SPACE-BASED POSITIONING
NAVIGATION & TIMING
NATIONAL COORDINATION OFFICE
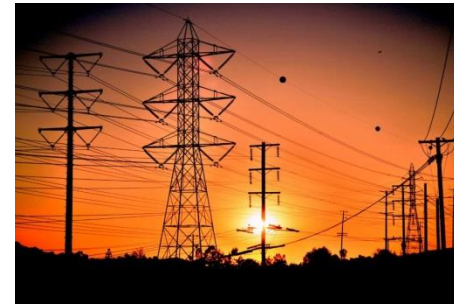
U.S. Space-Based Positioning, Navigation and Timing (PNT) Policy Update

*64th Meeting of the Civil GPS
Service Interface Committee
17 September 2024*

Harold W. Martin III
Director
National Coordination Office for
Space-Based PNT

GPS Enables Everyday Life

Applications

- Aviation
- Search and rescue
- Surveying & mapping
- Trucking & shipping
- Agriculture
- Offshore drilling

- Fishing & boating
- Military
- Scientific
- Timing
- Tracking
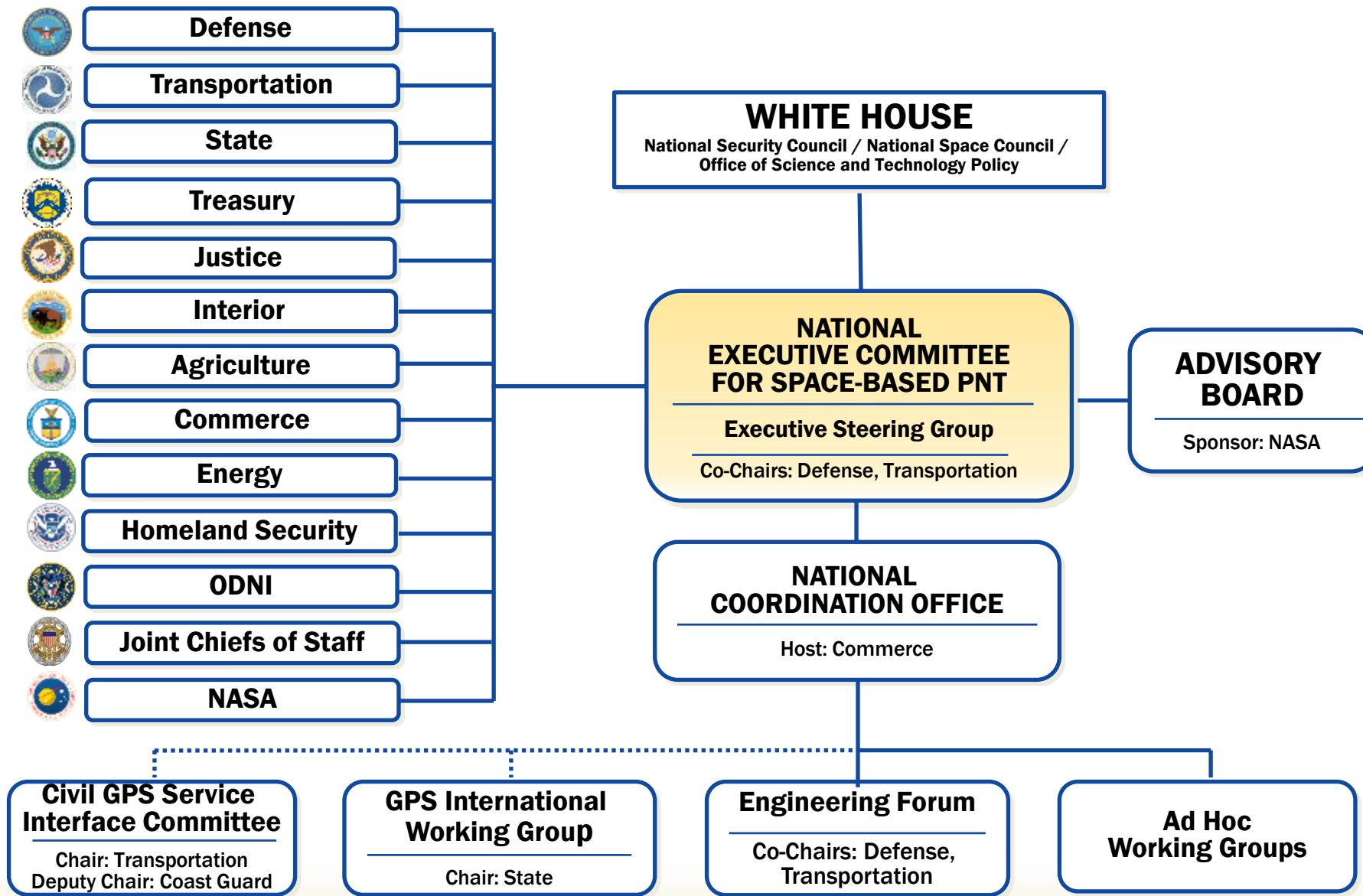- Exploration

GPS is a Global Utility

Thank You

EXCOM

- SPD-7 states the EXCOM is:

- "...the interagency body responsible for guiding and preserving whole-of-government interests in the provision of space-based PNT services, augmentations, and space-basedalternatives.

EXCOM: Whole of Government Interests in PNT

NATIONAL EXECUTIVE COMMITTEE FOR SPACE-BASED POSITIONING, NAVIGATION & TIMING

National Space-Based PNT Organization

Defense

Transportation

State

Treasury

Justice

Interior

Agriculture

Commerce

Energy

Homeland Security

ODNI

Joint Chiefs of Staff

NASA

WHITE HOUSE
National Security Council / National Space Council /
Office of Science and Technology Policy

**NATIONAL
EXECUTIVE COMMITTEE
FOR SPACE-BASED PNT**

Executive Steering Group

Co-Chairs: Defense, Transportation

**ADVISORY
BOARD**

Sponsor: NASA

**NATIONAL
COORDINATION OFFICE**

Host: Commerce

**Civil GPS Service
Interface Committee**

Chair: Transportation
Deputy Chair: Coast Guard

**GPS International
Working Group**

Chair: State

Engineering Forum

Co-Chairs: Defense,
Transportation

**Ad Hoc
Working Groups**

National PNT Policy Ecosystem

- Space Policy Directive 7
- National Space Policy
- Executive Order 13905
- Space Policy Directive 5
- National Standards Strategy

U.S. Government National Standards Strategy for Critical and Emerging Technology (CET)

UNITED STATES GOVERNMENT NATIONAL STANDARDS STRATEGY FOR CRITICAL AND EMERGING TECHNOLOGY

MAY 2023

THE WHITE HOUSE
WASHINGTON
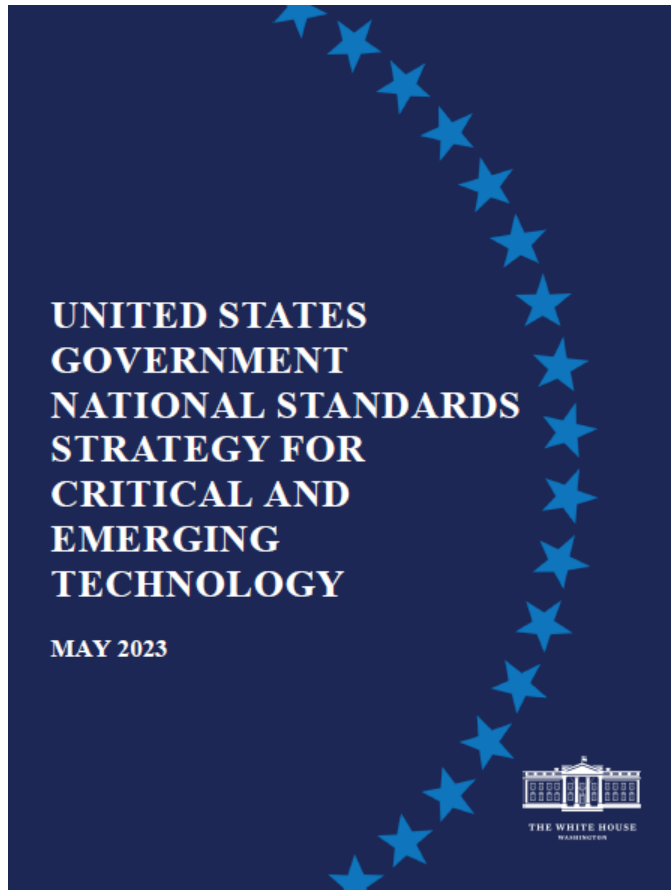
- The United States will prioritize efforts for standards development for a subset of CET that are essential for U.S. competitiveness and national security, including the following (~8) areas:

- PNT Services, which are a largely invisible utility for technology and infrastructure, ...

- 4 Objectives: Investment, Participation, Workforce, Integrity and Inclusivity

Key Takeaways

1. Resilience requires:
   - Cyber Toughened GPS Systems
   - Tested and Trusted Complementary PNT (CPNT)

2. GPS + Bad CPNT Makes Things Worse

3. Resilience Isn't Free

Spectrum is Not Safe

- Computers and the Internet: Once Upon a Time…
- A GPS receiver is more computer than radio…
- GPS relies on spectrum – no longer a safe haven
- 900 Million U.S. GPS-enabled devices require Cybersecurity
- U.S. Policy directs PNT resiliency (SPD-5, SPD-7, PPD-21, EO 13800, EO 13905, National Cyber Strategy)
- NIST PNT Profile: Applying the Cybersecurity Framework for the Responsible Use of PNT Services (NISTIR 8323)

"Known but unmitigated vulnerabilities are among the highest cybersecurity risks…"

(EO 13800: Strengthening the Cybersecurity of Federal Networks and Critical Infrastructure)

What Can You Do Now?

- CIOs: Include GPS-enabled devices in Cybersecurity plans
- Be a demanding customer - toughen GPS devices:
  - Incorporate valid range checking and other elements of GPS Interface Specification (IS-GPS-200M *)
  - Incorporate DHS Best Practices (*Improving the Operation and Development of Global Positioning System (GPS) Equipment Used by Critical Infrastructure, Jan 2017*)

  * Documents available on www.gps.gov

Protect GPS and Critical Infrastructure that Relies on GPS

N A T I O N A L C O O R D I N A T I O N O F F I C E F O R S P A C E - B A S E D P O S I T I O N I N G , N A V I G A T I O N & T I M I N G   13

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GPS: The First 50 Years – And Beyond!