretation or application thereof, changes in the tax rate or a final determination of tax audits or litigation, could have an adverse effect on our financial position, results of operations and/or cash flows.

The spin-off of our former Shipbuilding business may expose us to claims, liabilities and reputational harm. In connection with the spin-off transaction, we entered into a number of agreements with HII setting forth certain rights and obligations of the parties after the separation. For example, under the Separation and Distribution Agreement, from and after the spin-off transaction, each of HII and Northrop Grumman is generally responsible for the debts, liabilities and other obligations related to the business or businesses that it owns and operates following the

consummation of the spin-off. It is possible that a court would disregard the allocation agreed to between us and HII, and require that we assume responsibility for certain obligations allocated to HII (for example, tax and/or environmental liabilities), particularly if HII were to refuse or were unable to pay or perform such obligations. In addition, third parties could seek to hold us responsible for any of the liabilities or obligations for which HII has agreed to be responsible and/or to indemnify us, directly or indirectly. The indemnity related rights we have under our agreements with HII may not be sufficient to protect us against such liabilities. Even if we ultimately succeed in

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## NORTHROP GRUMMAN CORPORATION

recovering from HII or the U.S. Government any amounts for which we are held liable, we may be required to record these losses ourselves until such time as the indemnity contribution is paid. In addition, certain indemnities that we may be required to provide HII are not subject to a cap, may be significant, and could negatively impact our business. In connection with the spin-off transaction, we received a letter ruling from the IRS and an opinion of counsel confirming that we and our shareholders would not recognize any taxable income, gain or loss for U.S. federal income tax purposes as a result of the merger, the internal reorganization or the distribution, except that our shareholders who received cash in lieu of fractional shares would recognize gain or loss with respect to such cash. Nevertheless, if the merger, the internal reorganization or the distribution were ultimately determined to be taxable for U.S. federal income tax purposes, we and our shareholders could be subject to additional income tax liabilities.

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

### Item 1B. Unresolved Staff Comments

None.

## FORWARD-LOOKING STATEMENTS AND PROJECTIONS

This Annual Report on Form 10-K and the information we are incorporating by reference contain statements, other than statements of historical fact, that constitute “forward-looking statements” within the meaning of the Private Securities Litigation Reform Act of 1995. Words such as “expect,” “intend,” “may,” “could,” “plan,” “project,” “forecast,” “be,” “estimate,” “outlook,” “anticipate,” “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 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 in Part I, Item 1A and other important factors disclosed in this report and from time to time in our other filings with the SEC.

You are urged 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, 2015, we had approximately 34 million square feet of floor space at 467 separate locations, primarily in the U.S., for manufacturing, warehousing, research and testing, administration and various other uses. At December 31, 2015, we leased to third parties approximately 250,000 square feet of our owned and leased facilities, and had vacant floor space of approximately 1 million square feet.

At December 31, 2015, we had major operations at the following locations:

#### Aerospace Systems

Carson, El Segundo, Manhattan Beach, Mojave, Palmdale, Redondo Beach and San Diego, CA; Melbourne and St. Augustine, FL; Devens, MA; Moss Point, MS; and Bethpage, NY.

#### Electronic Systems

Azusa, Sunnyvale and Woodland Hills, CA; Apopka, FL; Rolling Meadows, IL; Annapolis, Elkridge, Halethorpe, Linthicum and Sykesville, MD; Williamsville, NY; Cincinnati, OH; Salt Lake City, UT; and Charlottesville, VA. Locations outside the U.S. include France, Germany and Italy.

#### Information Systems

Huntsville, AL; McClellan, Redondo Beach, San Diego and San Jose, CA; Aurora and Colorado Springs, CO; Annapolis Junction, MD; Bellevue, NE; Beavercreek, OH; and Chantilly, Chester, Fairfax, Herndon, McLean and Richmond, VA.



## NORTHROP GRUMMAN CORPORATION

## Technical Services

Sierra Vista, AZ; Warner Robins, GA; Lake Charles, LA; and Herndon, VA.

## Corporate

Falls Church and Lebanon, VA and Irving, TX.

The following is a summary of our floor space at December 31, 2015:

Square feet (in thousands)	Owned	Leased	U.S. Government Owned/Leased	Total
Aerospace Systems	6,591	5,961	1,930	14,482
Electronic Systems	8,172	2,316	—	10,488
Information Systems	658	5,646	—	6,304
Technical Services	142	1,823	1	1,966
Corporate	657	495	—	1,152
Total	16,220	16,241	1,931	34,392

We maintain our properties in good operating condition and believe that 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 Note 10 to the consolidated financial statements in Part II, Item 8.

We are a party to various investigations, lawsuits, claims 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 fines; penalties; compensatory, treble or other damages; or non-monetary relief. Government regulations also 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. Suspension or debarment could have a material adverse effect on the company because of our reliance on government contracts and authorizations. The nature of legal proceedings is such that we cannot assure the outcome of any particular matter. However, based on information available to us to date and other than as noted in Note 10 to the consolidated financial statements, we do not believe that the outcome of any matter currently pending against the company is likely to have a material adverse effect on the company's consolidated financial position as of December 31, 2015, its annual results of operations and/or cash flows. For further information on the risks we face from existing and future investigations, lawsuits, claims and other legal proceedings, please see Risk Factors in Part I, Item 1A.

## Item 4. Mine Safety Disclosures

No information is required in response to this item.

NORTHROP GRUMMAN CORPORATION

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 181,303,083 shares and 198,930,240 shares were outstanding as of December 31, 2015 and 2014, 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, 2015 and 2014.

MARKET INFORMATION

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

The following table sets forth, for the periods indicated, the intraday high and low prices of our common stock as reported in the consolidated reporting system for the New York Stock Exchange Composite Transactions.

	2015	2014
January to March	\$141.58 to \$172.30	\$109.17 to \$125.37
April to June	152.44 to 166.55	116.11 to 126.00
July to September	152.31 to 176.83	118.23 to 134.24
October to December	168.26 to 193.99	118.24 to 153.19

HOLDERS

The approximate number of common stockholders was 25,444 as of January 28, 2016.

DIVIDENDS

Quarterly dividends per common share for the most recent two years are as follows:

	2015	2014
January to March	\$0.70	\$0.61
April to June	0.80	0.70
July to September	0.80	0.70
October to December	0.80	0.70
Total	\$3.10	\$2.71



## NORTHROP GRUMMAN CORPORATION

## PURCHASES OF EQUITY SECURITIES BY THE ISSUER AND AFFILIATED PURCHASERS

The table below summarizes our repurchases of common stock during the three months ended December 31, 2015:

Period	Total Number of Shares Purchased	Average Price Paid per Share <sup>(1)</sup>	Total 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)
October 3, 2015 - October 30, 2015	647,990	\$ 175.95	647,990	\$4,444
October 31, 2015 - November 27, 2015	420,316	185.48	420,316	4,366
November 28, 2015 - December 31, 2015	486,407	187.96	486,407	4,274
Total	1,554,713	\$ 182.28	1,554,713	\$4,274

<sup>(1)</sup> Includes commissions paid.

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

See Note 2 to the consolidated financial statements in Part II, Item 8 for further information on our share repurchase programs.

NORTHROP GRUMMAN CORPORATION

STOCK PERFORMANCE GRAPH

Comparison of Cumulative Five Year Total Return

Among Northrop Grumman Corporation, the S&P 500 Index,  
and the S&P Aerospace & Defense Index

- (1) Assumes \$100 invested at the close of business on December 31, 2010, in Northrop Grumman Corporation common stock, Standard & Poor's (S&P) 500 Index and the S&P Aerospace & Defense Index.  
The cumulative total return assumes reinvestment of dividends. In March 2011, we completed the spin-off of
- (2) Huntington Ingalls Industries, Inc. (HII). Our shareholders received one share of HII common stock for every six shares of our common stock held on the record date. The effect of the spin-off is reflected in the cumulative total return as a reinvested dividend.  
The S&P Aerospace & Defense Index is comprised of The Boeing Company, General Dynamics Corporation, Honeywell International Inc., L-3 Communications, Lockheed Martin Corporation, Northrop Grumman
- (3) Corporation, Precision Castparts Corporation, Raytheon Company, Rockwell Collins, Inc., Textron, Inc. and United Technologies Corporation.
- (4) The total return is weighted according to market capitalization of each company at the beginning of each year.  
This graph is not deemed to be filed with the U.S. Securities and Exchange Commission (SEC) or subject to the liabilities of Section 18 of the Securities and Exchange Act of 1934 (the Exchange Act), and should not be deemed
- (5) 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. Selected Financial Data

The data presented in the following table is derived from the audited consolidated financial statements and other information. 2011 data is adjusted to reflect the effects of discontinued operations.

## NORTHROP GRUMMAN CORPORATION

## SELECTED FINANCIAL DATA

\$ in millions, except per share amounts	Year Ended December 31				
	2015	2014	2013	2012	2011
Sales					
U.S. Government <sup>(1)</sup>	\$19,458	\$20,085	\$21,278	\$22,268	\$23,432
International <sup>(2)</sup>	3,339	3,045	2,493	2,085	2,076
Other Customers <sup>(3)</sup>	729	849	890	865	904
Total sales	23,526	23,979	24,661	25,218	26,412
Operating income	3,076	3,196	3,123	3,130	3,276
Earnings from continuing operations	1,990	2,069	1,952	1,978	2,086
Basic earnings per share, from continuing operations	\$10.51	\$9.91	\$8.50	\$7.96	\$7.54
Diluted earnings per share, from continuing operations	10.39	9.75	8.35	7.81	7.41
Cash dividends declared per common share	3.10	2.71	2.38	2.15	1.97
Year-End Financial Position					
Total assets	\$24,454	\$26,572	\$26,381	\$26,543	\$25,411
Notes payable to banks and long-term debt	6,526	5,928	5,930	3,935	3,948
Other long-term obligations <sup>(4)</sup>	7,059	7,520	4,018	7,043	5,005
Financial Metrics					
Net cash provided by continuing operations	\$2,162	\$2,593	\$2,483	\$2,640	\$2,347
Free cash flow from continuing operations <sup>(5)</sup>	1,691	2,032	2,119	2,309	1,855
Other Information					
Company-sponsored research and development expenses	\$712	\$569	\$507	\$520	\$543
Total backlog	35,923	38,199	37,033	40,809	39,515
Square footage at year-end (in thousands)	34,392	34,264	34,500	35,053	37,397
Number of employees at year-end	65,000	64,300	65,300	68,100	72,500

Sales to the U.S. Government include sales from contracts for which Northrop Grumman is the prime contractor, (1) as well as those for which the company is 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 foreign military sales contracted through the U.S. Government, direct commercial sales with governments outside the U.S. and commercial sales outside the U.S.

(3) Sales to Other Customers include sales to U.S. state and local governments and U.S. commercial customers.

(4) Other long-term obligations include pension and other post-retirement benefit plan liabilities, deferred compensation, unrecognized tax benefits, environmental liabilities and other long-term obligations.

Free cash flow from continuing operations is a non-GAAP financial measure and is calculated as cash provided by (5) continuing operations less capital expenditures. See Liquidity and Capital Resources – Free Cash Flow in Part II, Item 7 for more information on this measure.

NORTHROP GRUMMAN CORPORATION

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

OVERVIEW

U.S. Political and Economic Environment

The U.S. Government continues to face substantial fiscal and economic challenges, which affect funding for its discretionary and non-discretionary budgets. Part I of the Budget Control Act of 2011 (Budget Control Act) provided for a reduction in planned defense budgets by at least \$487 billion over a ten year period. Part II mandated substantial additional reductions, through a process known as "sequestration," which took effect in March 2013.

In December 2013, Congress passed the National Defense Authorization Act (NDAA). Congress also passed, and the President signed into law, the Bipartisan Budget Act of 2013, which set discretionary spending levels for fiscal year (FY) 2014 and FY 2015. The legislation provided for additional budget funding of approximately \$63 billion over FY 2014 and FY 2015. The additional funding alleviated some budget cuts that would otherwise have been instituted through sequestration in FY 2014 and FY 2015.

In December 2014, Congress passed and the President signed into law the Consolidated and Further Appropriations Act of 2015, providing for federal spending levels for FY 2015 consistent with the Bipartisan Budget Act of 2013.

On November 2, 2015, the President signed into law the Bipartisan Budget Act of 2015 (the Budget Act). The Budget Act raises the debt ceiling until March 2017 and raises the sequester caps imposed by the Budget Control Act by \$80 billion, split equally between defense and non-defense spending, over the next two years (\$50 billion in FY 2016 and \$30 billion in FY 2017).

On December 18, 2015, Congress passed and the President signed the Consolidated Appropriations Act of 2016, which provides funding for the U.S. Government for FY 2016, providing \$1.1 trillion in discretionary funding for federal agencies through September 2016. The FY 2016 DoD budget approved by Congress is approximately \$581 billion (including \$58 billion for Overseas Contingency Operations (OCO)), which represents an approximately four percent increase relative to the DoD funding for FY 2015.

The federal budget continues to be the subject of considerable debate, which could have a significant impact on defense spending broadly and the company's programs in particular.

For further information on the risks we face from the current political and economic environment, see Risk Factors in Part I, Item 1A.

Operating Performance Assessment and Reporting

We manage and assess our business based on our performance on contracts and programs (typically two or more closely-related contracts). We recognize sales from our portfolio of long-term contracts primarily using the cost-to-cost method of percentage of completion accounting, but in some cases we utilize the units-of-delivery method of percentage of completion accounting. As a result, sales tend to fluctuate in concert with costs incurred across our large portfolio of contracts. Due to Federal Acquisition Regulation (FAR) rules that govern our U.S. Government business and related Cost Accounting Standards (CAS), 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 costs, subcontractor costs, material costs, overhead costs and general and administrative 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 look primarily at changes in sales and operating income, including the effects of meaningful changes in operating income as a result of changes in contract estimates. 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 below of results of operations first focuses on our four segments before distinguishing between products and services. Changes in sales are generally described in terms of volume, deliveries or other indicators of sales activity, and contract mix. For purposes of this discussion, volume generally refers to increases or decreases in sales or cost from production/service activity levels or delivery rates. Performance generally refers to

changes in estimates-at-completion (EACs) for contract operating margin rates during the period (net EAC adjustments), as well as the continuing effect of prior net EAC adjustments.

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## NORTHROP GRUMMAN CORPORATION

## CONSOLIDATED OPERATING RESULTS

Selected financial highlights are presented in the table below:

\$ in millions, except per share amounts	Year Ended December 31			% Change in	
	2015	2014	2013	2015	2014
Sales	\$23,526	\$23,979	\$24,661	(2 )%	(3 )%
Operating costs and expenses	20,450	20,783	21,538	(2 )%	(4 )%
Operating income	3,076	3,196	3,123	(4 )%	2 %
Operating margin rate	13.1	% 13.3	% 12.7	%	
Federal and foreign income tax expense	800	868	911	(8 )%	(5 )%
Effective income tax rate	28.7	% 29.6	% 31.8	%	
Net earnings	1,990	2,069	1,952	(4 )%	6 %
Diluted earnings per share	10.39	9.75	8.35	7 %	17 %
Net cash provided by operating activities	\$2,162	\$2,593	\$2,483	(17 )%	4 %

## Sales

2015 – Sales decreased \$453 million, or 2 percent, as compared with 2014, primarily due to lower sales on U.S.

Government contracts at Aerospace Systems and Information Systems, partially offset by an increase in international sales at Aerospace Systems.

2014 – Sales decreased \$682 million, or 3 percent, as compared with 2013, primarily due to lower sales on U.S.

Government contracts, partially offset by an increase in international sales across the company.

See “Revenue Recognition” in Note 1 to the consolidated financial statements in Part II, Item 8 for further information on sales by customer category.

See Segment Operating Results below for further information by segment and the Product and Service Analysis section that follows Segment Operating Results for product and service detail.

## Operating Costs and Expenses

Operating costs and expenses primarily comprise labor, material, subcontractor and overhead costs, and are generally allocated to contracts as incurred. In accordance with industry practice and the regulations that govern cost accounting requirements for government contracts, most general management and corporate expenses incurred at the segment and corporate locations are considered allowable and allocable costs. Allowable and allocable general and administrative costs, including independent research and development (IR&D) and certain bid and proposal costs, are allocated on a systematic basis to contracts in progress.

Operating costs and expenses comprise the following:

\$ in millions	Year Ended December 31			% Change in	
	2015	2014	2013	2015	2014
Product costs	\$10,333	\$10,431	\$10,623	(1 )%	(2 )%
Service costs	7,551	7,947	8,659	(5 )%	(8 )%
General and administrative expenses	2,566	2,405	2,256	7 %	7 %
Operating costs and expenses	\$20,450	\$20,783	\$21,538	(2 )%	(4 )%
Operating costs and expenses as a % of sales	86.9	% 86.7	% 87.3	%	

2015 – Operating costs and expenses as a percentage of sales increased in 2015 as compared with 2014, which reduced our operating margin rate to 13.1 percent from 13.3 percent in the prior year period. The increase in operating costs and expenses as a percentage of sales was driven by \$179 million of lower segment operating income, as described in the Segment Operating Results section below, and \$21 million in higher unallocated corporate expenses, partially offset by a \$79 million increase in our net FAS (GAAP Financial Accounting Standards)/CAS pension adjustment. For further information regarding net FAS/CAS pension adjustment and unallocated corporate expenses, see Note 3 to the consolidated financial statements in Part II, Item 8.

2014 – Operating costs and expenses as a percentage of sales declined in 2014 as compared with 2013, which increased our operating margin rate to 13.3 percent from 12.7 percent in the prior year period. The reduction in

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## NORTHROP GRUMMAN CORPORATION

operating costs and expenses as a percentage of sales was driven by a \$101 million increase in our net FAS/CAS pension adjustment and \$19 million of higher segment operating income, partially offset by \$50 million in higher unallocated corporate expenses.

2015 – General and administrative expenses as a percentage of sales increased to 10.9 percent in 2015 from 10.0 percent in 2014, principally due to an increase in IR&D as we continue to invest in future business opportunities.

2014 – General and administrative expenses as a percentage of sales increased to 10.0 percent in 2014 from 9.1 percent in 2013, principally due to an increase in IR&D as we continue to invest in future business opportunities.

For further information regarding product and service sales and costs, see the Product and Service Analysis section that follows Segment Operating Results.

### Operating Income and Margin Rate

We define operating income as sales less operating costs and expenses, which includes general and administrative expenses. Operating margin rate is defined as operating income as a percentage of sales.

2015 – Operating income decreased \$120 million, or 4 percent, as compared with 2014, and operating margin rate decreased to 13.1 percent from 13.3 percent in 2014, primarily due to the lower sales volume described above and the absence in 2015 of a \$75 million benefit realized in 2014 in connection with agreements reached with the U.S.

Government to settle certain claims relating to use of the company's intellectual property and a terminated program.

2014 – Operating income increased \$73 million, or 2 percent, as compared with 2013, and operating margin rate increased to 13.3 percent from 12.7 percent in 2013, primarily due to a \$101 million increase in our net FAS/CAS pension adjustment and higher operating income at Aerospace Systems due to the settlements described above, partially offset by higher unallocated corporate expenses and lower operating margin rates at Electronic Systems.

### Federal and Foreign Income Taxes

2015 – Our effective tax rate for 2015 was 28.7 percent, as compared with 29.6 percent in 2014. This reduction was driven by a \$76 million increase in research credits primarily resulting from additional credits claimed on our prior year tax returns, partially offset by a \$51 million benefit recorded in 2014 for the partial resolution of the Internal Revenue Service (IRS) examination of our 2007-2009 tax returns.

2014 – Our effective tax rate for 2014 was 29.6 percent, as compared with 31.8 percent in 2013. The decline in the company's lower effective tax rate for 2014 reflects a \$51 million benefit for the partial resolution of our 2007-2009 IRS examination.

### Net Earnings

2015 – Net earnings for 2015 decreased \$79 million, or 4 percent, as compared with 2014, primarily due to lower operating income and higher interest expense, partially offset by the lower effective tax rate described above.

2014 – Net earnings for 2014 increased \$117 million, or 6 percent, as compared with 2013, primarily due to higher operating income and a lower effective tax rate, partially offset by higher interest expense.

### Diluted Earnings Per Share

2015 – Diluted earnings per share for 2015 increased \$0.64, or 7 percent, as compared with 2014. The increase is primarily due to a 10 percent reduction in weighted-average diluted shares outstanding resulting from shares repurchased in 2014 and 2015, partially offset by the 4 percent decline in net earnings discussed above.

2014 – Diluted earnings per share for 2014 increased \$1.40, or 17 percent, as compared with 2013. The increase is primarily due to a 9 percent reduction in weighted-average diluted shares outstanding resulting from shares repurchased in 2013 and 2014 and the 6 percent increase in net earnings discussed above.

### Net Cash Provided by Operating Activities

See “Operating Cash Flow” in the Liquidity and Capital Resources section below for further information on net cash provided by operating activities.

## SEGMENT OPERATING RESULTS

### Basis of Presentation



At December 31, 2015, the company was aligned in four segments: Aerospace Systems, Electronic Systems, Information Systems and Technical Services. For a more complete description of each segment's products and services and for further information, see Business in Part I, Item 1.

This section discusses segment sales, operating income and operating margin rates. A reconciliation of segment sales to total sales is provided in Note 3 to the consolidated financial statements in Part II, Item 8. A reconciliation of

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## NORTHROP GRUMMAN CORPORATION

segment operating income to total operating income, as well as a discussion of the reconciling items, is provided in Note 3 to the consolidated financial statements in Part II, Item 8. For purposes of the discussion in this Segment Operating Results section, references to operating income and operating margin rate reflect segment operating income and segment operating margin rate.

## Segment Operating Income and Margin Rate

Segment operating income, as reconciled in the Reconciliation of Segment Operating Income to Total Operating Income table below, is a non-GAAP measure and is used by management as an internal measure for financial performance of our operating segments. Segment operating income reflects total earnings from our four segments, including allocated pension expense recognized under CAS, and excludes unallocated corporate items, including FAS pension expense.

\$ in millions	Year Ended December 31			% Change in	
	2015	2014	2013	2015	2014
Segment operating income	\$2,920	\$3,099	\$3,080	(6 )%	1 %
Segment operating margin rate	12.4	% 12.9	% 12.5	%	

2015 - Segment operating income for 2015 decreased \$179 million, or 6 percent, as compared with 2014 and segment operating margin rate decreased to 12.4 percent from 12.9 percent in 2014. The decrease in segment operating income was principally due to lower sales volume and the absence in 2015 of the \$75 million in settlements described above and a benefit of approximately \$45 million from lower 2014 CAS costs due to passage of the Highway and Transportation Funding Act of 2014 (HATFA). The absence in 2015 of the noted settlements and HATFA benefits was the primary driver of the lower 2015 operating margin rate.

2014 - Segment operating income for 2014 increased \$19 million, or 1 percent, as compared with 2013 and segment operating margin rate increased to 12.9 percent from 12.5 percent in 2013. The increase in segment operating income and margin rate was principally due to the benefits recognized as a result of the settlements and the HATFA legislation described above. These increases more than offset the impact of lower sales volume.

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

\$ in millions	Year Ended December 31		
	2015	2014	2013
Favorable EAC adjustments	\$924	\$922	\$1,044
Unfavorable EAC adjustments	(344 )	(258 )	(291 )
Net EAC adjustments	\$580	\$664	\$753

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

\$ in millions	Year Ended December 31		
	2015	2014	2013
Aerospace Systems	\$358	\$372	\$394
Electronic Systems	140	207	312
Information Systems	57	73	49
Technical Services	39	44	43
Eliminations	(14 )	(32 )	(45 )
Net EAC adjustments	\$580	\$664	\$753

## NORTHROP GRUMMAN CORPORATION

Reconciliation of Segment Operating Income to Total Operating Income - The table below reconciles segment operating income to total operating income by including the impact of net FAS/CAS pension adjustments, as well as certain corporate-level expenses, which are not considered allowable or allocable under applicable CAS or FAR (unallocated corporate expenses). See Note 3 to the consolidated financial statements in Part II, Item 8 for further information on the net FAS/CAS pension adjustment and unallocated corporate expenses.

\$ in millions	Year Ended December 31			% Change in			
	2015	2014	2013	2015	2014		
Segment operating income	\$2,920	\$3,099	\$3,080	(6	)%	1	%
CAS pension expense	703	384	542	83	%	(29	)%
Less: FAS pension expense	(355	) (115	) (374	) 209	%	(69	)%
Net FAS/CAS pension adjustment	348	269	168	29	%	60	%
Unallocated corporate expenses	(190	) (169	) (119	) 12	%	42	%
Other	(2	) (3	) (6	) (33	)%	(50	)%
Total operating income	\$3,076	\$3,196	\$3,123	(4	)%	2	%
Aerospace Systems							

\$ in millions	Year Ended December 31			% Change in			
	2015	2014	2013	2015	2014		
Sales	\$10,004	\$9,997	\$10,014	—	%	—	%
Operating income	1,220	1,315	1,215	(7	)%	8	%
Operating margin rate	12.2	% 13.2	% 12.1	%			

2015 - Aerospace Systems sales for 2015 were comparable to the prior year. Sales in 2014 included the \$75 million in settlements described above. Excluding the settlements, sales for 2015 increased \$82 million, or 1 percent, as compared to 2014. The increase in unmanned systems (UMS) sales reflects higher volume on a number of programs, including Global Hawk. These increases were partially offset by lower volume on the Fire Scout and NATO Alliance Ground Surveillance (AGS) programs. Military aircraft systems (MAS) sales increased principally due to the transition to full rate production on the E-2D Advanced Hawkeye program, increased deliveries on the F-35 program and higher volume on the Joint Surveillance Target Attack Radar System (JSTARS) program. These increases were partially offset by lower volume on the F/A-18 program due to fewer deliveries as the program ramps down. Space sales include higher volume on restricted programs, partially offset by lower volume on the Advanced Extremely High Frequency (AEHF) program.

Operating income for 2015 decreased \$95 million, or 7 percent, and operating margin rate decreased to 12.2 percent from 13.2 percent. Lower operating income and margin rate in 2015 were primarily due to the benefits recognized in 2014 associated with the settlements described above.

2014 - Aerospace Systems sales for 2014 were comparable to 2013, and include the impact of the settlements described in the Segment Operating Income and Margin Rate section above. Excluding the settlements, Aerospace Systems had lower sales on UMS, space and MAS programs. The decrease in UMS programs reflects declines of \$136 million on Global Hawk due to lower production activity and \$111 million on Fire Scout as a result of lower development activity. These declines were partially offset by \$135 million of higher volume on the NATO AGS program. The decrease in space programs was mainly due to lower volume on the James Webb Space Telescope and AEHF programs. The decrease in MAS programs was primarily the result of lower volume on the JSTARS, F-35 and B-2 programs, partially offset by higher volume of \$87 million on the E-2D Advanced Hawkeye program.

Operating income for 2014 increased \$100 million, or 8 percent, and operating margin rate increased to 13.2 percent, from 12.1 percent. Higher operating income and margin rate in 2014 were primarily due to the settlements described above and improved performance.



## NORTHROP GRUMMAN CORPORATION

## Electronic Systems

\$ in millions	Year Ended December 31			% Change in	
	2015	2014	2013	2015	2014
Sales	\$6,842	\$6,951	\$7,149	(2 )%	(3 )%
Operating income	1,068	1,148	1,226	(7 )%	(6 )%
Operating margin rate	15.6	% 16.5	% 17.1	%	

2015 - Electronic Systems sales for 2015 decreased \$109 million, or 2 percent, as compared with 2014. The decrease was primarily due to lower volume on Airborne Intelligence, Surveillance, and Reconnaissance & Targeting (AISR&T) Systems and Land & Self Protection Systems (L&SPS), partially offset by higher volume on Navigation & Maritime Systems (N&MS) programs. AISR&T sales decreased primarily due to lower volume on the LITENING program. The decline in L&SPS is due to in-theater force reductions and ramp-down on an international program, partially offset by increased deliveries on infrared countermeasures (IRCM) programs and ramp-up on the G/ATOR program. The increase in N&MS sales reflects higher volume from ramp-up activities on a number of marine and undersea systems programs.

Operating income for 2015 decreased \$80 million, or 7 percent, and operating margin rate decreased to 15.6 percent from 16.5 percent. Operating income and margin rate for 2015 decreased primarily due to business mix changes, which resulted in lower volume for mature fixed price production programs and higher volume for cost-type development programs, and less favorable performance on AISR&T and L&SPS programs.

2014 - Electronic Systems sales for 2014 decreased \$198 million, or 3 percent, as compared with 2013. Lower sales are principally due to lower volume for L&SPS programs, including lower deliveries of \$174 million on IRCM and laser systems; lower volume for U.S. intelligence, surveillance, reconnaissance and targeting programs, including \$93 million of lower deliveries on combat avionics; and \$109 million of lower volume for N&MS programs. The declines were partially offset by higher sales of \$178 million on international programs.

Operating income for 2014 decreased \$78 million, or 6 percent, and operating margin rate decreased to 16.5 percent from 17.1 percent. Operating income and margin rate for 2014 declined primarily due to a reduction in net EAC adjustments, lower volume and the absence in 2014 of the benefit from the reversal of a \$26 million non-programmatic risk reserve in 2013.

## Information Systems

\$ in millions	Year Ended December 31			% Change in	
	2015	2014	2013	2015	2014
Sales	\$5,894	\$6,222	\$6,596	(5 )%	(6 )%
Operating income	616	611	633	1 %	(3 )%
Operating margin rate	10.5	% 9.8	% 9.6	%	

2015 - Information Systems sales for 2015 decreased \$328 million, or 5 percent, as compared with 2014. The decrease is primarily driven by lower volume on Command and Control (C2) and civil programs. The decrease in C2 is mainly driven by lower volume on the Consolidated Afloat Network and Enterprise Services program, the impact of in-theater force reductions, and completion of the Ground Combat Vehicle contract. The decrease in civil is primarily due to the restructuring of the Emergency Communications Transformation Program Stage II contract.

Operating income for 2015 increased \$5 million, or 1 percent, and operating margin rate increased to 10.5 percent from 9.8 percent. The increase in operating income and margin rate reflects improved performance, partially offset by the decline in sales volume described above.

2014 - Information Systems sales for 2014 decreased \$374 million, or 6 percent, as compared with 2013. Sales principally declined as a result of lower volume of \$294 million on C2 programs and \$62 million on communications programs due to in-theater force reductions, reduced funding levels and the wind-down of various programs.

Operating income for 2014 decreased \$22 million, or 3 percent, and operating margin rate increased to 9.8 percent from 9.6 percent. The lower operating income is primarily a result of the lower sales described above. The higher operating margin rate reflects additional operating income resulting from improved performance.

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## NORTHROP GRUMMAN CORPORATION

## Technical Services

\$ in millions	Year Ended December 31			% Change in	
	2015	2014	2013	2015	2014
Sales	\$2,838	\$2,799	\$2,843	1	(2)
Operating income	254	261	262	(3)	—
Operating margin rate	8.9	% 9.3	% 9.2	%	%

2015 - Technical Services sales for 2015 increased \$39 million, or 1 percent, as compared with 2014. The increase was principally due to higher volume on mission solutions and readiness (MS&R) programs, partially offset by lower volume on integrated logistics and modernization (IL&M) programs. The increase in MS&R was primarily due to higher volume on the Saudi Arabian Ministry of National Guard Training Support program (through our interest in a joint venture for which we consolidate the financial results). The decrease in IL&M was mainly due to ramp-down activities on the InterContinental Ballistic Missile (ICBM) program, partially offset by increased volume on the JSTARS and Hunter programs.

Operating income for 2015 decreased \$7 million, or 3 percent, and operating margin rate decreased to 8.9 percent from 9.3 percent. The declines in both operating income and operating margin rate were principally due to lower income from an unconsolidated joint venture than in the prior year period.

2014 - Technical Services sales for 2014 decreased \$44 million, or 2 percent, as compared with 2013. The decrease was primarily due to lower volume on the ICBM, Hunter and Combined Tactical Training Range programs, which were partially offset by growth in international sales, principally as a result of the acquisition of Qantas Defence Services Pty Limited (QDS) in the first quarter of 2014.

Operating income and margin rate for 2014 were comparable to 2013.

## PRODUCT AND SERVICE ANALYSIS

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

\$ in millions	Year Ended December 31					
	2015		2014		2013	
Segment Information:	Sales	Operating Costs and Expenses	Sales	Operating Costs and Expenses	Sales	Operating Costs and Expenses
Aerospace Systems						
Product	\$8,001	\$ 7,037	\$7,986	\$6,897	\$8,210	\$7,197
Service	2,003	1,747	2,011	1,785	1,804	1,602
Electronic Systems						
Product	5,530	4,706	5,532	4,622	5,574	4,612
Service	1,312	1,068	1,419	1,181	1,575	1,311
Information Systems						
Product	1,282	1,157	1,335	1,244	990	895
Service	4,612	4,121	4,887	4,367	5,606	5,068
Technical Services						
Product	222	210	184	173	210	191
Service	2,616	2,374	2,615	2,365	2,633	2,390
Segment Totals						
Total Product	\$15,035	\$13,110	\$15,037	\$12,936	\$14,984	\$12,895
Total Service	10,543	9,310	10,932	9,698	11,618	10,371
Intersegment eliminations	(2,052)	(1,814)	(1,990)	(1,754)	(1,941)	(1,685)
Total Segment <sup>(1)</sup>	\$23,526	\$ 20,606	\$23,979	\$20,880	\$24,661	\$21,581

- (1) The reconciliation of segment operating income to total operating income, as well as a discussion of the reconciling items, is included in the Segment Operating Results section above.

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## NORTHROP GRUMMAN CORPORATION

## Product Sales and Product Costs

2015 - Product sales for 2015 were comparable with 2014. Sales in 2014 included the \$75 million in settlements at Aerospace Systems as described above and sales in 2015 reflect lower product sales at Information Systems and higher product sales at Technical Services. The decrease at Information Systems was primarily due to lower product sales on certain cyber programs, partially offset by higher F-35 volume. The increase at Technical Services was primarily due to higher volume on intercompany restricted work.

Product costs for 2015 increased \$174 million, or 1 percent, as compared to 2014. The increase was primarily due to higher product costs at Aerospace Systems and Electronic Systems due to lower performance and changes in business mix. These increases were partially offset by a reduction in product costs at Information Systems due to lower sales and improved performance.

2014 - Product sales for 2014 were slightly higher than 2013, primarily due to higher product sales at Information Systems, offset by lower product sales at Aerospace Systems. The increase at Information Systems was primarily due to higher product sales on certain restricted and C2 programs. The decrease at Aerospace Systems was primarily driven by lower product volume in unmanned and space programs, partially offset by the settlements described in the Segment Operating Results section above.

Product costs for 2014 were slightly higher than 2013, primarily due to higher product costs at Information Systems, offset by lower product costs at Aerospace Systems, consistent with the changes in product sales described above.

## Service Sales and Service Costs

2015 - Service sales for 2015 decreased \$389 million, or 4 percent, as compared with 2014. The decrease was primarily due to lower service sales at Information Systems and Electronic Systems. The decrease at Information Systems was primarily due to lower volume on C2 and civil programs, including the impact of in-theater force reductions. The decrease at Electronic Systems was primarily due to lower service sales on certain tactical sensor and other programs.

Service costs for 2015 decreased \$388 million, or 4 percent, as compared with 2014, consistent with the change in service sales described above.

2014 - Service sales for 2014 decreased \$686 million, or 6 percent, as compared with 2013. The decrease was primarily driven by lower service sales at Information Systems, principally from reduced volume on restricted work and the impacts of in-theater force reductions as described in the Segment Operating Results section above.

Service costs for 2014 decreased \$673 million, or 6 percent, as compared with 2013, consistent with the change in service sales described above.

## BACKLOG

Total backlog includes 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. For multi-year service contracts with non-U.S. Government customers having no stated contract values, backlog includes only the amounts committed by the customer. Backlog is converted into sales as costs are incurred or deliveries are made.

Backlog consisted of the following at December 31, 2015 and 2014:

\$ in millions	2015		Total Backlog	2014		% Change in 2015
	Funded	Unfunded		Total Backlog		
Aerospace Systems	\$8,218	\$9,381	\$17,599	\$20,063	(12	)%
Electronic Systems	7,323	2,342	9,665	9,715	(1	)%
Information Systems	2,857	3,115	5,972	6,115	(2	)%
Technical Services	2,355	332	2,687	2,306	17	%
Total backlog	\$20,753	\$15,170	\$35,923	\$38,199	(6	)%

The percentage of total backlog from the U.S. Government, International, and Other Customers at December 31, 2015 totaled 81 percent, 16 percent, and 3 percent, respectively.

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## NORTHROP GRUMMAN CORPORATION

## New Awards

2015 - The estimated value of contract awards recorded during 2015 was \$21.3 billion. Significant new awards during 2015 include \$1.8 billion for the F-35 program, \$1.1 billion for the E-2D Advanced Hawkeye program, \$947 million for the Saudi Arabian Ministry of National Guard Training Support program (through our interest in a joint venture for which we consolidate the financial results), \$597 million for the B-2 program and \$504 million for the F/A-18 program.

On October 27, 2015, the U.S. Air Force announced it was awarding us a contract for Engineering and Manufacturing Development and early production for the Long Range Strike Bomber (LRS-B). In November 2015, the unsuccessful offeror filed a protest asking the U.S. Government Accountability Office (GAO) to review the decision to award the company the LRS-B contract, triggering an automatic stay of performance of the contract. As a result, the LRS-B award is not included in 2015 new awards or backlog.

2014 - The estimated value of contract awards recorded during 2014 was \$25.0 billion. Significant new awards during 2014 include \$4.1 billion for the E-2D Advanced Hawkeye program, \$1.4 billion for the Global Hawk program, \$1.3 billion for the F-35 program, \$727 million for the B-2 program, and \$560 million for the Virginia Class Submarine program.

## LIQUIDITY AND CAPITAL RESOURCES

We endeavor to ensure the most efficient conversion of operating income into cash for deployment in our business and to maximize shareholder value. In addition to our cash position, we use various financial measures to assist in capital deployment decision-making, including cash provided by operating activities, free cash flow, and net debt-to-equity and net debt-to-capital ratios. We believe these measures are useful to investors in assessing our financial performance and condition.

Cash balances and cash generated from operating activities, supplemented by borrowings under credit facilities and/or in the capital markets, if needed, are expected to be sufficient to fund our operations for at least the next 12 months.

## Operating Cash Flow

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

\$ in millions	Year Ended December 31		
	2015	2014	2013
Net earnings	\$1,990	\$2,069	\$1,952
Non-cash items <sup>(1)</sup>	1,035	731	724
Changes in assets and liabilities:			
Trade working capital	(564)	(121)	54
Retiree benefits	(263)	(17)	(281)
Other, net	(36)	(69)	34
Net cash provided by operating activities	\$2,162	\$2,593	\$2,483

<sup>(1)</sup> Includes depreciation and amortization, stock based compensation expense (including related excess tax benefits) and deferred income taxes

2015 – Net cash provided by operating activities for 2015 decreased by \$431 million, or 17 percent, as compared with 2014, principally due to changes in trade working capital and a \$500 million voluntary pre-tax pension contribution made in March 2015, partially offset by lower net tax payments.

2014 – Net cash provided by operating activities for 2014 increased by \$110 million, or 4 percent, as compared with 2013, principally due to a \$500 million voluntary pre-tax pension contribution made in April 2013, partially offset by changes in trade working capital during 2014.

As of December 31, 2015, the amount of cash, cash equivalents and marketable securities held outside of the U.S. by foreign subsidiaries was \$551 million. We intend to permanently reinvest these balances and expect future U.S. cash generation will be sufficient to meet future U.S. cash needs. Capital expenditure commitments were \$393 million at

December 31, 2015, and are expected to be paid with cash on hand.

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## NORTHROP GRUMMAN CORPORATION

## Free Cash Flow

We define free cash flow as cash provided by operating activities less capital expenditures. We believe free cash flow is a useful measure for investors to consider as it represents cash flow the company has available after capital spending to invest for future growth, strengthen the balance sheet and/or return to shareholders through dividends and share repurchases. Free cash flow is a key factor in our planning for and consideration of strategic acquisitions, payment of dividends and stock repurchases.

Free cash flow is not a measure of financial performance under GAAP, and may not be defined and calculated by other companies in the same manner. This measure should not be considered in isolation, as a measure of residual cash flow available for discretionary purposes, or as an alternative to operating results presented in accordance with GAAP as indicators of performance.

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

\$ in millions	Year Ended December 31			% Change in		
	2015	2014	2013	2015	2014	
Net cash provided by operating activities	\$2,162	\$2,593	\$2,483	(17 )%	4	%
Less: Capital expenditures	(471 )	(561 )	(364 )	(16 )%	54	%
Free cash flow	\$1,691	\$2,032	\$2,119	(17 )%	(4 )%	

2015 – Free cash flow for 2015 decreased \$341 million, or 17 percent, as compared with 2014. The decrease was principally driven by the lower net cash provided by operating activities described above, partially offset by a reduction in capital expenditures.

2014 – Free cash flow for 2014 decreased \$87 million, or 4 percent, as compared with 2013. The decrease was principally driven by higher capital expenditures associated with our Aerospace Systems' Centers of Excellence, partially offset by an increase in net cash provided by operating activities, as described above.

## Investing Cash Flow

2015 - Cash used in investing activities for 2015 decreased \$214 million, or 33 percent, as compared with 2014. The decrease was principally due to lower capital expenditures and the 2014 acquisition of QDS.

2014 - Cash used in investing activities for 2014 increased \$299 million, or 86 percent, as compared with 2013. The increase was principally due to higher capital expenditures associated with our Aerospace Systems' Centers of Excellence, as well as the acquisition of QDS.

## Financing Cash Flow

2015 - Net cash used in financing activities during 2015 was comparable with the prior year period and reflects an increase in share repurchases and dividends offset by \$600 million of net proceeds from our issuance of unsecured senior notes in 2015.

2014 - Cash used in financing activities for 2014 increased \$2.4 billion, or 281 percent, as compared with 2013. The increase was primarily due to the absence in 2014 of \$2.8 billion of net proceeds from our issuance of unsecured senior notes, of which \$850 million was used for the redemption of existing debt in 2013, as well as increased share repurchases in 2014.

Credit Facility and Unsecured Senior Notes - See Note 9 to the consolidated financial statements in Part II, Item 8 for further information on our credit facility and unsecured senior notes.

Financial Arrangements - See Note 11 to the consolidated financial statements in Part II, Item 8 for further information on our use of standby letters of credit and guarantees.

## NORTHROP GRUMMAN CORPORATION

**Other Sources of Capital** - We believe we can obtain additional capital, if necessary for long-term liquidity, from such sources as the public or private capital markets, the sale of assets, sale and leaseback of operating assets, and leasing rather than purchasing new assets. We have an effective shelf registration statement on file with the SEC, which allows us to access capital in a timely manner.

**Share Repurchases** - In October 2015, the company completed its previously announced goal of repurchasing 60 million shares of common stock by the end of 2015. See Note 2 of the consolidated financial statements in Part II, Item 8 for further information on our share repurchase programs.

#### Contractual Obligations

The following table presents our contractual obligations as of December 31, 2015, and the estimated timing of future cash payments:

\$ in millions	Total	2016	2017- 2018	2019- 2020	2021 and beyond
Long-term debt	\$6,523	\$110	\$1,056	\$535	\$4,822
Interest payments on long-term debt	4,114	298	573	503	2,740
Operating leases	839	251	336	160	92
Purchase obligations <sup>(1)</sup>	8,318	4,495	2,231	1,507	85
Other long-term liabilities <sup>(2)</sup>	1,044	269	327	143	305
Total contractual obligations	\$20,838	\$5,423	\$4,523	\$2,848	\$8,044

A “purchase obligation” is defined as an agreement to purchase goods or services that is enforceable and legally binding on us and that specifies all significant terms, including: fixed or minimum quantities to be purchased;

<sup>(1)</sup> fixed, minimum, or variable price provisions; and the approximate timing of the transaction. These amounts are primarily comprised of open purchase order commitments to suppliers and subcontractors pertaining to funded contracts.

<sup>(2)</sup> Other long-term liabilities, including their current portions, primarily consist of total accrued environmental reserves, deferred compensation and other miscellaneous liabilities, of which \$113 million is related to environmental reserves recorded in other current liabilities. It excludes obligations for uncertain tax positions of \$246 million, as the timing of such payments, if any, cannot be reasonably estimated.

The table above excludes estimated minimum funding requirements for retirement and other post-retirement benefit plans, as set forth by the Employee Retirement Income Security Act, as amended (ERISA). For further information about future minimum contributions for these plans, see Note 12 to the consolidated financial statements in Part II, Item 8. Further details regarding long-term debt and operating leases can be found in Notes 9 and 11, respectively, to the consolidated financial statements in Part II, Item 8.

#### CRITICAL ACCOUNTING POLICIES, ESTIMATES, AND JUDGMENTS

Our consolidated financial statements are based on the application of U.S. GAAP, which require us to make estimates and assumptions about future events that affect the amounts reported in our consolidated financial statements and the accompanying notes. 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 in Part II, Item 8.

#### Revenue Recognition

Due to the long-term nature of our contracts, we generally recognize revenue using the percentage-of-completion method of accounting as work on our contracts progresses, which requires us to make reasonably dependable estimates for the design, manufacture and delivery of our products and services. In accounting for these contracts, we utilize either the cost-to-cost or the units-of-delivery method of percentage-of-completion accounting, with cost-to-cost being the predominant method.

Sales may include estimated amounts not contractually agreed to by the customer, including cost or performance incentives (such as award and incentive fees), un-priced change orders, claims and requests for equitable adjustment. Amounts pertaining to cost and/or performance incentives are included in estimated contract sales when they are reasonably estimable.

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## NORTHROP GRUMMAN CORPORATION

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 operating margin based on estimated contract sales and cost. Since contract costs are typically incurred over a period of several years, estimation of these costs requires the use of judgment. Factors considered in estimating the cost of the work to be completed include 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 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. Changes in estimates of contract sales and cost are frequent. 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. 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 risks affecting contract costs, performance issues with our subcontractors or suppliers, changes in indirect cost allocations, such as overhead and general and administrative expenses, and changes in estimated award and incentive fees. EACs are also adjusted to reflect estimated risks related to contract performance. These risks typically include technical, schedule and performance risk based on our evaluation of the contract effort. Similarly, the changes in estimates may include identified opportunities for operating margin improvement.

For the impacts of changes in estimates on our consolidated statement of earnings and comprehensive income (loss), see the Consolidating Operating Results section above and Note 1 to the consolidated financial statements in Part II, Item 8.

#### Retirement Benefits

**Overview** – The determination of projected benefit obligations and the fair value of plan assets for our pension and other post-retirement plans requires the use of several actuarial assumptions. We perform an annual review of these assumptions in consultation with our outside actuaries. As we determine changes in the assumptions are warranted, or as a result of plan amendments, future pension and other post-retirement benefit expense and our projected benefit obligation could increase or decrease. The principal 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 mortality rate of those covered by our pension and other post-retirement benefit plans.

**Discount Rate** – The discount rate represents the interest rate that is used to determine the present value of future cash flows currently expected to be required to settle our pension and other post-retirement benefit 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 portfolio of bonds matching the notional cash outflows related to projected benefit payments for each significant benefit plan. Taking into consideration the factors noted above, our weighted-average composite pension discount rate was 4.53 percent at December 31, 2015, and 4.12 percent at December 31, 2014.

The effects of a hypothetical change in the discount rate may be nonlinear and asymmetrical for future years as the discount rate changes and the accounting corridor is applied. The accounting corridor is a defined range within which amortization of net gains and losses is not required and is equal to 10 percent of the greater of plan assets or benefit obligations. Holding all other assumptions constant, an increase or decrease of 25 basis points in the December 31, 2015 discount rate assumption would have the following estimated effects on 2015 pension and other post-retirement benefit obligations and 2016 expected pension and other post-retirement expense:

\$ increase/(decrease) in millions



	25 Basis Point Decrease in Rate	25 Basis Point Increase in Rate
Pension expense	\$97	\$(93 )
Other post-retirement benefit expense	1	(1 )
Pension obligation	982	(931 )
Other post-retirement benefit obligation	58	(56 )

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## NORTHROP GRUMMAN CORPORATION

**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 30-Year Treasury bond rate. The interest crediting rate is part of the cash balance formula and independent of actual pension investment earnings. The cash balance crediting rate tends to move in concert with the discount rate but has an offsetting effect on pension benefit obligations and pension expense in comparison to the discount rate. Although current 30-Year Treasury bond rates are near historically low levels, we expect such bond rates to rise in the future. The cash balance crediting rate assumption has been set to its current level of 3.0 percent as of December 31, 2015, growing to 3.75 percent by 2021. Holding all other assumptions constant, an increase or decrease of 25 basis points in the December 31, 2015 cash balance crediting rate assumption would have the following estimated effects on 2015 pension benefit obligations and 2016 expected pension expense:

\$ increase/(decrease) in millions	25 Basis Point	
	Decrease in Rate	Increase in Rate
Pension expense	\$(25 )	\$27
Pension obligation	(122 )	128

**Expected Long-Term Rate of Return on Plan Assets** – The expected long-term rate of return on plan assets represents the average rate of earnings expected on funds invested. Through consultation with our investment management team and outside investment advisers, management develops expected long-term returns for each of the plans' strategic asset classes. In addition to our historical investment performance, we consider several factors, including current market data such as yields/price-earnings ratios, historical market returns over long periods and periodic surveys of investment managers' expectations. Using policy target allocation percentages and the asset class expected returns, we calculate a weighted-average expected return.

The assumptions used for pension benefits are consistent with those used for other post-retirement benefits. The long-term rate of return on plan assets used for medical and life benefits is reduced to allow for the impact of tax on expected returns as the earnings of certain Voluntary Employee Beneficiary Association (VEBA) trusts are taxable, unlike the pension trust.

For 2015 and 2014, we assumed an expected long-term rate of return on pension plan assets of 8.0 percent and assumed an expected long-term rate of return on other post-retirement benefit plan assets of 7.58 percent and 7.45 percent, respectively. For 2016, we have assumed an expected long-term rate of return on plan assets of 8.0 percent on pension plans and 7.70 percent on other post-retirement benefit plans. Holding all other assumptions constant, an increase or decrease of 25 basis points in the December 31, 2015 expected long-term rate of return on plan asset assumption would have the following estimated effects on 2016 pension and other post-retirement benefit expense:

\$ increase/(decrease) in millions	25 Basis Point	
	Decrease	Increase
Pension expense	\$58	\$(58 )
Other post-retirement benefit expense	3	(3 )

**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 and hedge funds, estimates of fair value are determined using the best information available. Estimated fair values on these plan assets are based on redemption values and net asset values, 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 issued updated mortality tables and a mortality improvement scale, which reflect longer life expectancies than previously projected. In October 2015, the SOA issued an updated mortality improvement scale

which further refined the previous scale based on additional data and which generally contained lower mortality improvement projections. In consideration of this information, we studied our historical mortality experience and developed an expectation for continued future mortality improvements. Based on this data, we updated the mortality assumptions used in calculating our pension and post-retirement benefit obligations recognized at December 31, 2015, and the amounts estimated for our 2016 pension and post-retirement benefit expense.

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## NORTHROP GRUMMAN CORPORATION

For further information regarding our pension and post-retirement benefits, see Risk Factors in Part I, Item 1A and Note 12 to the consolidated financial statements in Part II, Item 8.

### Litigation, Commitments and Contingencies

We are subject to a range of claims, 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 and counsel. 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 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 of contamination, results of efforts to involve other responsible parties, financial capabilities of other responsible parties, changes in laws and regulations or contractual obligations affecting remediation requirements or other obligations, and improvements in remediation technology.

For further information on litigation, commitments and contingencies, see Risk Factors in Part I, Item 1A, and Note 1, Note 10 and Note 11 to the consolidated financial statements in Part II, Item 8.

### Goodwill

**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.

**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, 2015 and 2014, respectively, indicated that the estimated fair value of each reporting unit substantially exceeded its respective carrying value. There were no impairment charges recorded in the years ended December 31, 2015, 2014 and 2013. 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 during an interim period. 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.

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 that the reporting unit expects 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.

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 the estimation of a business' fair value and the relative size of our recorded goodwill, differences in assumptions may have a material effect on the results of our impairment analysis.

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NORTHROP GRUMMAN CORPORATION

OTHER MATTERS

Off-Balance Sheet Arrangements

As of December 31, 2015, we had no significant off-balance sheet arrangements other than operating leases. For a description of our operating leases, see Note 11 to the consolidated financial statements in Part II, Item 8.

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NORTHROP GRUMMAN CORPORATION

Item 7A. Quantitative and Qualitative Disclosures about Market Risk

**EQUITY RISK**

We are exposed to market risk with respect to our portfolio of trading and available-for-sale marketable securities with a fair value of \$310 million at December 31, 2015. 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, 2015. At December 31, 2015, we have \$6.5 billion of long-term debt, primarily consisting of fixed-rate debt, with a fair value of approximately \$6.9 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.

**FOREIGN CURRENCY RISK**

We are exposed to foreign currency risk with respect to our international operations. 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, 2015, foreign currency forward contracts with a notional amount of \$141 million were outstanding. At December 31, 2015, 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**

We have generally been able to anticipate increases in costs when pricing our contracts. Bids for longer-term firm fixed-price contracts typically include assumptions for labor and other cost escalations in amounts that historically have been sufficient to cover cost increases over the period of performance.

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

We have audited the accompanying consolidated statements of financial position of Northrop Grumman Corporation and subsidiaries (the “Company”) as of December 31, 2015 and 2014, and the related consolidated statements of earnings and comprehensive income (loss), changes in shareholders’ equity, and cash flows for each of the three years in the period ended December 31, 2015. These financial statements are the responsibility of the Company’s management. Our responsibility is to express an opinion on the financial statements based on our audits.

We conducted our audits in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, such consolidated financial statements present fairly, in all material respects, the financial position of Northrop Grumman Corporation and subsidiaries at December 31, 2015 and 2014, and the results of their operations and their cash flows for each of the three years in the period ended December 31, 2015, 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), the Company’s internal control over financial reporting as of December 31, 2015, 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 February 1, 2016 expressed an unqualified opinion on the Company’s internal control over financial reporting.

/s/ Deloitte & Touche LLP  
McLean, Virginia  
February 1, 2016



## NORTHROP GRUMMAN CORPORATION

## CONSOLIDATED STATEMENTS OF EARNINGS AND COMPREHENSIVE INCOME (LOSS)

\$ in millions, except per share amounts	Year Ended December 31		
	2015	2014	2013
Sales			
Product	\$13,966	\$14,015	\$14,033
Service	9,560	9,964	10,628
Total sales	23,526	23,979	24,661
Operating costs and expenses			
Product	10,333	10,431	10,623
Service	7,551	7,947	8,659
General and administrative expenses	2,566	2,405	2,256
Operating income	3,076	3,196	3,123
Other (expense) income			
Interest expense	(301 )	(282 )	(257 )
Other, net	15	23	(3 )
Earnings before income taxes	2,790	2,937	2,863
Federal and foreign income tax expense	800	868	911
Net earnings	\$1,990	\$2,069	\$1,952
Basic earnings per share	\$10.51	\$9.91	\$8.50
Weighted-average common shares outstanding, in millions	189.4	208.8	229.6
Diluted earnings per share	\$10.39	\$9.75	\$8.35
Weighted-average diluted shares outstanding, in millions	191.6	212.1	233.9
Net earnings (from above)	\$1,990	\$2,069	\$1,952
Other comprehensive income (loss)			
Change in unamortized benefit plan costs, net of tax (expense) benefit of (\$45) in 2015, \$1,423 in 2014 and (\$1,177) in 2013	75	(2,316 )	1,790
Change in cumulative translation adjustment	(41 )	(59 )	14
Other, net	2	3	(1 )
Other comprehensive income (loss), net of tax	36	(2,372 )	1,803
Comprehensive income (loss)	\$2,026	\$(303 )	\$3,755

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

## NORTHROP GRUMMAN CORPORATION

## CONSOLIDATED STATEMENTS OF FINANCIAL POSITION

	December 31	
\$ in millions	2015	2014
Assets		
Cash and cash equivalents	\$2,319	\$3,863
Accounts receivable, net	2,841	2,806
Inventoried costs, net	807	742
Prepaid expenses and other current assets	367	369
Total current assets	6,334	7,780
Property, plant and equipment, net of accumulated depreciation of \$4,849 in 2015 and \$4,611 in 2014	3,064	2,991
Goodwill	12,460	12,466
Deferred tax assets	1,409	2,026
Other non-current assets	1,187	1,309
Total assets	\$24,454	\$26,572
Liabilities		
Trade accounts payable	\$1,282	\$1,305
Accrued employee compensation	1,195	1,441
Advance payments and amounts in excess of costs incurred	1,537	1,713
Other current liabilities	1,443	1,433
Total current liabilities	5,457	5,892
Long-term debt, net of current portion of \$110 in 2015 and \$3 in 2014	6,416	5,925
Pension and other post-retirement benefit plan liabilities	6,172	6,555
Other non-current liabilities	887	965
Total liabilities	18,932	19,337
Commitments and contingencies (Note 11)		
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: 2015—181,303,083 and 2014—198,930,240	181	199
Paid-in capital	—	—
Retained earnings	10,661	12,392
Accumulated other comprehensive loss	(5,320)	(5,356)
Total shareholders' equity	5,522	7,235
Total liabilities and shareholders' equity	\$24,454	\$26,572
The accompanying notes are an integral part of these consolidated financial statements.		

## NORTHROP GRUMMAN CORPORATION

## CONSOLIDATED STATEMENTS OF CASH FLOWS

\$ in millions	Year Ended December 31		
	2015	2014	2013
Operating activities			
Net earnings	\$1,990	\$2,069	\$1,952
Adjustments to reconcile to net cash provided by operating activities:			
Depreciation and amortization	467	462	495
Stock-based compensation	99	134	144
Excess tax benefits from stock-based compensation	(103)	(81)	(43)
Deferred income taxes	572	216	128
Changes in assets and liabilities:			
Accounts receivable, net	(30)	(105)	171
Inventoried costs, net	(80)	(24)	101
Prepaid expenses and other assets	43	13	(51)
Accounts payable and other liabilities	(632)	(89)	(169)
Income taxes payable	135	84	2
Retiree benefits	(263)	(17)	(281)
Other, net	(36)	(69)	34
Net cash provided by operating activities	2,162	2,593	2,483
Investing activities			
Capital expenditures	(471)	(561)	(364)
Other investing activities, net	40	(84)	18
Net cash used in investing activities	(431)	(645)	(346)
Financing activities			
Common stock repurchases	(3,182)	(2,668)	(2,371)
Net proceeds from issuance of long-term debt	600	—	2,841
Cash dividends paid	(603)	(563)	(545)
Payments of long-term debt	—	—	(877)
Other financing activities, net	(90)	(4)	103
Net cash used in financing activities	(3,275)	(3,235)	(849)
(Decrease) increase in cash and cash equivalents	(1,544)	(1,287)	1,288
Cash and cash equivalents, beginning of year	3,863	5,150	3,862
Cash and cash equivalents, end of year	\$2,319	\$3,863	\$5,150

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

## NORTHROP GRUMMAN CORPORATION

## CONSOLIDATED STATEMENTS OF CHANGES IN SHAREHOLDERS' EQUITY

\$ in millions, except per share amounts	Year Ended December 31		
	2015	2014	2013
Common stock			
Beginning of year	\$ 199	\$ 218	\$ 239
Common stock repurchased	(19 )	(21 )	(27 )
Shares issued for employee stock awards and options	1	2	6
End of year	181	199	218
Paid-in capital			
Beginning of year	—	848	2,924
Common stock repurchased	—	(999 )	(2,345 )
Stock compensation	—	139	274
Other	—	12	(5 )
End of year	—	—	848
Retained earnings			
Beginning of year	12,392	12,538	11,138
Common stock repurchased	(3,154 )	(1,637 )	—
Net earnings	1,990	2,069	1,952
Dividends declared	(596 )	(578 )	(552 )
Stock compensation	29	—	—
End of year	10,661	12,392	12,538
Accumulated other comprehensive loss			
Beginning of year	(5,356 )	(2,984 )	(4,787 )
Other comprehensive income (loss), net of tax	36	(2,372 )	1,803
End of year	(5,320 )	(5,356 )	(2,984 )
Total shareholders' equity	\$5,522	\$7,235	\$10,620
Cash dividends declared per share	\$3.10	\$2.71	\$2.38

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

NORTHROP GRUMMAN CORPORATION

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

1. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Nature of Operations

Northrop Grumman Corporation (herein referred to as “Northrop Grumman,” the “company,” “we,” “us,” or “our”) is a leading global security company. We offer a broad portfolio of capabilities and technologies that enable us to deliver innovative products, systems and solutions for applications that range from undersea to outer space and into cyberspace. We provide products, systems and solutions in unmanned systems; cyber; command, control, communications and computers (C4), intelligence, surveillance, and reconnaissance (C4ISR); strike aircraft; and logistics and modernization to government and commercial customers worldwide. We participate in many high-priority defense and government programs in the United States (U.S.) and abroad. We conduct most of our business with the U.S. Government, principally the Department of Defense (DoD) and intelligence community. We also conduct business with foreign, state and local governments and commercial customers.

Principles of Consolidation

The consolidated financial statements include the accounts of Northrop Grumman and its subsidiaries. Material 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.

Accounting Estimates

The company’s financial statements are prepared in conformity with accounting principles generally accepted in the United States of America (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.

Related Party Transactions

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

Revenue Recognition

The majority of our sales are derived from long-term contracts with the U.S. Government for the production of goods, the provision of services, or in some cases, a combination of both. In accounting for these contracts, we utilize either the cost-to-cost method or the units-of-delivery method of percentage-of-completion accounting, with cost-to-cost being the predominant method. Generally, sales under cost-reimbursement contracts and construction-type contracts that provide for deliveries at lower volume rates per year or a small number of units are accounted for using the cost-to-cost method. Under this method, sales, including estimated profits, are recorded as costs are incurred. Generally, sales under contracts that provide for deliveries at higher volume rates per year or a large number of units are accounted for using the units-of-delivery method. Under this method, cost and sales are recognized as units are delivered to the customer. The company estimates profit on contracts as the difference between total estimated sales and total estimated cost at completion and recognizes that profit either as costs are incurred (cost-to-cost) or as units are delivered (units-of-delivery). The company classifies sales as product or service depending upon the predominant attributes of the contract.

Contract sales may include estimated amounts not contractually agreed to by the customer, including cost or performance incentives (such as award and incentive fees), un-priced change orders, claims and requests for equitable adjustment (REAs). Further, as contracts are performed, change orders can be a regular occurrence and may be un-priced until negotiated with the customer. Un-priced change orders are included in estimated contract sales when management believes it is probable they will be recovered through a change in contract price. Amounts representing claims (including change orders unapproved as to both scope and price) and REAs are included in estimated contract

sales when management believes it is probable the claim and/or REA will result in additional contract revenue and the amount can be reliably estimated based on the facts and circumstances known to us at the time. As of December 31, 2015, the company has initiated REAs with the U.S. government and an international customer seeking recovery of approximately \$300 million under contracts related to two Aerospace Systems programs. A substantial portion of the REAs was initiated during the fourth quarter of 2015. The REAs relate to what we believe is work performed by the company at the direction of our customers that is beyond the scope of the related contracts as well as costs incurred by the company as a result of customer-caused delays and disruption. The total amount of additional contract sales we have assumed as of December 31, 2015 is approximately \$225 million.

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## NORTHROP GRUMMAN CORPORATION

We are currently negotiating the REAs and the terms of the contracts with our customers. Recognized amounts related to claims and REAs as of December 31, 2014 were not material individually or in aggregate.

The company's U.S. Government contracts generally contain provisions that enable the customer to terminate a contract for default, or for the convenience of the government. If a contract is terminated for default, we may not be entitled to recover any of our costs on partially completed work and may be liable to the government for re-procurement costs of acquiring similar products or services from another contractor, and for certain other damages. Termination of a contract for the convenience of the government may occur when the government concludes it is in the best interests of the government that the contract be terminated. Under a termination for convenience, the contractor is typically entitled to be paid in accordance with the contract's terms for costs incurred prior to the effective date of termination, plus a reasonable profit and settlement expenses. At December 31, 2015, the company did not have any contract terminations in process that we anticipate would have a material effect on our consolidated financial position, annual results of operations and/or cash flows.

**Net Estimate-At-Completion (EAC) Adjustments** - We recognize changes in estimated contract sales, costs or profits using the cumulative catch-up method of accounting. This method recognizes, in the current period, the cumulative effect of the changes on current and prior periods as net EAC adjustments; sales and profit in future periods of contract performance are recognized as if the revised estimates had been used since contract inception. If it is determined that a loss will result from the performance of a contract, the entire amount of the estimable future loss is charged against income in the period the loss is identified. Loss provisions are first offset against any costs that are included in unbilled accounts receivable or inventoried costs, and any remaining amount is reflected in liabilities. Significant EAC adjustments on a single contract could have a material effect on the company's consolidated financial position or annual results of operations. Where such adjustments occur, we generally disclose the nature, underlying conditions and financial impact of the adjustments. No discrete event or adjustments to an individual contract were material to the accompanying consolidated statements of earnings and comprehensive income (loss) for each of the three years ended December 31, 2015, 2014, and 2013.

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

	Year Ended December 31		
	2015	2014	2013
\$ in millions, except per share data			
Operating Income	\$580	\$664	\$753
Net Earnings <sup>(1)</sup>	377	432	489
Diluted earnings per share <sup>(1)</sup>	1.97	2.04	2.09

<sup>(1)</sup> Based on statutory tax rates

**Sales by Customer Category** - The following table presents sales by customer category:

	Year Ended December 31					
	2015		2014		2013	
\$ in millions	\$	% <sup>(1)</sup>	\$	% <sup>(1)</sup>	\$	% <sup>(1)</sup>
U.S. Government <sup>(2)</sup>	\$19,458	83 %	\$20,085	84 %	\$21,278	86 %
International <sup>(3)</sup>	3,339	14 %	3,045	13 %	2,493	10 %
Other Customers <sup>(4)</sup>	729	3 %	849	3 %	890	4 %
Total Sales	\$23,526		\$23,979		\$24,661	

<sup>(1)</sup> Percentage of total sales.

Sales to the U.S. Government include sales from contracts for which Northrop Grumman is the prime contractor,

<sup>(2)</sup> as well as those for which the company is 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.

<sup>(3)</sup> International sales include foreign military sales contracted through the U.S. Government, direct commercial sales with governments outside the U.S. and commercial sales outside the U.S.

<sup>(4)</sup> Sales to Other Customers include sales to U.S. state and local governments and U.S. commercial customers.

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## NORTHROP GRUMMAN CORPORATION

### General and Administrative Expenses

In accordance with industry practice and the regulations that govern cost accounting requirements for government contracts, most general management and corporate expenses incurred at the segment and corporate locations are considered allowable and allocable costs. Allowable and allocable general and administrative costs, including independent research and development (IR&D) and certain 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, including any provision for loss contracts.

### Research and Development

Company-sponsored research and development activities primarily include IR&D efforts related to government programs. Company-sponsored IR&D expenses totaled \$712 million, \$569 million and \$507 million in 2015, 2014 and 2013, respectively. Customer-funded research and development activities are charged directly to the related contracts.

### 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 established and no amount within the range is more probable 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. As a portion of environmental remediation costs is expected to be recoverable through overhead charges on government contracts, such amounts are deferred in inventoried costs (current portion) and other non-current assets. The portion of environmental costs not expected to be recoverable is expensed.

### 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.

Marketable securities accounted for as trading and available-for-sale are recorded at fair value on a recurring basis. For available-for-sale securities, changes in unrealized gains and losses are reported as a component of other comprehensive income. Changes in unrealized gains and losses on trading securities are included in other, net in the consolidated statements of earnings and comprehensive income (loss). 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 net earnings, while the effective portion of the 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 (loss).

The company may use derivative financial instruments to manage its exposure to interest rate risk for its long-term fixed-rate debt portfolio and foreign currency exchange risk related to receipts from customers and payments to suppliers denominated in foreign currencies. 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.

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## NORTHROP GRUMMAN CORPORATION

### 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 recognized as a component of income tax expense.

In accordance with industry practice and regulations that govern the cost accounting requirements for government contracts, current state and local income and franchise taxes are generally considered allowable and allocable costs and are therefore recorded in operating costs and expenses. The company 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, which have not been reflected in measuring income tax expense 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 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.

### 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. The company does not invest in high yield or high risk securities. Cash in bank accounts at times may exceed federally insured limits.

### Accounts Receivable and Inventoried Costs

Accounts receivable include amounts billed and currently due from customers, as well as amounts currently due but unbilled (primarily related to costs incurred on contracts accounted for under the cost-to-cost method of percentage-of-completion accounting). Accounts receivable also include certain estimated contract change amounts, claims or REAs in negotiation that are probable of recovery and amounts retained by the customer pending contract completion.

Inventoried costs primarily relate to work in process on contracts accounted for under the units-of-delivery method of percentage-of-completion accounting. These costs represent accumulated contract costs less the portion of such costs allocated to delivered items. Product inventory primarily consists of raw materials and is stated at the lower of cost or market, generally using the average cost method.

Accumulated contract costs in unbilled accounts receivable and inventoried costs include direct production costs, factory and engineering overhead, production tooling costs, and, for government contracts, allowable general and administrative expenses. According to the provisions of U.S. Government contracts, the customer asserts title to, or a security interest in, inventories related to such contracts as a result of contract advances, performance-based payments, and progress payments. In accordance with industry practice, unbilled accounts receivable and inventoried costs are classified as current assets and include amounts related to contracts having production cycles longer than one year. Payments received in excess of inventoried costs and unbilled accounts receivable amounts on a contract by contract basis are recorded as advance payments and amounts in excess of costs incurred in the consolidated statements of financial position.

## NORTHROP GRUMMAN CORPORATION

## Property, Plant and Equipment

Property, plant and equipment are depreciated over the estimated useful lives of individual assets. Most of these assets are depreciated using declining-balance methods, with the remainder using the straight-line method. Major classes of property, plant and equipment and their useful lives are as follows:

Useful life in years, \$ in millions	Useful Life	December 31	
		2015	2014
Land and land improvements	Up to 40 <sup>(1)</sup>	\$381	\$373
Buildings and improvements	Up to 45	1,618	1,589
Machinery and other equipment	Up to 20	4,610	4,401
Capitalized software costs	3-5	406	428
Leasehold improvements	Length of Lease <sup>(2)</sup>	898	811
Property, plant and equipment, at cost		7,913	7,602
Accumulated depreciation		(4,849)	(4,611)
Property, plant and equipment, net		\$3,064	\$2,991

<sup>(1)</sup> Land is not a depreciable asset.

<sup>(2)</sup> Leasehold improvements are depreciated over the shorter of the useful life of the asset or the length of the lease.

## Leases

The company uses its incremental borrowing rate in the assessment of lease classification as capital or operating and defines the initial lease term to include renewal options determined to be reasonably assured. The majority of our leases are operating leases.

Many of the company's real property lease agreements contain incentives for tenant improvements, rent holidays, or rent escalation clauses. For tenant improvement incentives, the company records a deferred rent liability and amortizes the deferred rent over the term of the lease as a reduction to rent expense. For rent holidays and rent escalation clauses during the lease term, the company records rental expenses on a straight-line basis over the term of the lease. For purposes of recognizing 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 of intended use.

## Goodwill and Other Purchased Intangible Assets

The company tests for impairment of goodwill annually as of December 31, or when we believe a potential impairment exists. When performing the goodwill impairment test, the company uses a discounted cash flow approach corroborated by comparative market multiples, where appropriate, to determine the fair value of its reporting units. Goodwill and other purchased intangible asset balances are included in the identifiable assets of their assigned business segment. The company charges goodwill impairment, as well as the amortization of other purchased intangible assets, against the respective segment's operating income. Purchased intangible assets are amortized on a straight-line basis over their estimated useful lives.

## 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 non-qualified employee retirement plans. As of December 31, 2015 and 2014, the carrying values associated with these policies were \$284 million and \$290 million, respectively, and are recorded in other non-current assets in the consolidated statements of financial position.

## Litigation, Commitments and Contingencies

Amounts associated with litigation, commitments and contingencies are recorded as reserves 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 established and no amount within the range is more likely than another, the low

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## NORTHROP GRUMMAN CORPORATION

end of the range is recorded. Legal fees are expensed as incurred. Due to the inherent uncertainties surrounding gain contingencies, we generally do not recognize potential gains until realized.

### 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 up to a 50 percent match of employee contributions up to eight percent of compensation. The company also provides post-retirement benefits other than pensions, consisting principally of health care and life insurance benefits, to eligible retirees and qualifying dependents.

The liabilities, unamortized benefit plan costs and annual income or expense of the company's defined benefit pension and other post-retirement benefit plans are determined using methodologies that involve several actuarial assumptions. Unamortized benefit plan costs consist primarily of accumulated net after-tax actuarial losses.

Because U.S. Government regulations require that the costs of pension and other post-retirement plans be charged to our contracts in accordance with the Federal Acquisition Regulation (FAR) and the related U.S. Government Cost Accounting Standards (CAS) that govern such plans, we calculate retiree benefit plan costs under both CAS and FAS (GAAP Financial Accounting Standards) 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 earnings on plan assets and calculating interest expense. In addition, the periods over which gains/losses related to pension assets and actuarial changes are amortized are different under FAS and CAS. As a result, annual retiree benefit plan expense amounts for FAS are different from the amounts for CAS 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 CAS and FAS expense is recorded in operating income at the consolidated company level. Net actuarial gains or losses are amortized to expense on a plan-by-plan basis when they exceed the accounting corridor. The accounting corridor is a defined range within which amortization of net gains and losses is not required and is equal to 10 percent of the greater of plan assets or benefit obligations. Gains or losses outside of the corridor are subject to amortization over our average employee future service period of approximately nine years. 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 a reporting period. The company's funding policy for the qualified pension plans is to contribute, at a minimum, the statutorily required amount to an irrevocable trust.

### Stock Compensation

The company's stock compensation plans are classified as equity plans and compensation expense is generally recognized over the vesting period (typically three years), net of estimated forfeitures. The company issues stock awards in the form of restricted performance stock rights and restricted stock rights under its existing plans. The fair value of stock awards is determined based on the closing market price of the company's common stock on the grant date. At each reporting date, the number of shares is adjusted to equal the number ultimately expected to vest.

### Accounting Standards Updates

On May 28, 2014, the Financial Accounting Standards Board (FASB) issued Accounting Standards Update (ASU) No. 2014-09, Revenue from Contracts with Customers. ASU 2014-09 supersedes existing revenue recognition guidance, including Accounting Standards Codification No. 605-35, Revenue Recognition - Construction-Type and Production-Type Contracts. ASU 2014-09 outlines a single set of comprehensive principles for recognizing revenue under U.S. GAAP. Among other things, it requires companies to identify contractual performance obligations and determine whether revenue should be recognized at a point in time or over time. These concepts, as well as other aspects of ASU 2014-09, may change the method and/or timing of revenue recognition for certain of our contracts. On July 9, 2015, the FASB approved a one year deferral of the effective date of ASU 2014-09 to annual reporting periods

beginning after December 15, 2017. ASU 2014-09 may be applied either retrospectively or through the use of a modified-retrospective method. We are currently evaluating both methods of adoption as well as the effect ASU 2014-09 will have on the company's consolidated financial position, annual results of operations and cash flows. On November 20, 2015, the FASB issued ASU 2015-17, Balance Sheet Classification of Deferred Taxes. ASU 2015-17 simplifies the presentation of deferred income taxes and requires that deferred tax assets and liabilities, as well as any related valuation allowance, be classified as noncurrent in a classified statement of financial position. The company adopted ASU 2015-17 during the fourth quarter of 2015 and applied it retrospectively to all periods presented.

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## NORTHROP GRUMMAN CORPORATION

Other accounting standards updates effective after December 31, 2015, are not expected to have a material effect on the company's consolidated financial position, annual results of operations and/or cash flows.

## Reclassifications

As a result of the company's adoption of ASU 2015-17, we now present deferred tax assets and liabilities as non-current. This change resulted in a reclassification of \$404 million of net current deferred tax assets reported in our 2014 consolidated statement of financial position to non-current deferred tax assets. This reclassification reduced our current assets as of December 31, 2014, but had no impact on total assets.

## Shareholders' Equity

The company records the difference between the cost of shares repurchased and their par value as well as tax withholding in excess of related stock compensation expense as a reduction of paid-in capital to the extent available and then as a reduction of retained earnings.

## Accumulated Other Comprehensive Loss

The components of accumulated other comprehensive loss are as follows:

\$ in millions	December 31	
	2015	2014
Unamortized benefit plan costs, net of tax benefit of \$3,350 in 2015 and \$3,395 in 2014	\$(5,241 )	\$(5,316 )
Cumulative translation adjustment	(82 )	(41 )
Net unrealized gain on marketable securities and cash flow hedges, net of tax	3	1
Total accumulated other comprehensive loss	\$(5,320 )	\$(5,356 )

Unamortized benefit plan costs consist primarily of net after-tax actuarial losses totaling \$5.5 billion and \$5.6 billion as of December 31, 2015 and 2014, respectively. Net actuarial gains or losses are re-determined annually or upon remeasurement events and principally arise from changes in the interest rate used to discount our benefit obligations and differences between expected and actual returns on plan assets.

Reclassifications from accumulated other comprehensive income to net earnings related to the amortization of benefit plan costs were \$388 million, \$145 million and \$319 million, net of taxes, for the years ended December 31, 2015, 2014 and 2013, respectively. The reclassifications represent the amortization of net actuarial losses and prior service credits for the company's retirement benefit plans, and are included in the computation of net periodic pension cost (see Note 12 for further information).

Reclassifications from accumulated other comprehensive income to net earnings, relating to cumulative translation adjustments, marketable securities and effective cash flow hedges for the years ended December 31, 2015, 2014 and 2013, respectively, were not material. Reclassifications for cumulative translation adjustments and marketable securities are recorded in other income, and reclassifications for effective cash flow hedges are recorded in operating income.

## 2. 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 includes the dilutive effect of awards granted to employees under stock-based compensation plans. The dilutive effect of these securities totaled 2.2 million, 3.3 million and 4.3 million shares for the years ended December 31, 2015, 2014 and 2013, respectively. We had no anti-dilutive stock options outstanding for the years ended December 31, 2015, 2014 and 2013, respectively.

## Share Repurchases

On May 15, 2013, the company's board of directors authorized a share repurchase program of up to \$4.0 billion of the company's common stock (2013 Repurchase Program). Repurchases under the 2013 Repurchase Program commenced



in September 2013 and were completed in March 2015.

On December 4, 2014, the company's board of directors authorized a new share repurchase program of up to \$3.0 billion of the company's common stock (2014 Repurchase Program). Repurchases under the 2014 Repurchase Program commenced in March 2015 upon the completion of the company's 2013 Repurchase Program. As of

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## NORTHROP GRUMMAN CORPORATION

December 31, 2015, repurchases under the 2014 Repurchase Program totaled \$2.7 billion; \$0.3 billion remained under this share repurchase authorization. By its terms, the 2014 Repurchase Program is set to expire when we have used all authorized funds for repurchases.

On September 16, 2015, the company's board of directors authorized a new share repurchase program of up to \$4.0 billion of the company's common stock (2015 Repurchase Program). By its terms, repurchases under the 2015 Repurchase Program are set to commence upon completion of the 2014 Repurchase Program and to expire when we have used all authorized funds for repurchases.

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

The table below summarizes the company's share repurchases:

Repurchase Program Authorization Date	Amount Authorized (in millions)	Total Shares Retired (in millions)	Average Price Per Share <sup>(1)</sup>	Date Completed	Shares Repurchased (in millions) Year Ended December 31		
					2015	2014	2013
June 16, 2010	\$5,350	83.7	\$63.86	September 2013	—	—	18.6
May 15, 2013	\$4,000	32.8	\$121.97	March 2015	2.7	21.4	8.7
December 4, 2014	\$3,000	16.6	\$164.72		16.6	—	—
September 16, 2015	\$4,000	—	\$—		—	—	—
					19.3	21.4	27.3

<sup>(1)</sup> Includes commissions paid.

#### Dividends on Common Stock

In May 2015, the company increased the quarterly common stock dividend 14 percent to \$0.80 per share from the previous amount of \$0.70 per share.

In May 2014, the company increased the quarterly common stock dividend 15 percent to \$0.70 per share from the previous amount of \$0.61 per share.

In May 2013, the company increased the quarterly common stock dividend 11 percent to \$0.61 per share from the previous amount of \$0.55 per share.

## NORTHROP GRUMMAN CORPORATION

## 3. SEGMENT INFORMATION

At December 31, 2015, the company was aligned into four segments: Aerospace Systems, Electronic Systems, Information Systems and Technical Services.

The following table presents sales and operating income by segment:

\$ in millions	Year Ended December 31		
	2015	2014	2013
Sales			
Aerospace Systems	\$10,004	\$9,997	\$10,014
Electronic Systems	6,842	6,951	7,149
Information Systems	5,894	6,222	6,596
Technical Services	2,838	2,799	2,843
Intersegment eliminations	(2,052)	(1,990)	(1,941)
Total sales	23,526	23,979	24,661
Operating income			
Aerospace Systems	1,220	1,315	1,215
Electronic Systems	1,068	1,148	1,226
Information Systems	616	611	633
Technical Services	254	261	262
Intersegment eliminations	(238)	(236)	(256)
Total segment operating income	2,920	3,099	3,080
Reconciliation to operating income:			
Net FAS/CAS pension adjustment	348	269	168
Unallocated corporate expenses	(190)	(169)	(119)
Other	(2)	(3)	(6)
Total operating income	\$3,076	\$3,196	\$3,123
Net FAS/CAS Pension Adjustment			

For financial statement purposes, we account for our employee pension plans in accordance with GAAP under FAS.

However, the cost of these plans is charged to our contracts in accordance with the FAR and the related CAS that govern such plans. The net FAS/CAS pension adjustment reflects the difference between CAS pension expense included as cost in segment operating income and FAS pension expense determined in accordance with GAAP.

2015 - The increase in net FAS/CAS pension adjustment is principally due to higher 2015 CAS expense resulting from changes in mortality assumptions and demographic experience, partially offset by an increase in 2015 FAS expense as a result of changes in our FAS discount rate and mortality assumptions as of December 31, 2014.

2014 - The increase in net FAS/CAS pension adjustment is principally due to a reduction in FAS expense, largely due to the increase in our FAS discount rate assumptions as of December 31, 2013. The reduction in FAS expense was partially offset by lower CAS expense due to the passage of the Highway and Transportation Funding Act of 2014 (HATFA), which included provisions that reduce the amount of CAS expense charged to our contracts.

## Unallocated Corporate Expenses

Unallocated corporate expenses include the portion of corporate expenses not considered allowable or allocable under applicable CAS or the FAR, and are therefore not allocated to the segments. Such costs consist of a portion of management and administration, legal, environmental, compensation costs, retiree benefits and certain unallowable costs such as lobbying activities, among others.

2015 - The increase in unallocated corporate expenses for 2015, as compared to 2014, is principally due to a \$21 million increase in unallocated state income taxes due in part to a change in accounting methods approved by the Internal Revenue Service (IRS) during the fourth quarter of 2015.

2014 - The increase in unallocated corporate expenses for 2014, as compared to 2013, is primarily due to increases in year-over-year provisions for environmental matters.

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## 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 operating margin rate for external sales. Such intercompany operating income is eliminated in consolidation.

The following table presents intersegment sales and operating income before eliminations:

\$ in millions	Year Ended December 31					
	2015		2014		2013	
	Sales	Operating Income	Sales	Operating Income	Sales	Operating Income
Intersegment sales and operating income						
Aerospace Systems	\$232	\$28	\$176	\$22	\$149	\$18
Electronic Systems	544	88	637	109	629	125
Information Systems	592	60	537	57	504	63
Technical Services	684	62	640	48	659	50
Total	\$2,052	\$238	\$1,990	\$236	\$1,941	\$256

## Assets

Substantially all of the company's operating assets are located in the U.S. The following table presents assets by segment:

\$ in millions	December 31	
	2015	2014
Assets		
Aerospace Systems	\$7,061	\$6,844
Electronic Systems	4,394	4,366
Information Systems	6,588	6,725
Technical Services	1,528	1,539
Segment assets	19,571	19,474
Corporate assets <sup>(1)</sup>	4,883	7,098
Total assets	\$24,454	\$26,572

<sup>(1)</sup> Corporate assets principally consist of cash and cash equivalents and deferred tax assets.

## Capital Expenditures and Depreciation and Amortization

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

\$ in millions	Capital Expenditures			Depreciation and Amortization <sup>(1)</sup>		
	2015	2014	2013	2015	2014	2013
Aerospace Systems	\$240	\$387	\$198	\$213	\$206	\$210
Electronic Systems	111	82	76	120	119	134
Information Systems	28	40	27	65	70	81
Technical Services	2	1	3	6	7	4
Corporate	90	51	60	63	60	66
Total	\$471	\$561	\$364	\$467	\$462	\$495

<sup>(1)</sup> Depreciation and amortization expense includes amortization of purchased intangible assets, as well as amortization of deferred and other outsourcing costs.

## 4. ACCOUNTS RECEIVABLE, NET

Unbilled amounts represent sales for which billings have not been presented to customers by period-end. These amounts are usually billed and collected within one year. Substantially all accounts receivable at December 31, 2015 are expected to be collected in 2016. The company does not believe it has significant exposure to credit risk, as

accounts receivable and the related unbilled amounts are primarily from contracts where the U.S. Government is the primary customer.

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## NORTHROP GRUMMAN CORPORATION

Accounts receivable consisted of the following:

\$ in millions	December 31	
	2015	2014
Due from U.S. Government		
Billed	\$506	\$536
Unbilled	7,699	6,806
Progress and performance-based payments received	(6,140)	(5,150)
	2,065	2,192
Due from International and Other Customers <sup>(1)</sup>		
Billed	223	283
Unbilled	3,713	3,461
Progress and performance-based payments received	(3,101)	(3,062)
	835	682
Total accounts receivable	2,900	2,874
Allowance for doubtful accounts	(59)	(68)
Total accounts receivable, net	\$2,841	\$2,806

<sup>(1)</sup> Includes receivables due from the U.S. Government associated with foreign military sales.

## 5. INVENTORIED COSTS, NET

Inventoried costs consisted of the following:

\$ in millions	December 31	
	2015	2014
Production costs of contracts in process	\$1,218	\$1,257
General and administrative expenses	293	252
	1,511	1,509
Progress and performance-based payments received	(807)	(873)
	704	636
Product inventory	103	106
Total inventoried costs, net	\$807	\$742

## 6. INCOME TAXES

Federal and foreign income tax expense consisted of the following:

\$ in millions	Year Ended December 31		
	2015	2014	2013
Federal income tax expense:			
Current	\$310	\$701	\$803
Deferred	472	155	84
Total federal income tax expense	782	856	887
Foreign income tax expense:			
Current	21	10	28
Deferred	(3)	2	(4)
Total foreign income tax expense	18	12	24
Total federal and foreign income tax expense	\$800	\$868	\$911

Earnings from foreign operations before income taxes are not material for all periods presented.

## NORTHROP GRUMMAN CORPORATION

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

\$ in millions	Year Ended December 31		
	2015	2014	2013
Income tax expense at statutory rate	\$976	\$1,028	\$1,002
Research tax credit	(119)	(43)	(37)
Manufacturing deduction	(31)	(48)	(63)
Settlements with taxing authorities	—	(51)	—
Other, net	(26)	(18)	9
Total federal and foreign income taxes	\$800	\$868	\$911

2015 – The effective tax rate for 2015 was 28.7 percent, as compared with 29.6 percent in 2014. This reduction was driven by a \$76 million increase in research credits primarily resulting from additional credits claimed on our prior year tax returns, partially offset by a \$51 million benefit recorded in 2014 for the partial resolution of the IRS examination of our 2007-2009 tax returns.

2014 – The effective tax rate for 2014 was 29.6 percent, as compared with 31.8 percent in 2013. The decline in the company's lower effective tax rate for 2014 reflects a \$51 million benefit for the partial resolution of our 2007-2009 IRS examination.

Income tax payments, net of refunds received, were \$118 million, \$727 million and \$880 million for the years ended December 31, 2015, 2014 and 2013, respectively.

#### Uncertain Tax Positions

The company files income tax returns in the U.S. federal jurisdiction and in various state and foreign jurisdictions. The company's 2007-2013 tax returns are currently either under IRS examination or appeals. In the first quarter of 2014, the U.S. Congressional Joint Committee on Taxation approved a partial resolution of the IRS examination of the company's 2007-2009 tax returns. As a result, the company recorded a reduction of income tax expense of \$51 million. The company also reduced its unrecognized tax benefits by \$59 million and related accrued interest by \$12 million. During 2014, the company filed appeals with the IRS for the unresolved 2007-2009 tax return matters and for unresolved 2010-2011 examination matters.

The company believes it is reasonably possible that within the next twelve months, we may resolve certain matters on the years under examination or appeals, resulting in a reduction of our unrecognized tax benefits up to \$175 million and a reduction of our income tax expense up to \$45 million.

Open tax years related to state and foreign jurisdictions remain subject to examination, but are not considered material.

The change in unrecognized tax benefits during 2015, 2014 and 2013, excluding interest, is as follows:

\$ in millions	December 31		
	2015	2014	2013
Unrecognized tax benefits at beginning of the year	\$210	\$241	\$156
Additions based on tax positions related to the current year	52	62	56
Additions for tax positions of prior years	17	9	44
Settlements with taxing authorities	(10)	(61)	(1)
Other, net	(46)	(41)	(14)
Net change in unrecognized tax benefits	13	(31)	85
Unrecognized tax benefits at end of the year	\$223	\$210	\$241

These liabilities, along with \$23 million of accrued interest and penalties, are included in other current and non-current liabilities in the consolidated statements of financial position. If the income tax benefits from these tax positions are ultimately realized, \$173 million of federal and foreign tax benefits would reduce the company's effective



tax rate.

Net interest expense within the company's federal, foreign and state income tax provisions was not material for all years presented.

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## NORTHROP GRUMMAN CORPORATION

## 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 significant 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:

	December 31	
\$ in millions	2015	2014
Deferred Tax Assets		
Retiree benefits	\$2,549	\$2,745
Accrued employee compensation	316	311
Provisions for accrued liabilities	347	392
Inventory	227	—
Stock-based compensation	76	91
Other	68	104
Gross deferred tax assets	3,583	3,643
Less valuation allowance	(34)	(53)
Net deferred tax assets	3,549	3,590
Deferred Tax Liabilities		
Goodwill	788	787
Property, plant and equipment, net	297	315
Contract accounting differences	976	332
Other	79	130
Deferred tax liabilities	2,140	1,564
Total net deferred tax assets	\$1,409	\$2,026

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 all deferred tax assets will be realized, net of valuation allowances currently established.

At December 31, 2015, the company has available unused net operating losses of \$198 million that may be applied against future taxable income, primarily in the United Kingdom, that may be used indefinitely. A valuation allowance of \$34 million has been recorded against certain deferred tax assets due to the uncertainty of the realization of these net operating losses and other deferred tax assets, principally in foreign jurisdictions.

## Undistributed Foreign Earnings

As of December 31, 2015, the company has accumulated undistributed earnings generated by its foreign subsidiaries of approximately \$560 million. No deferred tax liability has been recorded on these earnings since the company intends to permanently reinvest these earnings and expects future U.S. cash generation will be sufficient to meet future U.S. cash needs. Should these earnings be distributed in the form of dividends or otherwise, the distributions would result in tax of approximately \$45 million, representing U.S. federal income tax, less foreign tax credits available to offset such distributions.

## 7. GOODWILL AND OTHER PURCHASED INTANGIBLE ASSETS

## Goodwill

Goodwill and other purchased intangible assets are included in the identifiable assets of the segment to which the operations of the acquired entity have been assigned. Accumulated goodwill impairment losses at December 31, 2015 and 2014, totaled \$570 million at the Aerospace Systems segment.



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Changes in the carrying amounts of goodwill for the years ended December 31, 2015 and 2014, were as follows:

\$ in millions	Aerospace Systems	Electronic Systems	Information Systems	Technical Services	Total
Balance as of December 31, 2013	\$3,758	\$2,410	\$5,294	\$976	\$12,438
Businesses acquired and other <sup>(1)</sup>	—	—	(8	) 36	28
Balance as of December 31, 2014	\$3,758	\$2,410	\$5,286	\$1,012	\$12,466
Businesses acquired and other <sup>(1)</sup>	—	—	(2	) (4	) (6
Balance as of December 31, 2015	\$3,758	\$2,410	\$5,284	\$1,008	\$12,460

<sup>(1)</sup> Other consists primarily of adjustments for foreign currency translation.

## Purchased Intangible Assets

Net contract, program, and other intangible assets comprise the following:

\$ in millions	December 31	
	2015	2014
Gross contract, program and other intangible assets	\$1,828	\$1,831
Less accumulated amortization	(1,751	) (1,730
Net contract, program and other intangible assets	\$77	\$101

Amortization expense for 2015, 2014 and 2013, was \$22 million, \$22 million and \$26 million, respectively. The company's purchased intangible assets are being amortized on a straight-line basis over an aggregate weighted-average period of 21 years and are included in other non-current assets in the consolidated statements of financial position. As of December 31, 2015, the expected future amortization of purchased intangibles for each of the next five years is as follows:

\$ in millions	
Year Ending December 31	
2016	\$16
2017	14
2018	12
2019	10
2020	6

## 8. FAIR VALUE OF FINANCIAL INSTRUMENTS

The following table presents comparative carrying value and fair value information for our financial assets and liabilities:

\$ in millions	December 31, 2015		December 31, 2014	
	Carrying Value	Fair Value	Carrying Value	Fair Value
Financial Assets (Liabilities)				
Marketable securities				
Trading	\$303	\$303	\$331	\$331
Available-for-sale	7	7	5	5
Derivatives	5	5	1	1
Long-term debt, including current portion	(6,526	) (6,907	) (5,928	) (6,726

There were no transfers of financial instruments between the three levels of the fair value hierarchy during the years ended December 31, 2015 and 2014.

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



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### Investments in Marketable Securities

The company holds a portfolio of marketable securities consisting of securities that are classified as either trading or available-for-sale to partially fund non-qualified employee benefit plans. These assets are recorded at fair value on a recurring basis and substantially all of these instruments are valued using Level 1 inputs, with an immaterial amount valued using Level 2 inputs. As of December 31, 2015 and 2014, marketable securities of \$310 million and \$336 million, respectively, were included in other non-current assets in the consolidated statements of financial position.

### Derivative Financial Instruments and Hedging Activities

The company's derivative portfolio consists primarily of foreign currency forward contracts. The notional value of the company's derivative portfolio at December 31, 2015 and 2014 was \$141 million and \$146 million, respectively. The portion of the notional value designated as cash flow hedges at December 31, 2015 and 2014, was \$10 million and \$34 million, respectively. Substantially all of these instruments are valued using Level 2 inputs. Where model-derived valuations are appropriate, the company utilizes the income approach to determine the fair value and uses the applicable London Interbank Offered Rate (LIBOR) swap rates. The derivative fair values and related unrealized gains/losses at December 31, 2015 and 2014, were not material.

### Long-Term Debt

The fair value of long-term debt is calculated using Level 2 inputs, based on interest rates available for debt with terms and maturities similar to the company's existing debt arrangements.

## 9. LONG-TERM DEBT

### Credit Facility

In the third quarter of 2015, the Company amended its \$1.8 billion five-year credit facility dated August 29, 2013 by reducing the aggregate principal amount available under the facility to \$1.6 billion and extending the maturity to July 2020 (the "2015 Credit Agreement").

The 2015 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, 2015, the company was in compliance with all covenants under the Credit Agreement and there was no balance outstanding under this facility.

### Unsecured Senior Notes

In February 2015, the company issued \$600 million of unsecured senior notes due April 15, 2045 with a fixed interest rate of 3.85 percent (the Notes). Interest on the Notes is payable semi-annually in arrears. The Notes are 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 the principal amount of the Notes or an applicable "make-whole" amount, plus accrued and unpaid interest. We are using the net proceeds from this offering for general corporate purposes, including the funding of a \$500 million voluntary contribution to our pension plans in the first quarter of 2015 and a debt repayment due in 2016.

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Long-term debt consists of the following:

\$ in millions		December 31	
		2015	2014
Fixed-rate notes and debentures, maturing in	Interest rate		
2016	7.75%	\$ 107	\$ 107
2018	1.75% - 6.75%	1,050	1,050
2019	5.05%	500	500
2021	3.50%	700	700
2023	3.25%	1,050	1,050
2026	7.75% - 7.88%	527	527
2031	7.75%	466	466
2040	5.05%	300	300
2043	4.75%	950	950
2045	3.85%	600	—
Capital leases	Various	31	33
Other	Various	245	245
Total long-term debt		6,526	5,928
Less: current portion		110	3
Long-term debt, net of current portion		\$6,416	\$5,925

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, were \$291 million, \$281 million, and \$234 million for the years ended December 31, 2015, 2014 and 2013, respectively.

Maturities of long-term debt as of December 31, 2015, are as follows:

\$ in millions	
Year Ending December 31	
2016	\$ 110
2017	3
2018	1,053
2019	504
2020	31
Thereafter	4,822
Total principal payments	6,523
Unamortized premium on long-term debt, net of discount	3
Total long-term debt	\$6,526

## 10. INVESTIGATIONS, CLAIMS AND LITIGATION

## Litigation

On May 4, 2012, the company commenced an action, Northrop Grumman Systems Corp. v. United States, in the U.S. Court of Federal Claims. This lawsuit relates to an approximately \$875 million firm fixed price contract awarded to the company in 2007 by the U.S. Postal Service (USPS) for the construction and delivery of flats sequencing systems (FSS) as part of the postal automation program. The FSS have been delivered. The company's lawsuit is based on

various theories of liability. The complaint seeks approximately \$63 million for unpaid portions of the contract price, and approximately \$115 million based on the company's assertions that, through various acts

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and omissions over the life of the contract, the USPS adversely affected the cost and schedule of performance and materially altered the company's obligations under the contract. The United States responded to the company's complaint with an answer, denying most of the company's claims, and counterclaims seeking approximately \$410 million, less certain amounts outstanding under the contract. The principal counterclaim alleges that the company delayed its performance and caused damages to the USPS because USPS did not realize certain costs savings as early as it had expected. On April 2, 2013, the U.S. Department of Justice informed the company of a False Claims Act complaint relating to the FSS contract that was filed under seal by a relator in June 2011 in the U.S. District Court for the Eastern District of Virginia. On June 3, 2013, the United States filed a Notice informing the Court that the United States had decided not to intervene in this case. The relator alleged that the company violated the False Claims Act in a number of ways with respect to the FSS contract, alleged damage to the USPS in an amount of at least approximately \$179 million annually, alleged that he was improperly discharged in retaliation, and sought an unspecified partial refund of the contract purchase price, penalties, attorney's fees and other costs of suit. The relator later voluntarily dismissed his retaliation claim and reasserted it in a separate arbitration, which he also ultimately voluntarily dismissed. On September 5, 2014, the court granted the company's motion for summary judgment and ordered the relator's False Claims Act case be dismissed with prejudice. On December 19, 2014, the company filed a motion for partial summary judgment asking the court to dismiss the principal counterclaim referenced above. On June 29, 2015, the Court heard argument and denied that motion without prejudice to filing a later motion to dismiss. Although the ultimate outcome of these matters ("the FSS matters," collectively), including any possible loss, cannot be predicted or estimated at this time, the company intends vigorously to pursue and defend the FSS matters. On August 8, 2013, the company received a court-appointed expert's report in litigation pending in the Second Federal Court of the Federal District in Brazil brought by the Brazilian Post and Telegraph Corporation (ECT), a Brazilian state-owned entity, against Solystic SAS (Solystic), a French subsidiary of the company, and two of its consortium partners. In this suit, commenced on December 17, 2004, and relatively inactive for some period of time, ECT alleges the consortium breached its contract with ECT and seeks damages of approximately R\$111 million (the equivalent of approximately \$28 million as of December 31, 2015), plus interest, inflation adjustments and attorneys' fees, as authorized by Brazilian law, which amounts could be significant over time. The original suit sought R\$89 million (the equivalent of approximately \$23 million as of December 31, 2015) in damages. In October 2013, ECT asserted an additional damage claim of R\$22 million (the equivalent of approximately \$6 million as of December 31, 2015). In its counterclaim, Solystic alleges ECT breached the contract by wrongfully refusing to accept the equipment Solystic had designed and built and seeks damages of approximately €31 million (the equivalent of approximately \$34 million as of December 31, 2015), plus interest, inflation adjustments and attorneys' fees, as authorized by Brazilian law. The Brazilian court retained an expert to consider certain issues pending before it. On August 8, 2013 and September 10, 2014, the company received reports from the expert, which contain some recommended findings relating to liability and the damages calculations put forth by ECT. Some of the expert's recommended findings were favorable to the company and others were favorable to ECT. In November 2014, the parties submitted comments on the expert's most recent report. On June 16, 2015, the court published a decision denying the parties' request to present oral testimony. At some future point, the court is expected to issue a decision on the parties' claims and counterclaims that could accept or reject, in whole or in part, the expert's recommended findings. The company is one of several defendants in litigation brought by the Orange County Water District in Orange County Superior Court in California on December 17, 2004, for alleged contribution to volatile organic chemical contamination of the County's shallow groundwater. The lawsuit includes counts against the defendants for violation of the Orange County Water District Act, the California Super Fund Act, negligence, nuisance, trespass and declaratory relief. Among other things, the lawsuit seeks unspecified damages for the cost of remediation, payment of attorney fees and costs, and punitive damages. Trial on the statutory claims (those based on the Orange County Water District Act, the California Super Fund Act and declaratory relief) concluded on September 25, 2012. On October 29,

2013, the court issued its decision in favor of the defendants on the statutory claims. On May 9, 2014, the court granted defendants' dispositive motions on the remaining tort causes of action. Notice of entry of judgment was filed on July 1, 2014. The Orange County Water District filed a notice of appeal on August 28, 2014. The Orange County Water District filed its opening brief on October 14, 2015. The company is preparing its response.

The company is a party to various investigations, lawsuits, claims 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, and other than with respect to the FSS matters discussed separately above, the company does not believe that the outcome of any matter pending against the company is likely to have a material

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adverse effect on the company's consolidated financial position as of December 31, 2015, or its annual results of operations or cash flows.

# 11. COMMITMENTS AND CONTINGENCIES

## Guarantees of Subsidiary Performance Obligations

From time to time in the ordinary course of business, the company guarantees obligations of its subsidiaries under certain contracts. Generally, the company is liable under such an arrangement only if its subsidiary is unable to perform under its contract. Historically, the company has not incurred any substantial liabilities resulting from these guarantees.

In addition, the company's subsidiaries may enter into joint ventures, teaming and other business arrangements (collectively, Business Arrangements) to support our products and services in U.S. and international markets. The company generally strives to limit its exposure under these arrangements to its subsidiary's investment in the Business Arrangements or to the extent of such subsidiary's obligations under the applicable contract. In some cases, however, the company may be required to guarantee performance by the Business Arrangements and, in such cases, the company generally strives to obtain cross-indemnification from the other members of the Business Arrangements. At December 31, 2015, the company is not aware of any existing event of default that would require it to satisfy any of these guarantees.

## U.S. Government Cost Claims

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 the 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 matters raised by the U.S. Government. 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 estimable, and the outcome of any such matters would not have a material adverse effect on its consolidated financial position as of December 31, 2015, or its annual results of operations and/or cash flows.

## Environmental Matters

The table below summarizes management's estimate of the range of reasonably possible future costs for environmental remediation, the amount accrued within that range, and the deferred costs expected to be recoverable through overhead charges on U.S. Government contracts as of December 31, 2015 and 2014:

\$ in millions	Range of Reasonably Possible Future Costs <sup>(1)</sup>	Accrued Costs <sup>(2)</sup>	Deferred Costs <sup>(3)</sup>
December 31, 2015	\$353 - \$812	\$370	\$186
December 31, 2014	363 - 809	381	193

(1) The range of reasonably possible future costs does not take into consideration amounts expected to be recoverable through overhead charges on U.S. Government contracts.

(2) As of December 31, 2015, \$113 million is recorded in other current liabilities and \$257 million is recorded in other non-current liabilities.

(3) As of December 31, 2015, \$57 million is deferred in inventoried costs and \$129 million is deferred in other non-current assets. These amounts are evaluated for recoverability on a routine basis.

Although management cannot predict whether new information gained as our environmental remediation projects progress, or as changes in facts and circumstances occur, will materially affect the estimated liability accrued, we do not anticipate 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, 2015, 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, 2015, there were \$235 million of stand-by letters of credit and guarantees, and \$151 million of surety bonds outstanding.

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## Indemnifications

The company has retained 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, 2015, or its annual results of operations and/or cash flows.

## Operating Leases

Rental expense for operating leases was \$302 million in 2015, \$304 million in 2014, and \$298 million in 2013. These amounts are net of immaterial amounts of sublease rental income. Minimum rental commitments under long-term non-cancelable operating leases as of December 31, 2015 are payable as follows:

\$ in millions

Year Ending December 31

2016	\$251
2017	201
2018	135
2019	99
2020	61
Thereafter	92
Total minimum lease payments	\$839

Subsequent Event - Included in the amounts listed in the table above are annual rental expenses of approximately \$17 million for a facility currently under lease through December 31, 2021. On January 4, 2016, we exercised an option to purchase the facility for approximately \$150 million. The purchase is expected to close in the first quarter of 2016.

## 12. RETIREMENT BENEFITS

## Plan Descriptions

**Defined Benefit Pension Plans** – The company sponsors several defined benefit pension plans in the U.S. covering the majority of its employees. Pension benefits for most employees are based on the employee's years of service, age and compensation. It is our policy to fund at least the minimum amount required for all qualified plans, using actuarial cost methods and assumptions acceptable under U.S. Government regulations, by making payments into benefit trusts separate from the company.

**Defined Contribution Plans** – The company also sponsors 401(k) defined contribution plans in which most employees are eligible to participate, including certain employees covered under collective bargaining agreements. Company contributions for most plans are based on employer matching of up to 50 percent of employee contributions up to eight percent of compensation. In addition to the 401(k) defined contribution benefit, certain employees hired after June 30, 2008, are eligible to participate in a defined contribution program in lieu of a defined benefit pension plan. The company's contributions to these defined contribution plans for the years ended December 31, 2015, 2014 and 2013, were \$291 million, \$282 million and \$285 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 that are separate from the company.

**Medical and Life Benefits** – The company provides a portion of the costs for certain health care and life insurance benefits for a substantial number of its active and retired employees. Certain covered employees achieve eligibility to participate in these plans upon retirement from active service if they meet specified age and years of service requirements. Qualifying dependents are also eligible for plan benefits in certain circumstances. The company reserves the right to amend or terminate the plans at any time. The company has capped the amount of its contributions to substantially all of its remaining post retirement medical and life benefit plans.

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

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carve-out. Subsequent to January 1, 2005 (or earlier at some segments), newly hired employees are not eligible for subsidized post retirement medical and life benefits.

In the first quarter of 2014, we communicated an amendment to most of our Medicare-eligible retirees, that beginning in the third quarter of 2014, in lieu of the benefits previously provided under the plans, the company will provide subsidies to reimburse retirees for a portion of the cost of individual Medicare-supplemental coverage purchased directly by the retiree through a private insurance exchange. The amendment did not affect Pre-Medicare retirees. We expect that the cost of retiree medical coverage in 2016 will be comparable to 2015.

## Summary Plan Results

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

	Year Ended December 31					
	Pension Benefits			Medical and Life Benefits		
\$ in millions	2015	2014	2013	2015	2014	2013
Components of net periodic benefit cost						
Service cost	\$484	\$457	\$516	\$35	\$34	\$36
Interest cost	1,224	1,260	1,117	94	99	96
Expected return on plan assets	(1,975 )	(1,871 )	(1,809 )	(89 )	(83 )	(75 )
Amortization of:						
Prior service credit	(60 )	(59 )	(58 )	(28 )	(45 )	(51 )
Net loss from previous years	682	327	608	27	13	30
Other	—	1	—	—	—	—
Net periodic benefit cost	\$355	\$115	\$374	\$39	\$18	\$36

The table below summarizes the components of changes in unamortized benefit plan costs for the years ended December 31, 2015, 2014 and 2013:

\$ in millions	Pension Benefits	Medical and Life Benefits	Total
Changes in unamortized benefit plan costs			
Change in net actuarial loss	\$(2,158 )	\$(280 )	\$(2,438 )
Amortization of:			
Prior service credit	58	51	109
Net loss from previous years	(608 )	(30 )	(638 )
Tax expense related to above items	1,075	102	1,177
Change in unamortized benefit plan costs – 2013	(1,633 )	(157 )	(1,790 )
Change in net actuarial loss	3,833	234	4,067
Change in prior service cost	—	(92 )	(92 )
Amortization of:			
Prior service credit	59	45	104
Net loss from previous years	(327 )	(13 )	(340 )
Tax benefit related to above items	(1,357 )	(66 )	(1,423 )
Change in unamortized benefit plan costs – 2014	2,208	108	2,316
Change in net actuarial loss	626	(125 )	501
Change in prior service cost	—	—	—
Amortization of:			
Prior service credit	60	28	88
Net loss from previous years	(682 )	(27 )	(709 )

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Tax (benefit) expense related to above items	(1	) 46	45
Change in unamortized benefit plan costs – 2015	\$3	\$(78	) \$(75 )

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The table below presents the components of accumulated other comprehensive loss related to the company's retirement benefit plans:

\$ in millions	Pension Benefits		Medical and Life Benefits	
	2015	2014	2015	2014
Amounts recorded in accumulated other comprehensive loss				
Net actuarial loss	\$(8,741 )	\$(8,797 )	\$(220 )	\$(372 )
Prior service credit	304	364	66	94
Income tax benefits related to above items	3,286	3,285	64	110
Unamortized benefit plan costs	\$(5,151 )	\$(5,148 )	\$(90 )	\$(168 )

The following table sets forth the funded status and amounts recognized in the consolidated statements of financial position for the company's retirement benefit 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.

\$ in millions	Pension Benefits		Medical and Life Benefits	
	2015	2014	2015	2014
Change in plan assets				
Fair value of plan assets at beginning of year	\$25,063	\$24,098	\$1,216	\$1,175
Net gain on plan assets	(258 )	2,298	(5 )	108
Employer contributions	578	78	68	57
Participant contributions	10	19	22	50
Benefits paid	(1,428 )	(1,409 )	(151 )	(186 )
Other	(15 )	(21 )	3	12
Fair value of plan assets at end of year	23,950	25,063	1,153	1,216
Change in projected benefit obligation				
Projected benefit obligation at beginning of year	30,525	25,972	2,398	2,224
Service cost	484	457	35	34
Interest cost	1,224	1,260	94	99
Participant contributions	10	19	22	50
Plan amendments	—	—	—	(92 )
Actuarial (gain) loss	(1,602 )	4,273	(219 )	258
Benefits paid	(1,428 )	(1,409 )	(151 )	(186 )
Other	(31 )	(47 )	2	11
Projected benefit obligation at end of year	29,182	30,525	2,181	2,398
Funded status	\$(5,232 )	\$(5,462 )	\$(1,028 )	\$(1,182 )

Classification of amounts recognized in the consolidated statements of financial position

Non-current assets	\$18	\$3	\$79	\$80
Current liability	(142 )	(133 )	(43 )	(39 )
Non-current liability	(5,108 )	(5,332 )	(1,064 )	(1,223 )

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The following table shows those amounts expected to be recognized in net periodic benefit cost in 2016:

\$ in millions	Pension Benefits	Medical and Life Benefits	Total
Amounts expected to be recognized in 2016 net periodic benefit cost			
Net actuarial loss	\$714	\$16	\$730
Prior service credit	(60)	(22)	(82)

The accumulated benefit obligation for all defined benefit pension plans was \$29.0 billion and \$30.3 billion at December 31, 2015 and 2014, respectively.

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

\$ in millions	December 31	
	2015	2014
Projected benefit obligation	\$29,131	\$30,405
Accumulated benefit obligation	28,923	30,172
Fair value of plan assets	23,882	24,940

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## Plan Assumptions

On a weighted-average basis, the following assumptions were used to determine benefit obligations and net periodic benefit cost:

	Pension Benefits		Medical and Life Benefits			
	2015	2014	2015	2014		
Assumptions used to determine benefit obligation at December 31						
Discount rate	4.53	% 4.12	% 4.47	% 4.04	%	
Initial cash balance crediting rate assumed for the next year	3.00	% 2.75	%			
Rate to which the cash balance crediting rate is assumed to increase (the ultimate rate)	3.75	% 3.50	%			
Year that the cash balance crediting rate reaches the ultimate rate	2021	2020				
Rate of compensation increase	3.00	% 3.00	%			
Initial health care cost trend rate assumed for the next year			7.00	% 6.50	%	
Rate to which the health care cost trend rate is assumed to decline (the ultimate trend rate)			5.00	% 5.00	%	
Year that the health care cost trend rate reaches the ultimate trend rate			2020	2019		
Assumptions used to determine benefit cost for the year ended December 31						
Discount rate	4.12	% 4.99	% 4.04	% 4.90	%	
Initial cash balance crediting rate assumed for the next year	2.75	% 3.90	%			
Rate to which the cash balance crediting rate is assumed to increase (the ultimate rate)	3.50	% 4.70	%			
Year that the cash balance crediting rate reaches the ultimate rate	2020	2019				
Expected long-term return on plan assets	8.00	% 8.00	% 7.58	% 7.45	%	
Rate of compensation increase	3.00	% 3.00	%			
Initial health care cost trend rate assumed for the next year			6.50	% 6.50	%	
Rate to which the health care cost trend rate is assumed to decline (the ultimate trend rate)			5.00	% 5.00	%	
Year that the health care cost trend rate reaches the ultimate trend rate			2019	2017		

## 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. The investment goal is to exceed the assumed rate of return over the long term within reasonable and prudent levels of risk. Through consultation with our investment management team and outside investment advisers, management develops expected long-term returns for each of the plans' strategic asset classes. In addition to our historical investment performance, we consider several factors, including current market data such as yields/price-earnings ratios, historical market returns over long periods and periodic surveys of investment managers' expectations. Using policy target allocation percentages and the asset class expected returns, we calculate a weighted-average expected return. 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 (Employee Retirement Income Security Act). 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, 2015:

	Asset Allocation Ranges
U.S. equities	15% - 35%
International equities	10% - 30%
Fixed income securities	20% - 55%
Alternative investments	10% - 30%

The table below provides the fair values of the company's pension and VEBA trust plan assets at December 31, 2015 and 2014, 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 definition of levels). The significant amount of Level 2 investments in the table results from including in this category investments in pooled funds that contain investments with values based on quoted market prices, but for which the funds are not valued on a quoted market basis, and fixed income securities valued using model-based pricing services.

	Level 1		Level 2		Level 3		Total	
\$ in millions	2015	2014	2015	2014	2015	2014	2015	2014
Asset category								
Cash and cash equivalents <sup>(1)</sup>	\$ 37	\$ 38	\$ 1,471	\$ 1,737			\$ 1,508	\$ 1,775
U.S. equities <sup>(2)</sup>	4,043	4,729	593	147	\$ 2	\$ 2	4,638	4,878
International equities <sup>(2)</sup>	2,300	2,675	2,551	2,062			4,851	4,737
Fixed income securities								
U.S. Treasuries			530	957			530	957
U.S. Government Agency			717	909			717	909
Non-U.S. Government			309	440			309	440
Corporate debt			4,919	5,710			4,919	5,710
Asset backed			392	604	1	4	393	608
High yield debt			1,719	586			1,719	586
Bank loans			261	228			261	228
Alternative Investments								
Hedge funds					497	632	497	632
Private equities					1,850	2,030	1,850	2,030
Real estate					2,886	2,759	2,886	2,759
Other <sup>(3)</sup>	20	32	5	(2)			25	30
Fair value of plan assets at the end of the year	\$6,400	\$7,474	\$13,467	\$13,378	\$5,236	\$5,427	\$25,103	\$26,279

(1) Cash and cash equivalents are predominantly held in money market or short-term investment funds.

(2) U.S. and international equities represent private investment funds that primarily hold diversified investments in underlying equity securities. These funds are structured as limited partnerships, one of which has an unfunded commitment of \$25 million. Redemption periods are monthly with a notice requirement less than 30 days.

(3) Other assets include derivative assets with a fair value of \$40 million and \$84 million, derivative liabilities with a fair value of \$25 million and \$59 million, and net notional amounts of \$3.2 billion and \$3.0 billion, as of December 31, 2015 and 2014, 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.

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## NORTHROP GRUMMAN CORPORATION

The changes in the fair value of the pension and VEBA plan trust assets measured using Level 3 significant unobservable inputs during 2015 and 2014, are as follows:

\$ in millions	Hedge funds and High-yield debt	Private equities	Real Estate	Other	Total	
Balance as of December 31, 2013	\$822	\$2,075	\$2,767	\$6	\$5,670	
Actual return on plan assets:						
Unrealized (losses) gains, net	(46	) (60	) 173	—	67	
Realized gains, net	89	10	71	—	170	
Purchases	21	431	61	—	513	
Sales	(254	) (426	) (313	) —	(993	)
Balance as of December 31, 2014	632	2,030	2,759	6	5,427	
Actual return on plan assets:						
Unrealized gains (losses), net	(55	) (193	) 235	—	(13	)
Realized gains (losses), net	50	(2	) (7	) —	41	
Purchases	87	225	52	—	364	
Sales	(217	) (210	) (153	) (3	) (583	)
Balance as of December 31, 2015	\$497	\$1,850	\$2,886	\$3	\$5,236	

The amount of total gains and (losses) for the period attributable to the change in unrealized gains or (losses) related to assets held at year-end

\$ (55	)	\$ (172	)	\$ 310	\$ —	\$ 83
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There were no transfers of plan assets between the three levels of the fair value hierarchy during the years ended December 31, 2015 and 2014.

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. U.S. and international equities consist primarily of common stocks and institutional common trust funds. Investments in common and preferred shares are valued at the last reported sales price of the stock on the last business day of the reporting period. Units in common trust funds and hedge funds are valued based on the redemption price of units owned by the trusts at year-end. Fair value for real estate and private equity partnerships is primarily based on valuation methodologies that include third party appraisals, comparable transactions, discounted cash flow valuation models and public market data.

Non-government fixed income securities are invested across various industry sectors and credit quality ratings. Generally, investment guidelines are written to limit securities, for example, to no more than five percent of each trust account, and to exclude the purchase of securities issued by the company. The number of real estate, hedge fund and private equity partnerships is 167 and the unfunded commitments are \$1.5 billion and \$833 million as of December 31, 2015 and 2014, respectively. For alternative investments that cannot be redeemed, the typical investment term is ten years. For alternative investments that permit redemptions, such redemptions are generally made quarterly and require a 90-day notice. The company is generally unable to determine the final redemption date and amount until the request is processed by the investment fund and therefore categorizes such alternative investments as Level 3 assets.

For the years ended December 31, 2015 and 2014, the defined benefit pension and VEBA trusts did not hold any Northrop Grumman common stock.





## NORTHROP GRUMMAN CORPORATION

## 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, 2015:

\$ in millions	Pension Plans	Medical and Life Plans	Total
Year Ending December 31			
2016	\$1,469	\$151	\$1,620
2017	1,513	155	1,668
2018	1,563	158	1,721
2019	1,614	160	1,774
2020	1,664	161	1,825
2021 through 2025	9,065	788	9,853

In 2016, the company expects to contribute the required minimum funding of approximately \$79 million to its pension plans and approximately \$75 million to its other post-retirement benefit plans. During the year ended December 31, 2015, the company made a voluntary pension contribution of \$500 million.

## 13. STOCK COMPENSATION PLANS AND OTHER COMPENSATION ARRANGEMENTS

## Stock Compensation Plans

At December 31, 2015, Northrop Grumman had stock-based compensation awards outstanding under the following plans: the 2001 Long-Term Incentive Stock Plan (2001 Plan) and the 2011 Long-Term Incentive Stock Plan (2011 Plan), both applicable to employees, and the 1993 Stock Plan for Non-Employee Directors (1993 SPND). All of these plans were approved by the company's shareholders. The company has historically issued new shares to satisfy award grants.

**Employee Plans** – In 2011, the shareholders of the company approved the company's 2011 Plan, which replaced the expired 2001 Plan. The 2011 Plan permits grants to key employees of three general types of stock incentive awards: stock options, stock appreciation rights (SARs) and stock awards. Outstanding stock options granted after January 1, 2008, vest in equal increments over three years from the grant date, and grants outstanding expire seven years after the grant date. No SARs have been granted under either plan. Stock awards in the form of restricted performance stock rights (RPSR) and restricted stock rights (RSR) are granted to key employees without payment to the company. The 2011 Plan also provides equity-based award grants to non-employee directors.

Under the 2011 Plan, the company is authorized to issue or transfer shares of common stock pursuant to the types of awards mentioned above. The 2011 Plan authorized 39.1 million new shares plus 6.9 million shares from the 2001 Plan that were previously authorized and available to be issued at the date the 2001 Plan expired. In May 2015, the shareholders of the company approved amendments to the 2011 Plan (Amended 2011 Plan). The Amended 2011 Plan, among other things, removed the prior requirement to count 4.5 shares for every one stock award share issued against the aggregate share limit. Shares issued under the Amended 2011 Plan are counted against the aggregate share limit on a one-for-one basis. Based on a one-for-one share count, the amended shares available for grant are 5.1 million shares, plus 2.4 million of newly authorized shares. Under the terms of the Amended 2011 Plan, in the event awards issued under the 2001 Plan and 2011 Plan and outstanding on March 10, 2015 expire or terminate without being exercised or paid, such shares will become available for award under the Amended 2011 Plan.

Recipients of RPSRs earn shares of stock, based on achievement of financial objectives determined by the board of directors in accordance with the plan. Depending on actual performance against these objectives, recipients earn between 0 and 200 percent of the original grant (between 0 and 150 percent for the company's Corporate Policy Council), as well as dividend equivalents on the ultimate number of shares issued. Termination of employment can

result in forfeiture of some or all of the benefits extended.

As of December 31, 2015, 7.5 million shares are available for grant under the Amended 2011 Plan.

Non-Employee Director Plans – Under the 2011 Plan, each non-employee director must defer a portion of their compensation into a stock unit account (Automatic Stock Units). The Automatic Stock Units accrued under the 2011 Plan and the 1993 SPND are paid out in the form of common stock at the conclusion of the director's board service, or earlier, as specified by the director, if he or she has five or more years of service. In addition, each director may

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## NORTHROP GRUMMAN CORPORATION

elect to defer payment of all or a portion of his or her remaining cash retainer or committee retainer fees into a stock unit account (Elective Stock Units) or in alternative investment options. The Elective Stock Units are paid at the conclusion of board service or earlier as specified by the director, regardless of years of service. Directors are credited with dividend equivalents in connection with the Automatic and Elective Stock Units until shares of common stock related to such stock units are issued. Since all directors are eligible to receive awards under the 2011 Plan, shares from this plan are available for future director awards following the same share counting limits as described for the employee plans. Awards under the 2011 Plan are made pursuant to the Northrop Grumman Corporation Equity Grant Program for Non-Employee Directors under the 2011 Plan (the Director Program), which sets forth the terms and conditions for the awards of stock units as described above.

The Director Program was amended and restated effective January 1, 2016 (the Amended Director Program). In 2016, directors will receive two stock unit grants - a one-time transitional grant on January 1, 2016 (the Transition Stock Units) and an annual grant of Automatic Stock Units on May 18, 2016. The Transition Stock Units will vest on May 18, 2016, and the Automatic Stock Units will vest on the one year anniversary of the grant date. Under the Amended Director Program, directors may elect to have all or any portion of their Transition Stock Units and 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 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 calendar 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 Amended Director Program will be paid out in an equivalent number of shares of Northrop Grumman common stock.

## Compensation Expense

Stock-based compensation expense and the related tax benefits for the years ended December 31, 2015, 2014 and 2013, are as follows:

\$ in millions	Year Ended December 31		
	2015	2014	2013
Stock-based compensation expense:			
Stock options	\$—	\$—	\$4
Stock awards	99	134	140
Total stock-based compensation expense	99	134	144
Tax benefits from the exercise of stock options	6	29	25
Tax benefits from the issuance of stock awards	97	52	16
Total tax benefits recognized for stock-based compensation	\$103	\$81	\$41

At December 31, 2015, there was \$88 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.

## Stock Options

There were no stock options issued in 2015 or 2014. As of December 31, 2015 and 2014, there were 0.1 million and 0.3 million stock options outstanding, respectively. There were 0.2 million stock options exercised during the year ended December 31, 2015. All stock options outstanding were fully vested and exercisable at December 31, 2015. The total intrinsic value of exercised stock options for the years ended December 31, 2015, 2014 and 2013, was \$18 million, \$94 million and \$118 million, respectively. The total intrinsic value for options outstanding for the years ended December 31, 2015, 2014 and 2013, was \$20 million, \$28 million and \$101 million, respectively. Intrinsic value is measured using the fair market value at the date of exercise (for options exercised), or at December 31, 2015 (for options outstanding), less the applicable exercise price.

#### Stock Awards

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). 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

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## NORTHROP GRUMMAN CORPORATION

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.

Stock award activity for the years ended December 31, 2015, 2014 and 2013, 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	Weighted-Average Remaining Contractual Term (in years)
Outstanding at January 1, 2013	3,478	\$61	1.6
Granted	1,577	64	
Vested	(1,323)	) 60	
Forfeited	(312)	) 62	
Outstanding at December 31, 2013	3,420	\$61	1.5
Granted	763	118	
Vested	(1,217)	) 58	
Forfeited	(158)	) 70	
Outstanding at December 31, 2014	2,808	\$77	1.1
Granted	539	166	
Vested	(1,691)	) 62	
Forfeited	(70)	) 108	
Outstanding at December 31, 2015	1,586	\$122	1.2

The following table presents the number of RSRs and RPSRs granted to employees under the company's long-term incentive stock plan and the grant date aggregate fair value of those stock awards for the periods presented:

	Year Ended December 31		
in millions	2015	2014	2013
RSRs granted	0.2	0.2	0.5
RPSRs granted	0.4	0.6	1.1
Grant date aggregate fair value	\$89	\$90	\$101

The majority of our stock awards are granted annually during the first quarter. RSRs typically vest on the third anniversary of the grant date, while RPSRs generally vest and pay out based on the achievement of financial metrics for the three-year period ending on December 31 of the third year subsequent to grant.

The following table presents the gross number of shares issued to employees in settlement of fully vested stock awards and the total fair value at issuance and on the grant date for the periods presented:

	Year Ended December 31		
in millions	2015	2014	2013
Gross number of shares issued <sup>(1)</sup>	2.6	2.6	3.4
Fair value at issuance <sup>(2)</sup>	\$434	\$305	\$226
Grant date fair value <sup>(2)</sup>	143	80	105

(1) The gross number of shares issued includes the effect of performance adjustments. Actual shares issued to employees are net of shares withheld for taxes.

(2) The difference between the fair value at issuance and the grant date fair value reflects changes in the fair market value of the company's common stock.

In 2016, the company expects to issue to employees approximately 1.7 million shares of common stock with a grant date fair value of \$96 million, principally related to the 2013 RPSR awards that vested as of December 31, 2015.

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## NORTHROP GRUMMAN CORPORATION

The ultimate amount of shares to be paid out is subject to approval by the Compensation Committee of the Board of Directors and may vary from this estimate.

## 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:

\$ in millions	Year Ended December 31		
	2015	2014	2013
Minimum aggregate payout amount	\$37	\$32	\$32
Maximum aggregate payout amount	194	179	173

The following table presents unrecognized compensation expense associated with the company's cash awards:

\$ in millions	December 31		
	2015	2014	2013
Unrecognized compensation expense	\$128	\$122	\$108

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 on the achievement of financial metrics for a three-year period ending on December 31 of the third year subsequent to grant.

## 14. UNAUDITED SELECTED QUARTERLY DATA

Unaudited quarterly financial results are set forth in the following tables. It is the company's long-standing practice to establish actual interim closing dates using a "fiscal" calendar in which we close our books on a Friday near each quarter-end date, in order to normalize the potentially disruptive effects of quarterly closings on business processes. This practice is only used at interim periods within a reporting year.

## 2015

In millions, except per share amounts	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr
Sales	\$5,957	\$5,896	\$5,979	\$5,694
Operating income	780	813	794	689
Net earnings	484	531	516	459
Basic earnings per share	2.45	2.77	2.78	2.52
Diluted earnings per share	2.41	2.74	2.75	2.49

Weighted-average common shares outstanding

200.5 193.7 187.9 184.2

## 2014

In millions, except per share amounts	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr
Sales	\$5,848	\$6,039	\$5,984	\$6,108
Operating income	845	820	769	762
Net earnings	579	511	473	506
Basic earnings per share	2.68	2.41	2.29	2.52
Diluted earnings per share	2.63	2.37	2.26	2.48

Weighted-average common shares outstanding

220.4 215.2 209.2 204.2





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 (Chairman, 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 of December 31, 2015, 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 Securities Exchange Act of 1934 (15 USC § 78a et seq) is recorded, processed, summarized and reported within the time periods specified in the Securities and Exchange Commission'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, 2015, no change occurred in our internal controls over financial reporting that materially affected, or is reasonably likely to materially affect, our internal controls over financial reporting.

Item 9B. Other Information

None.

## 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, 2015.

Deloitte & Touche LLP issued an attestation report dated February 1, 2016, 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, 2015, 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/ Wesley G. Bush  
Chairman, Chief Executive Officer and President

/s/ Kenneth L. Bedingfield  
Corporate Vice President and Chief Financial Officer  
February 1, 2016

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

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

We have audited the internal control over financial reporting of Northrop Grumman Corporation and subsidiaries (the “Company”) as of December 31, 2015, based on criteria established in Internal Control — Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission. 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 conducted our audit in accordance with the standards of the Public Company Accounting Oversight Board (United States). 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.

A company’s internal control over financial reporting is a process designed by, or under the supervision of, the company’s principal executive and principal financial officers, or persons performing similar functions, and effected by the company’s board of directors, management, and other personnel 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 the inherent limitations of internal control over financial reporting, including the possibility of collusion or improper management override of controls, material misstatements due to error or fraud may not be prevented or detected on a timely basis. Also, projections of any evaluation of the effectiveness of the internal control over financial reporting to future periods are subject to the risk that the controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

In our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2015, based on the criteria established in Internal Control – Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission.

We have also audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States), the consolidated financial statements as of and for the year ended December 31, 2015 of the Company and our report dated February 1, 2016 expressed an unqualified opinion on those financial statements.

/s/ Deloitte & Touche LLP  
McLean, Virginia  
February 1, 2016

NORTHROP GRUMMAN CORPORATION

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 2016 Annual Meeting of Stockholders, to be filed with the Securities and Exchange Commission within 120 days after the end of our fiscal year.

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## NORTHROP GRUMMAN CORPORATION

## EXECUTIVE OFFICERS

Our executive officers as of February 1, 2016, 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.

Name	Age	Office Held	Since	Recent Business Experience
Wesley G. Bush	54	Chairman, Chief Executive Officer and President	2010	President and Chief Operating Officer (2007-2009); Prior to March 2007, President and Chief Financial Officer (2006-2007); Corporate Vice President and Chief Financial Officer (2005-2006)
Patrick M. Antkowiak	55	Corporate Vice President and Chief Technology Officer	2014	Vice President and General Manager, Advanced Concepts and Technologies Division, Electronic Systems Sector (2010-2014); Vice President of Engineering, Manufacturing and Logistics, Electronic Systems Sector (2010)
M. Sidney Ashworth	64	Corporate Vice President, Government Relations	2010	Vice President of Washington Operations, GE Aviation (a provider of aircraft engines, components and systems) (2010); Prior to March 2010, Principal, the Ashworth Group (a consulting firm) (2009-2010); Professional Staff Member, U.S. Senate Committee on Appropriations (1995-2009)
Kenneth L. Bedingfield	43	Corporate Vice President and Chief Financial Officer	2015	Vice President, Finance (2014-2015); Vice President, Business Management and Chief Financial Officer, Aerospace Systems Sector (2013-2014); Corporate Vice President, Controller and Chief Accounting Officer (2011-2013); Audit Partner, KPMG LLP (a professional services firm) (2005-2011)
Mark A. Caylor	51	Corporate Vice President and President, Enterprise Services and Chief Strategy Officer	2013	Corporate Vice President and Treasurer (2011-2012); Assistant Treasurer (2008-2011); Director, Mergers & Acquisitions (2006-2008)
Sheila C. Cheston	57	Corporate Vice President and General Counsel	2010	Executive Vice President and Director, BAE Systems, Inc. (an aerospace and defense company) (2009 -2010); Prior to September 2009, Senior Vice President, General Counsel, Secretary and Director, BAE Systems, Inc. (2002-2009)
Gloria A. Flach	57	Corporate Vice President and Chief Operating Officer	2016	Corporate Vice President and President, Electronic Systems (2013-2015); Corporate Vice President and President, Enterprise Shared Services (2010-2012); Sector Vice President and General Manager, Targeting Systems Division, Electronic Systems Sector (2010); Prior to 2010, Sector Vice

Darryl M. Fraser*	57	Corporate Vice President, Communications	2008	President and General Manager of Engineering, Manufacturing and Logistics, Electronic Systems Sector (2009) Sector Vice President of Business Development and Strategic Initiatives, Mission Systems Sector (2007-2008)
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## NORTHROP GRUMMAN CORPORATION

Name	Age	Office Held	Since	Recent Business Experience
Michael A. Hardesty	44	Corporate Vice President, Controller, and Chief Accounting Officer	2013	Vice President and Chief Financial Officer, Information Systems (2011-2013); Vice President, Internal Audit (2010-2011); Vice President and Chief Financial Officer, Enterprise Shared Services (2008-2010)
Christopher T. Jones	51	Corporate Vice President and Technology Services Sector	2016	Corporate Vice President and President, Technical Services (2013-2015); Vice President and General Manager, Integrated Logistics and Modernization Division, Technical Services Sector (2010-2012); Director of Product Support (2004-2010)
Denise M. Peppard	59	Corporate Vice President and Chief Human Resources Officer	2011	Vice President and Chief Human Resources, Computer Sciences Corporation (an information technology services company) (2010-2011); Senior Vice President of Human Resources, Wyeth Pharmaceuticals, Inc. (a pharmaceuticals company) (2001-2010)
David T. Perry	51	Corporate Vice President and Chief Global Business Development Officer	2012	Vice President and General Manager of Naval and Marine Systems Division, Electronic Systems Sector (2009-2012); Vice President of Marine Systems, Electronic Systems Sector (2005-2009)
Thomas E. Vice	53	Corporate Vice President and Aerospace Systems Sector	2013	Corporate Vice President and President, Technical Services (2010-2012); Sector Vice President and General Manager, Battle Management and Engagement Systems Division, Aerospace Systems Sector (2008-2010)
Kathy J. Warden	44	Corporate Vice President and President, Mission Systems Sector	2016	Corporate Vice President and President, Information Systems (2013-2015); Vice President and General Manager, Cyber Intelligence Division (2011-2012); Vice President, Cyber and SIGINT business unit (2008-2011)

\*Mr. Fraser is scheduled to retire from his position on February 29, 2016.

## AUDIT COMMITTEE FINANCIAL EXPERT

The information as to the Audit Committee and the Audit Committee Financial Expert will be incorporated herein by reference to the Proxy Statement for the 2016 Annual Meeting of Stockholders to be filed within 120 days after the end of the company's fiscal year.

## 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 internet website at [www.northropgrumman.com](http://www.northropgrumman.com) under "Investor Relations – Corporate Governance – Overview." 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 report on Form 10-K or other filings with the Securities and Exchange Commission.

**OTHER DISCLOSURES**

Other disclosures required by this Item will be incorporated herein by reference to the Proxy Statement for the 2016 Annual Meeting of Stockholders to be filed within 120 days after the end of the company's fiscal year.

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NORTHROP GRUMMAN CORPORATION

Item 11. Executive Compensation

Information concerning Executive Compensation, including information concerning Compensation Committee Interlocks and Insider Participation and Compensation Committee Report, will be incorporated herein by reference to the Proxy Statement for the 2016 Annual Meeting of Stockholders to be filed within 120 days after the end of the company's fiscal year.

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 2016 Annual Meeting of Stockholders to be filed within 120 days after the end of the company's fiscal year.

For a description of securities authorized under our equity compensation plans, see Note 13 to the consolidated financial statements in Part II, Item 8.

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 2016 Annual Meeting of Stockholders to be filed within 120 days after the end of the company's fiscal year.

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 2016 Annual Meeting of Shareholders to be filed within 120 days after the end of the company's fiscal year.

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PART IV

Item 15. Exhibits and Financial Statement Schedules

(a) 1. Report of Independent Registered Public Accounting Firm

Financial Statements

Consolidated Statements of Earnings and Comprehensive Income (Loss)

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 financial statements or notes to the financial statements.

3. Exhibits

- 2(a) Separation and Distribution Agreement dated as of March 29, 2011, among Titan II, Inc. (formerly Northrop Grumman Corporation), Northrop Grumman Corporation (formerly New P, Inc.), Huntington Ingalls Industries, Inc., Northrop Grumman Shipbuilding, Inc. and Northrop Grumman Systems Corporation (incorporated by reference to Exhibit 10.2 to Form 8-K filed April 4, 2011)
- 3(a) Amended and Restated Certificate of Incorporation of Northrop Grumman Corporation dated May 29, 2012 (incorporated by reference to Exhibit 3.1 to Form 10-Q for the quarter ended June 30, 2012, filed July 24, 2012)
- 3(b) Amended and Restated Bylaws of Northrop Grumman Corporation dated December 4, 2015 (incorporated by reference to Exhibit 3.2 to Form 8-K filed December 10, 2015)
- 4(a) Registration Rights Agreement dated as of January 23, 2001, by and among Northrop Grumman Corporation (now Northrop Grumman Systems Corporation), NNG, Inc. (now Northrop Grumman Corporation) and Unitrin, Inc. (incorporated by reference to Exhibit(d)(6) to Amendment No. 4 to Schedule TO filed January 31, 2001)
- 4(b) 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)
- 4(c) 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)
- 4(d) 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)
- 4(e) Form of Officers' Certificate (without exhibits) establishing the terms of Northrop Grumman Corporation's (now Northrop Grumman Systems Corporation's) 7.75 percent Debentures due 2016

and 7.875 percent Debentures due 2026 (incorporated by reference to Exhibit 4-3 to Form S-4  
Registration Statement No. 333-02653 filed April 19, 1996)

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- 4(f) Form of Northrop Grumman Corporation's (now Northrop Grumman Systems Corporation's) 7.75 percent Debentures due 2016 (incorporated by reference to Exhibit 4-5 to Form S-4 Registration Statement No. 333-02653 filed April 19, 1996)
- 4(g) Form of Northrop Grumman Corporation's (now Northrop Grumman Systems Corporation's) 7.875 percent Debentures due 2026 (incorporated by reference to Exhibit 4-6 to Form S-4 Registration Statement No. 333-02653 filed April 19, 1996)
- 4(h) Form of Officers' Certificate establishing the terms of Northrop Grumman Corporation's (now Northrop Grumman Systems Corporation's) 7.75 percent Debentures due 2031 (incorporated by reference to Exhibit 10.9 to Form 8-K filed April 17, 2001)
- 4(i) Indenture dated as of April 13, 1998, between Litton Industries, Inc. (predecessor-in-interest to Northrop Grumman Systems Corporation) and The Bank of New York, as trustee, under which its 6.75 percent Senior Debentures due 2018 were issued (incorporated by reference to Exhibit 4.1 to the Form 10-Q of Litton Industries, Inc. for the quarter ended April 30, 1998, filed June 15, 1998) Supplemental Indenture with respect to Indenture dated April 13, 1998, dated as of April 3, 2001, among Litton Industries, Inc. (predecessor-in-interest to Northrop Grumman Systems Corporation),
- 4(j) Northrop Grumman Corporation, Northrop Grumman Systems Corporation 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, 2001, filed May 10, 2001)
- 4(k) Supplemental Indenture with respect to Indenture dated April 13, 1998, 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(q) to Form 10-K for the year ended December 31, 2002, filed March 24, 2003)
- 4(l) 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 Indenture dated April 13, 1998, between Litton Industries, Inc. and The Bank of New York, as trustee (incorporated by reference to Exhibit 4.3 to Form 10-Q for the quarter ended March 31, 2011, filed April 27, 2011)
- 4(m) 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 Indenture dated April 13, 1998, between Litton Industries, Inc. and The Bank of New York, as trustee (incorporated by reference to Exhibit 4.4 to Form 10-Q for the quarter ended March 31, 2011, filed April 27, 2011)
- 4(n) 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 percent and 6.98 percent 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)
- 4(o) Supplemental Indenture with respect to 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)

- 4(p) Supplemental Indenture with respect to 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)

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- 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
- 4(q) December 15, 1991, among Litton Industries, Inc., Northrop Grumman Corporation, Northrop Grumman Systems Corporation 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)
- 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
- 4(r) Northrop Grumman Corporation (formerly known as New P, Inc.), to Senior Indenture dated December 15, 1991, among Litton Industries, Inc., Northrop Grumman Corporation, Northrop Grumman Systems Corporation 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)
- 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
- 4(s) to the Form 8-A Registration Statement of TRW Inc. dated July 3, 1986)
- 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(t) 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
- 4(u) (incorporated by reference to Exhibit 4(f) to Form S-4 Registration Statement No. 333-83227 of TRW Inc. filed July 20, 1999)
- 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
- 4(v) 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)
- 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
- 4(w) 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)
- 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
- 4(x) 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)
- 4(y) 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)

- 4(z) First Supplemental Indenture dated as of July 30, 2009, 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 July 30, 2009)
- 4(aa) Form of Northrop Grumman Corporation's 5.05 percent Senior Note due 2019 (incorporated by reference to Exhibit 4(c) to Form 8-K filed July 30, 2009)

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- 4(bb) 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)
- 4(cc) Form of Northrop Grumman Corporation's 3.500% Senior Note due 2021 (incorporated by reference to Exhibit 4(a) to Form 8-K filed November 8, 2010)
- 4(dd) Form of Northrop Grumman Corporation's 5.050% Senior Note due 2040 (incorporated by reference to Exhibit 4(a) to Form 8-K filed November 8, 2010)
- 4(ee) 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)
- 4(ff) 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)
- 4(gg) 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)
- 4(hh) Form of 1.750% Senior Note due 2018 (incorporated by reference to Exhibit 4(a) to Form 8-K filed May 31, 2013)
- 4(ii) Form of 3.250% Senior Note due 2023 (incorporated by reference to Exhibit 4(a) to Form 8-K filed May 31, 2013)
- 4(jj) Form of 4.750% Senior Note due 2043 (incorporated by reference to Exhibit 4(a) to Form 8-K filed May 31, 2013)
- 4(kk) 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)
- 4(ii) Form of 3.850% Senior Note due 2045 (incorporated by reference to Exhibit 4.1 to Form 8-K filed February 6, 2015)
- 10(a) Amended and Restated Credit Agreement, dated as of July 8, 2015, 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 July 9, 2015)
- 10(b) Credit Agreement dated as of August 29, 2013, among Northrop Grumman Corporation, as Borrower; Northrop Grumman Systems Corporation, as Guarantor; the Lenders party thereto; JPMorgan Chase Bank, N.A., as Administrative Agent; an Issuing Bank and a Swingline Lender, and The Royal Bank of Scotland plc, Citibank, N.A., and Wells Fargo Bank, National Association, as Issuing Banks and Syndication Agents (incorporated by reference to Exhibit 10.1 to Form 8-K filed August 30, 2013)
- 10(c)



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)

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- 10(d) 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)
- 10(e) 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)
- +10(f) 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)
- +10(g) Northrop Grumman Corporation Non-Employee Directors Equity Participation Plan (Amended and Restated January 1, 2008) (incorporated by reference to Exhibit 10(q) to Form 10-K for the year ended December 31, 2007, filed February 20, 2008)
- +10(h) Northrop Grumman 2001 Long-Term Incentive Stock Plan (As amended through December 19, 2007) (incorporated by reference to Exhibit A to the Company's Proxy Statement on Schedule 14A for the 2008 Annual Meeting of Shareholders filed April 21, 2008)
- (i) Form of Notice of Non-Qualified Grant of Stock Options and Option Agreement (incorporated by reference to Exhibit 10.5 to Form S-4 Registration Statement No. 333-83672 filed March 4, 2002)
- (ii) Form of Agreement for 2005 Stock Options (officer) (incorporated by reference to Exhibit 10(d)(v) to Form 10-K for the year ended December 31, 2004, filed March 4, 2005)
- (iii) Form of letter from Northrop Grumman Corporation regarding Stock Option Retirement Enhancement (incorporated by reference to Exhibit 10.2 to Form 8-K dated March 14, 2005 and filed March 15, 2005)
- (iv) Form of Agreement for 2006 Stock Options (officer) (incorporated by reference to Exhibit 10(d)(viii) to Form 10-K for the year ended December 31, 2005, filed February 17, 2006)
- (v) Form of Agreement for 2007 Stock Options (officers) (incorporated by reference to Exhibit 10(2)(ii) to Form 10-Q for the quarter ended March 31, 2007, filed April 24, 2007)
- (vi) Form of Agreement for 2008 Stock Options (officer) (incorporated by reference to Exhibit 10(4)(i) to Form 10-Q for the quarter ended March 31, 2008, filed April 24, 2008)
- (vii) Form of Agreement for 2009 Stock Options (incorporated by reference to Exhibit 10.2(i) to Form 10-Q for the quarter ended March 31, 2009, filed April 22, 2009)
- (viii) Form of Agreement for 2010 Stock Options (incorporated by reference to Exhibit 10.3 to Form 10-Q for the quarter ended March 31, 2010, filed April 28, 2010)
- (ix) Form of Agreement for 2011 Stock Options granted under the Northrop Grumman 2001 Long-Term Incentive Stock Plan (As amended through December 19, 2007) (incorporated by reference to Exhibit 10.1 of Form 8-K filed February 22, 2011)
- (xvi) Form of Agreement for 2011 Restricted Stock Rights granted under the Northrop Grumman 2001 Long-Term Incentive Stock Plan (As amended through December 19, 2007) (incorporated by reference to Exhibit 10.3 of Form 8-K filed February 22, 2011)
- +10(i) 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 Northrop Grumman Corporation 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 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)
- +10(j) 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)

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- Summary of Non-Employee Director Award Terms Under the 2011 Long-Term Incentive Stock Plan effective (i) December 21, 2011 (incorporated by reference to Exhibit 10(j)(ii) to Form 10-K for the year ended December 31, 2011, filed February 7, 2012)
- Northrop Grumman Corporation Equity Grant Program for Non-Employee Directors under the Northrop Grumman (ii) 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)
- Grant Certificate Specifying the Terms and Conditions Applicable to 2012 Restricted Stock Rights Granted Under (iii) the 2011 Long-Term Incentive Stock Plan (incorporated by reference to Exhibit 10.1 to Form 8-K filed February 17, 2012)
- Grant Certificate Specifying the Terms and Conditions Applicable to 2012 Restricted Performance Stock Rights (iv) Granted Under the 2011 Long-Term Incentive Stock Plan (incorporated by reference to Exhibit 10.2 to Form 8-K filed February 17, 2012)
- Grant Certificate Specifying the Terms and Conditions Applicable to 2013 Restricted Stock Rights Granted Under (v) the 2011 Long-Term Incentive Stock Plan (incorporated by reference to Exhibit 10.1 to Form 8-K filed February 21, 2013)
- Grant Certificate Specifying the Terms and Conditions Applicable to 2013 Restricted Performance Stock Rights (vi) Granted Under the 2011 Long-Term Incentive Stock Plan (incorporated by reference to Exhibit 10.2 to Form 8-K filed February 21, 2013)
- Grant Certificate Specifying the Terms and Conditions Applicable to Special 2013 Restricted Stock Rights (vii) Granted to James F. Palmer Under the 2011 Long-Term Incentive Stock Plan (incorporated by reference to Exhibit 10.1 to Form 8-K filed September 23, 2013)
- Grant Certificate Specifying the Terms and Conditions Applicable to 2014 Restricted Stock Rights Granted (viii) Under the 2011 Long-Term Incentive Stock Plan (incorporated by reference to Exhibit 10.1 to Form 8-K filed February 24, 2014)
- Grant Certificate Specifying the Terms and Conditions Applicable to 2014 Restricted Performance Stock Rights (ix) Granted Under the 2011 Long-Term Incentive Stock Plan (incorporated by reference to Exhibit 10.2 to Form 8-K filed February 24, 2014)
- Amended and Restated Grant Certificate Specifying the Terms and Conditions Applicable to 2014 Restricted Stock (x) Rights Granted Under the 2011 Long-Term Incentive Stock Plan (incorporated by reference to Exhibit 10.2 to Form 10-Q for the quarter ended June 30, 2014, filed July 23, 2014)
- Amended and Restated Grant Certificate Specifying the Terms and Conditions Applicable to 2014 Restricted (xi) Performance Stock Rights Granted Under the 2011 Long-Term Incentive Stock Plan (incorporated by reference to Exhibit 10.3 to Form 10-Q for the quarter ended June 30, 2014, filed July 23, 2014)
- Grant Certificate Specifying the Terms and Conditions Applicable to 2015 Restricted Stock Rights Granted (xii) Under the 2011 Long-Term Incentive Stock Plan (incorporated by reference to Exhibit 10.1 to Form 8-K filed February 20, 2015)
- Grant Certificate Specifying the Terms and Conditions Applicable to 2015 Restricted Performance Stock Rights (xiii) Granted Under the 2011 Long-Term Incentive Stock Plan (incorporated by reference to Exhibit 10.2 to Form 8-K filed February 20, 2015)
- Northrop Grumman Supplemental Plan 2 (Amended and Restated Effective as of January 1, 2014)  
+10(k) (incorporated by reference to Exhibit 10(l) to Form 10-K for the year ended December 31, 2013, Filed February 3, 2014)
- Appendix B to the Northrop Grumman Supplemental Plan 2: ERISA Supplemental Program 2 (Amended and (i) 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)

- Appendix F to the Northrop Grumman Supplemental Plan 2: CPC Supplemental Executive Retirement Program
- (ii) (Amended and Restated Effective as of January 1, 2012) (incorporated by reference to Exhibit 10(k)(iii) to Form 10-K for the year ended December 31, 2011, filed February 8, 2012)
  - (iii) 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

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reference to Exhibit 10(k)(iv) to Form 10-K for the year ended December 31, 2011, filed February 8, 2012)

\*(iv) Appendix I to the Northrop Grumman Supplemental Plan 2: Officers Supplemental Executive Retirement Program II

- +10(l) 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)
- \*+10(m) Northrop Grumman Electronic Systems Executive Pension Plan (Amended and Restated Effective as of January 1, 2016)
- +10(n) Severance Plan for Elected and Appointed Officers of Northrop Grumman Corporation (Amended and Restated Effective July 20, 2012) (incorporated by reference to Exhibit 10.4 to Form 10-Q for the quarter ended September 30, 2012, filed October 23, 2012)
- +10(o) Letter dated May 15, 2013, between the Board of Directors and Wesley G. Bush (incorporated by reference to Exhibit 99.1 to Form 8-K filed May 15, 2013)
- +10(p) Non-Employee Director Compensation Term Sheet, effective January 1, 2015 (incorporated by reference to Exhibit 10(p) to Form 10-K for the year ended December 31, 2014, filed February 2, 2015)
- +10(q) Non-Employee Director Compensation Term Sheet, effective May 20, 2015 (incorporated by reference to Exhibit 10.1 to Form 10-Q for the quarter ended June 30, 2015, filed July 29, 2015)
- +10(r) 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 24, 2012)
- +10(s) Northrop Grumman Deferred Compensation Plan (Amended and Restated Effective as of January 1, 2013) (incorporated by reference to Exhibit 10(t) to Form 10-K for the year ended December 31, 2012, filed February 4, 2013)
- +10(t) The 2002 Incentive Compensation Plan of Northrop Grumman Corporation, As Amended and Restated effective January 1, 2009 (incorporated by reference to Exhibit 10.6 to Form 10-Q for the quarter ended March 31, 2009, filed April 22, 2009)
- +10(u) Northrop Grumman 2006 Annual Incentive Plan and Incentive Compensation Plan (for Non-Section 162(m) Officers), as amended and restated effective January 1, 2009 (incorporated by reference to Exhibit 10.7 to Form 10-Q for the quarter ended March 31, 2009, filed April 22, 2009)
- +\*10(v) Northrop Grumman Savings Excess Plan (Amended and Restated Effective as of January 1, 2016)
- +\*10(w) Northrop Grumman Officers Retirement Account Contribution Plan (Amended and Restated Effective as of January 1, 2015)
- +10(x) Compensatory Arrangements of Certain Officers (incorporated by reference to Item 5.02(e) of Form 8-K filed February 20, 2015)
- +10(y) Offering letter dated February 1, 2007 from Northrop Grumman Corporation to James F. Palmer relating to position of Corporate Vice President and Chief Financial Officer (incorporated by reference to Exhibit 10(3) to Form 10-Q for the quarter ended March 31, 2007, filed April 24, 2007), as amended by Amendment to Letter Agreement between Northrop Grumman Corporation and James F. Palmer dated December 17, 2008 (incorporated by reference to Exhibit 10.3 to Form 8-K filed December 19, 2008)



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- +10(z) Northrop Grumman Supplemental Retirement Replacement Plan, as Restated, dated January 1, 2008 between Northrop Grumman Corporation and James F. Palmer (incorporated by reference to Exhibit 10.4 to Form 8-K filed December 19, 2008)  
 First Amendment to the Northrop Grumman Supplemental Retirement Replacement Plan, dated (i) October 25, 2011 (incorporated by reference to Exhibit 10(bb)(i) to Form 10-K for the year ended December 31, 2011, filed February 7, 2012)
- +10(aa) Northrop Grumman Corporation Special Officer Retiree Medical Plan (Amended and Restated Effective January 1, 2008) (incorporated by reference to Exhibit 10(2) to Form 10-Q for the quarter ended March 31, 2008, filed April 24, 2008)
- +10(bb) Executive Life Insurance Policy (incorporated by reference to Exhibit 10(gg) to Form 10-K for the year ended December 31, 2004, filed March 4, 2005)
- +10(cc) Executive Accidental Death, Dismemberment and Plegia Insurance Policy Terms applicable to Executive Officers dated January 1, 2009 (incorporated by reference to Exhibit 10.3 to Form 10-Q for the quarter ended March 31, 2009, filed April 22, 2009)
- +10(dd) Executive Long-Term Disability Insurance Policy as amended by Amendment No. 2 dated June 19, 2008 and effective as of October 4, 2007 (incorporated by reference to Exhibit 10(2) to Form 10-Q for the quarter ended June 30, 2008, filed July 29, 2008)
- +10(ee) Executive Dental Insurance Policy Group Numbers 5134 and 5135 (incorporated by reference to Exhibit 10(m) to Form 10-K for the year ended December 31, 1995, filed February 22, 1996), as amended by action of the Compensation Committee of the Board of Directors of Northrop Grumman Corporation effective July 1, 2009 (incorporated by reference to Item 5.02(e) of Form 8-K filed May 26, 2009)
- +10(ff) Group Personal Excess Liability Policy (incorporated by reference to Exhibit 10.15 to Form 10-Q for the quarter ended June 30, 2011, filed July 27, 2011)
- +10(gg) Letter dated December 16, 2009 from Northrop Grumman Corporation to Wesley G. Bush regarding compensation effective January 1, 2010 (incorporated by reference to Exhibit 10.2 to Form 8-K filed December 21, 2009)
- +10(hh) Northrop Grumman Corporation 1995 Stock Plan for Non-Employee Directors, as Amended as of May 16, 2007 (incorporated by reference to Exhibit A to the Company's Proxy Statement on Schedule 14A for the 2007 Meeting of Shareholders filed April 12, 2007)
- \*+10(ii) Relocation Agreement between Northrop Grumman Corporation and Gloria A. Flach dated December 1, 2015
- \*+10(jj) Relocation Agreement between Northrop Grumman Corporation and Kathy J. Warden dated December 1, 2015
- \*12(a) Computation of Ratio of Earnings to Fixed Charges
- \*21 Subsidiaries
- \*23 Consent of Independent Registered Public Accounting Firm
- \*24 Power of Attorney
- \*31.1 Rule 13a-15(e)/15d-15(e) Certification of Wesley G. Bush (Section 302 of the Sarbanes-Oxley Act of 2002)
- \*31.2 Rule 13a-15(e)/15d-15(e) Certification of Kenneth L. Bedingfield (Section 302 of the Sarbanes-Oxley Act of 2002)
- \*\*32.1 Certification of Wesley G. Bush pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002





NORTHROP GRUMMAN CORPORATION

- \*\*32.2 Certification of Kenneth L. Bedingfield pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002
- \*101 Northrop Grumman Corporation Annual Report on Form 10-K for the fiscal year ended December 31, 2015, formatted in XBRL (Extensible Business Reporting Language); (i) the Consolidated Statements of Earnings and Comprehensive Income (Loss), (ii) Consolidated Statements of Financial Position, (iii) Consolidated Statements of Cash Flows, (iv) Consolidated Statements of Changes in Shareholders' Equity, and (v) Notes to Consolidated Financial Statements
- + Management contract or compensatory plan or arrangement
- \* Filed with this Report
- \*\* Furnished with this Report

NORTHROP GRUMMAN CORPORATION

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized, on the 1st day of February 2016.

NORTHROP GRUMMAN CORPORATION

By: /s/ Michael A. Hardesty  
Michael A. Hardesty  
Corporate Vice President, Controller, and Chief  
Accounting Officer  
(Principal Accounting Officer)

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed on behalf of the registrant this the 1st day of February 2016, by the following persons and in the capacities indicated.

Signature	Title
Wesley G. Bush*	Chairman, Chief Executive Officer and President (Principal Executive Officer), and Director
Kenneth L. Bedingfield*	Corporate Vice President and Chief Financial Officer (Principal Financial Officer)
Michael A. Hardesty	Corporate Vice President, Controller and Chief Accounting Officer
Marianne C. Brown*	Director
Victor H. Fazio*	Director
Donald E. Felsinger*	Director
Bruce S. Gordon*	Director
William H. Hernandez*	Director
Madeleine A. Kleiner*	Director
Karl J. Krapek*	Director
Richard B. Myers*	Director
Gary Roughead*	Director
Thomas M. Schoewe*	Director

James S. Turley\*

Director

\*By: /s/ Jennifer C. McGarey  
Jennifer C. McGarey  
Corporate Vice President and Secretary  
Attorney-in-Fact  
pursuant to a power of attorney

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