

(k) NSTC member agencies shall coordinate through the NSTC to establish roles and responsibilities beyond those identified in section 4 of this order to enhance space weather preparedness, consistent with each agency's legal authority.

SEC. 5. *Implementation.* (a) Within 120 days of the date of this order, the Secretary of Energy, in consultation with the Secretary of Homeland Security, shall develop a plan to test and evaluate available devices that mitigate the effects of geomagnetic disturbances on the electrical power grid through the development of a pilot program that deploys such devices, *in situ*, in the electrical power grid. After the development of the plan, the Secretary shall implement the plan in collaboration with industry. In taking action pursuant to this subsection, the Secretaries of Energy and Homeland Security shall consult with the Chairman of the Federal Energy Regulatory Commission.

(b) Within 120 days of the date of this order, the heads of the sector-specific agencies that oversee the lifeline critical infrastructure functions as defined by the National Infrastructure Protection Plan of 2013—including communications, energy, transportation, and water and wastewater systems—as well as the Nuclear Reactors, Materials, and Waste Sector, shall assess their executive and statutory authority, and limits of that authority, to direct, suspend, or control critical infrastructure operations, functions, and services before, during, and after a space weather event. The heads of each sector-specific agency shall provide a summary of these assessments to the Subcommittee.

(c) Within 90 days of receipt of the assessments ordered in section 5(b) of this order, the Subcommittee shall provide a report on the findings of these assessments with recommendations to the Director of OSTP, the Assistant to the President for Homeland Security and Counterterrorism, and the Director of OMB. The assessments may be used to inform the development and implementation of policy establishing authorities and responsibilities for agencies in response to a space weather event.

(d) Within 60 days of the date of this order, the Secretaries of Defense and Commerce, the Administrator of NASA, and the Director of NSF, in collaboration with other agencies as appropriate, shall identify mechanisms for advancing space weather observations, models, and predictions, and for sustaining and transitioning appropriate capabilities from research to operations and operations to research, collaborating with industry and academia to the extent possible.

(e) Within 120 days of the date of this order, the Secretaries of Defense and Commerce shall make historical data from the GPS constellation and other U.S. Government satellites publicly available, in accordance with Executive Order 13642 of May 9, 2013 (Making Open and Machine Readable the New Default for Government Information), to enhance model validation and improvements in space weather forecasting and situational awareness.

(f) Within 120 days of the date of this order, the Secretary of Homeland Security, through the Administrator of the Federal Emergency Management Agency and in coordination with relevant agencies, shall lead the development of a coordinated Federal operating concept and associated checklist to coordinate Federal assets and activities to respond to notification of, and protect against, impending space weather events. Within 180 days of the publication of the operating concept and checklist, agencies shall develop operational plans documenting their procedures and responsibilities to prepare for, protect against, and mitigate the effects of impending space weather events, in support of the Federal operating concept and compatible with the National Preparedness System described in PPD-8.

SEC. 6. *Stakeholder Engagement.* The agencies identified in this order shall seek public-private and international collaborations to enhance observation networks, conduct research, develop prediction models and mitigation approaches, enhance community resilience and preparedness, and supply the services necessary to

protect life and property and promote economic prosperity, as consistent with law.

SEC. 7. *Definitions.* As used in this order:

(a) "Prepare" and "preparedness" have the same meaning they have in PPD-8. They refer to the actions taken to plan, organize, equip, train, and exercise to build and sustain the capabilities necessary to prevent, protect against, mitigate the effects of, respond to, and recover from those threats that pose the greatest risk to the security of the Nation. This includes the prediction and notification of space weather events.

(b) "Space weather" means variations in the space environment between the Sun and Earth (and throughout the solar system) that can affect technologies in space and on Earth. The primary types of space weather events are solar flares, solar energetic particles, and geomagnetic disturbances.

(c) "Solar flare" means a brief eruption of intense energy on or near the Sun's surface that is typically associated with sunspots.

(d) "Solar energetic particles" means ions and electrons ejected from the Sun that are typically associated with solar eruptions.

(e) "Geomagnetic disturbance" means a temporary disturbance of Earth's magnetic field resulting from solar activity.

(f) "Critical infrastructure" has the meaning provided in section 1016(e) of the USA Patriot Act of 2001 (42 U.S.C. 5195c(e)), namely systems and assets, whether physical or virtual, so vital to the United States that the incapacity or destruction of such systems and assets would have a debilitating impact on security, national economic security, national public health or safety, or any combination of those matters.

(g) "Sector-Specific Agency" means the agencies designated under PPD-21 of February 12, 2013 (Critical Infrastructure Security and Resilience), or any successor directive, to be responsible for providing institutional knowledge and specialized expertise as well as leading, facilitating, or supporting the security and resilience programs and associated activities of its designated critical infrastructure sector in the all-hazards environment.

SEC. 8. *General Provisions.* (a) Nothing in this order shall be construed to impair or otherwise affect:

(i) the authority granted by law to an agency, or the head thereof; or

(ii) the functions of the Director of OMB relating to budgetary, administrative, or legislative proposals.

(b) This order shall be implemented consistent with applicable law and subject to the availability of appropriations.

(c) This order is not intended to, and does not, create any right or benefit, substantive or procedural, enforceable at law or in equity by any party against the United States, its departments, agencies, or entities, its officers, employees, or agents, or any other person.

BARACK OBAMA.

## SUBCHAPTER VIII—AERONAUTICS AND SPACE TECHNOLOGY

### § 18401. Aeronautics research goals

The Administrator should ensure that NASA maintains a strong aeronautics research portfolio ranging from fundamental research through systems research with specific research goals, including the following:

#### (1) **Airspace capacity**

NASA's Aeronautics Research Mission Directorate shall address research needs of the Next Generation Air Transportation System, including the ability of the National Airspace System to handle up to 3 times the current travel demand by 2025.

#### (2) **Environmental sustainability**

The Directorate shall consider and pursue concepts to reduce noise, emissions, and fuel

consumption while maintaining high safety standards and shall pursue research related to alternative fuels.

**(3) Aviation safety**

The Directorate shall proactively address safety challenges with new and current air vehicles and with operations in the Nation's current and future air transportation system.

(Pub. L. 111-267, title IX, §902, Oct. 11, 2010, 124 Stat. 2835.)

**§ 18402. Research collaboration**

**(a) Department of Defense**

The Administrator shall continue to coordinate with the Secretary of Defense, through the National Partnership for Aeronautics Testing, to develop and implement joint plans for those elements of the Nation's research, development, testing, and engineering infrastructure that are of common interest and use.

**(b) Federal Aviation Administration**

The Administrator shall continue to coordinate with, and work closely with, the Administrator of the Federal Aviation Administration, under the framework of the Senior Policy Council, in development of the Next Generation Air Transportation Program. The Administrator shall encourage the Council to explore areas for greater collaboration, including areas where NASA can help to accelerate the development and demonstration of NextGen technologies.

(Pub. L. 111-267, title IX, §903, Oct. 11, 2010, 124 Stat. 2835.)

**§ 18403. Goal for Agency space technology**

It is critical that NASA maintain an Agency space technology base that helps align mission directorate investments and supports long term needs to complement mission-directorate funded research and support, where appropriate, multiple users, building upon its Innovative Partnerships Program and other partnering approaches.

(Pub. L. 111-267, title IX, §904, Oct. 11, 2010, 124 Stat. 2836.)

**§ 18404. National space technology policy**

**(a) In general**

The President or the President's designee, in consultation with appropriate Federal agencies, shall develop a national policy to guide the space technology development programs of the United States through 2020. The policy shall include national goals for technology development and shall describe the role and responsibilities of each Federal agency that will carry out the policy. In developing the policy, the President or the President's designee shall utilize external studies that have been conducted on the state of United States technology development and have suggested policies to ensure continued competitiveness.

**(b) Content**

(1) At a minimum, the national space technology development policy shall describe for NASA—

(A) the priority areas of research for technology investment;

(B) the basis on which and the process by which priorities for ensuing fiscal years will be selected;

(C) the facilities and personnel needed to carry out the technology development program; and

(D) the budget assumptions on which the policy is based, which for fiscal years 2011, 2012, and 2013 shall be the authorized level for NASA's technology program authorized by this chapter.

(2) The policy shall be based on the premise that the Federal Government has an established interest in conducting research and development programs that help preserve the role of the United States as a global leader in space technologies and their application.

(3) CONSIDERATIONS.—In developing the national space technology development policy, the President or the President's designee shall consider, and include a discussion in the report required by subsection (c), of the following issues:

(A) The extent to which NASA should focus on long term, high-risk research or more incremental technology development, and the expected impact of that decision on the United States economy.

(B) The extent to which NASA should address military and commercial needs.

(C) How NASA will coordinate its technology program with other Federal agencies.

(D) The extent to which NASA will conduct research in-house, fund university research, and collaborate on industry research and the expected impact of that mix of funding on the supply of United States workers for industry.

(4) CONSULTATION.—In the development of the national space technology development policy, the President or the President's designee shall consult widely with academic and industry experts and with other Federal agencies. The Administrator may enter into an arrangement with the National Academy of Sciences to help develop the policy.

**(c) Report**

**(1) Policy**

Not later than 1 year after October 11, 2010, the President shall transmit a report setting forth national space technology policy to the appropriate committees of Congress and to the Senate Committee on Appropriations and the House of Representatives Committee on Appropriations.

**(2) Implementation**

Not later than 60 days after the President transmits the report required by paragraph (1) to the Congress, the Administrator shall transmit a report to the same committees describing how NASA will carry out the policy.

(Pub. L. 111-267, title IX, §906, Oct. 11, 2010, 124 Stat. 2836.)