



U.S. DEPARTMENT OF
ENERGY



U. S. Department of Energy DOE Office of Spectrum Management

Bradford Benbow
Acting Program Manager, OSM
Office of the Chief Information Officer
U.S. Department of Energy

DOE/OSM Staff



The Office of Spectrum Management is supported by 5 federal staff members and 5 Contract staff members, including the acting program manager.





Mission

DOE Office of Spectrum Management's (OSM) Mission

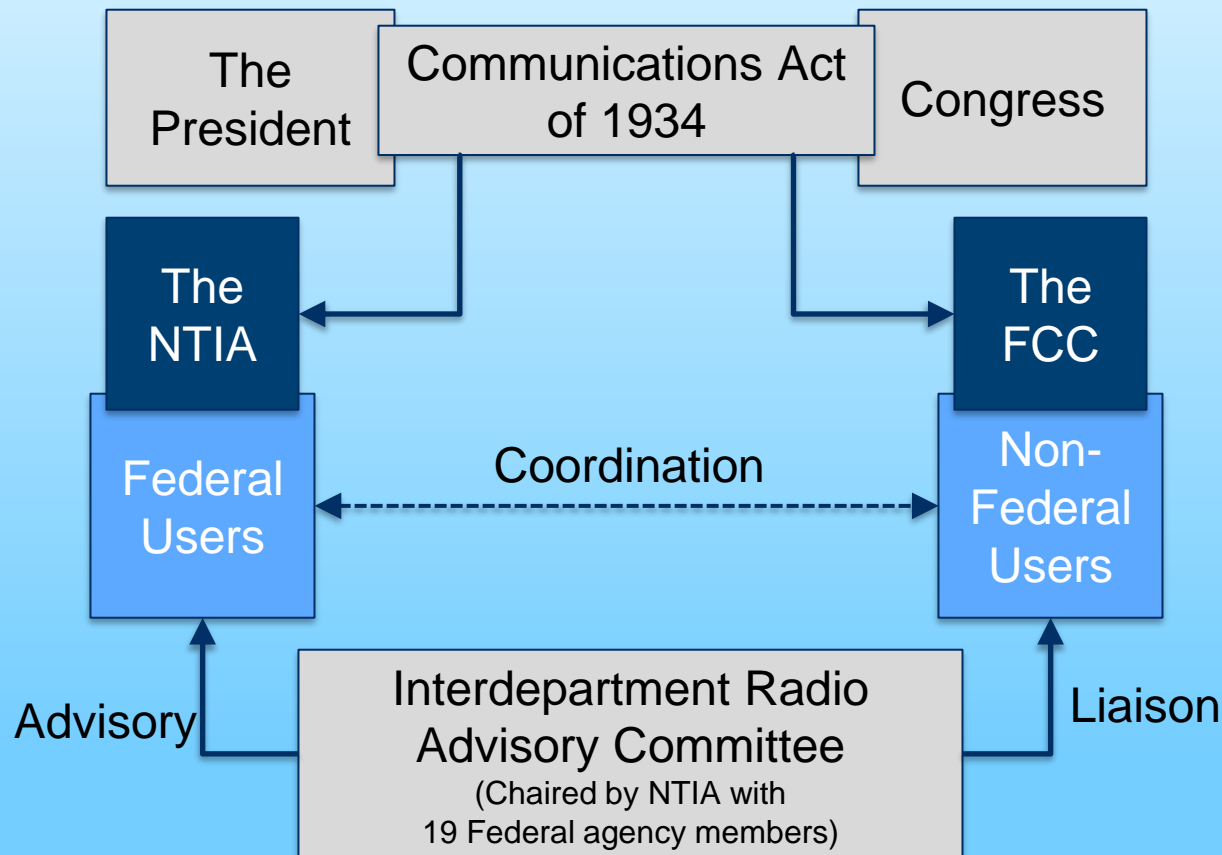
- Lead in managing and protecting radio frequency spectrum-dependent resources
- Ensure DOE's interests and equities are consistently represented and fully protected
- Develop, review and execute policy, plans, procedures
- Provide advice, assistance and guidance to the DOE Lead Program Secretarial Officers, Headquarters Program Offices, and field sites on the use of Federal radio spectrum systems and services
- Administer effective planning and certification of spectrum-dependent systems, responsible for efficient use of radio frequency authorizations that support DOE radio communication facilities and operations

"Radio frequency management is...years of experience...a blend of regulations, politics...horse trading...long experience."

Vice Admiral Jon. L. Boyes
U.S. Navy



National Spectrum Management

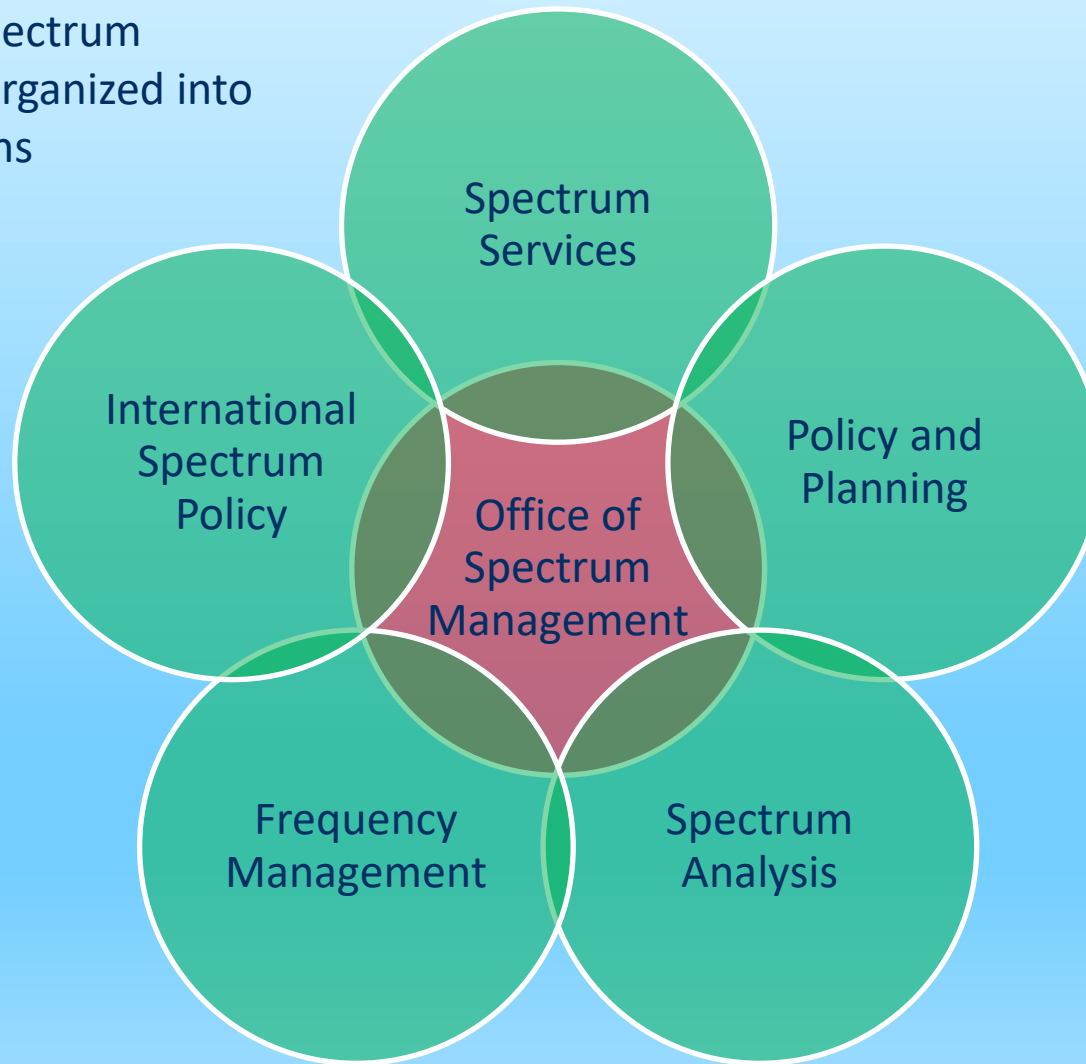


United States spectrum management policies are administered by the NTIA for Federal government users, and by the FCC for all other users.



DOE OSM Initiatives

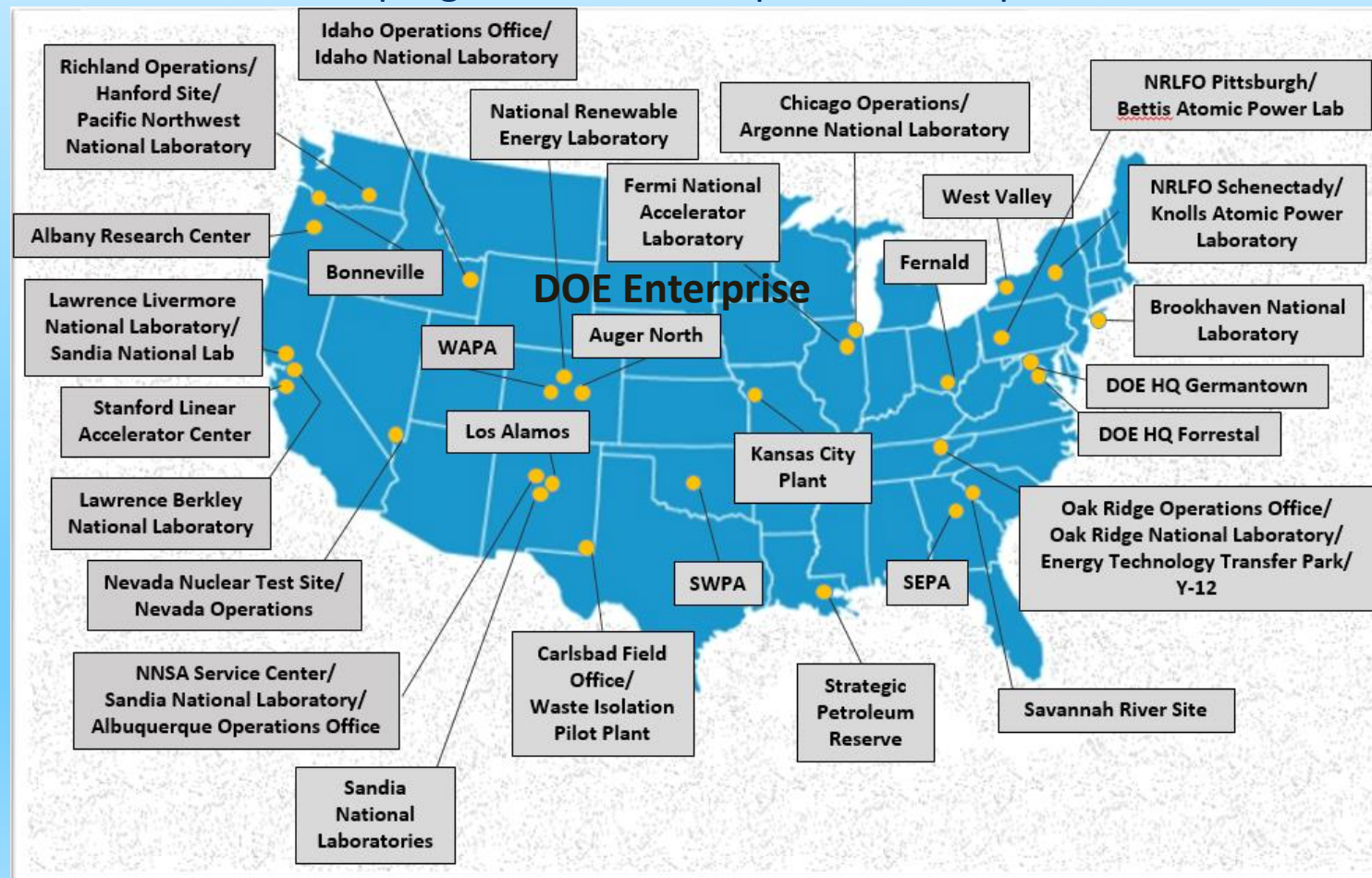
DOEs Office of Spectrum Management is organized into 5 distinct functions



Value



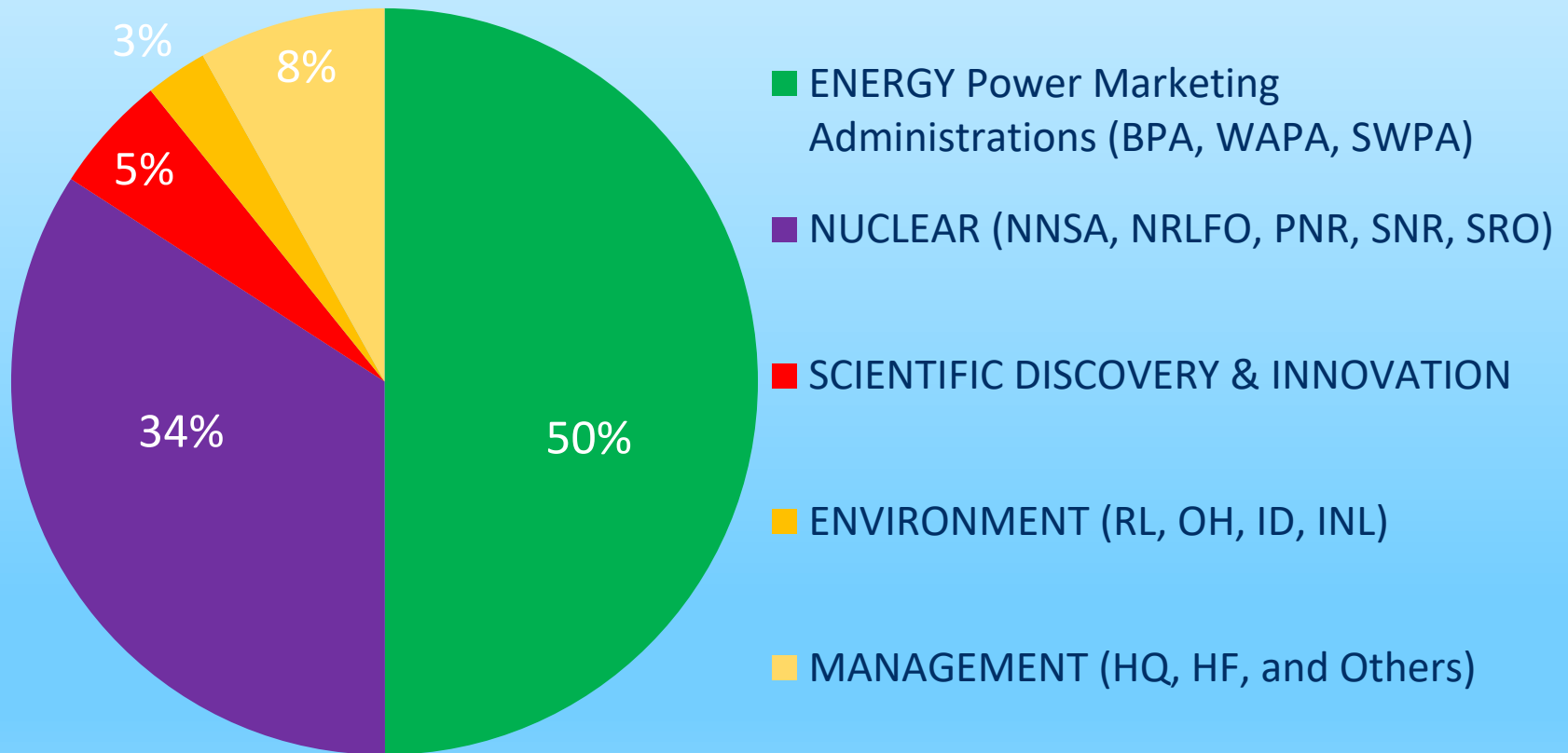
At an investment value of more than \$7 billion, DOE is one of the largest user of radio frequency spectrum with over 7,600 radio frequency assignments supporting critical mission, programmatic, and operational requirements





DOE Spectrum Usage

Spectrum Use by Program Area



Vision



The DOE OSM vision is to enhance spectrum management by:

- Active policy and technically proficient engagement/collaboration with agencies to support and protect DOE equities
- Improving interoperability in spectrum resource sharing
- Developing interoperability capabilities and increasing sharing of spectrum assets within the Department, other Federal departments, state, local, and tribal governments and industry

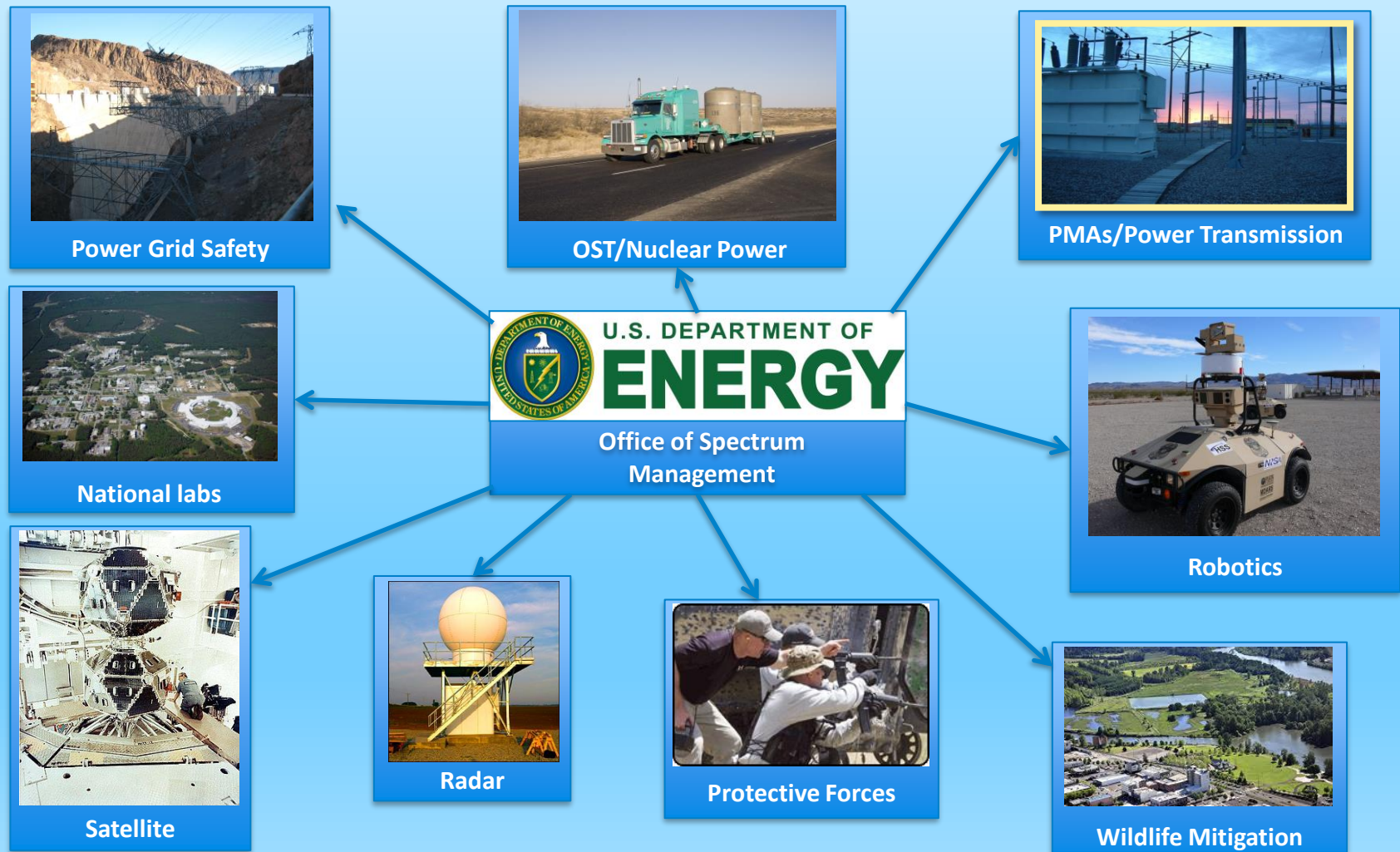


Operations

- Administers effective planning and certification of spectrum-dependent systems supporting DOE mission critical radio communication facilities and operations
- Coordinates with DOE Program Offices, PMAs, Operations Offices, Laboratories and Technology Centers to ensure systems entering the Federal certification process will not cause harmful interference to current or future operations
- Performs analysis to ensure Wind Energy Facility proposals do not interfere with DOE operational systems and PMAs
- Reviews adequacy, efficiency and effectiveness of current spectrum-dependent assets
- Performs 5 Year Review (10 year for Aeronautical Advisory Group (AAG) and Military Advisory Group (MAG)) of all DOE Radio Frequency Authorizations
- Serves as Chair and facilitate activities of the DOE Spectrum Working Group (SWG)
- Leverages like requirements saving time and funds

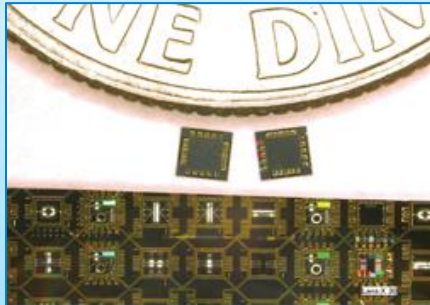
Critical Spectrum Responsibilities

Spectrum contributes to the success of these organizations





DOE Spectrum Achievements



Micro-resonator Filters

- Combines RF filters on a single chip
- Greater power and space savings



Wireless Spread Spectrum

- Greater efficiency of spectrum usage
- Enhanced Encryption



Imaging and Detection Systems

- Whole body scanner developed for DHS
- Utilizing Millimeter Wave technology



Localizing Ground Penetrating Radar

- Used in various applications
 - Self-driving cars
 - Military vehicles
 - Mining and Construction

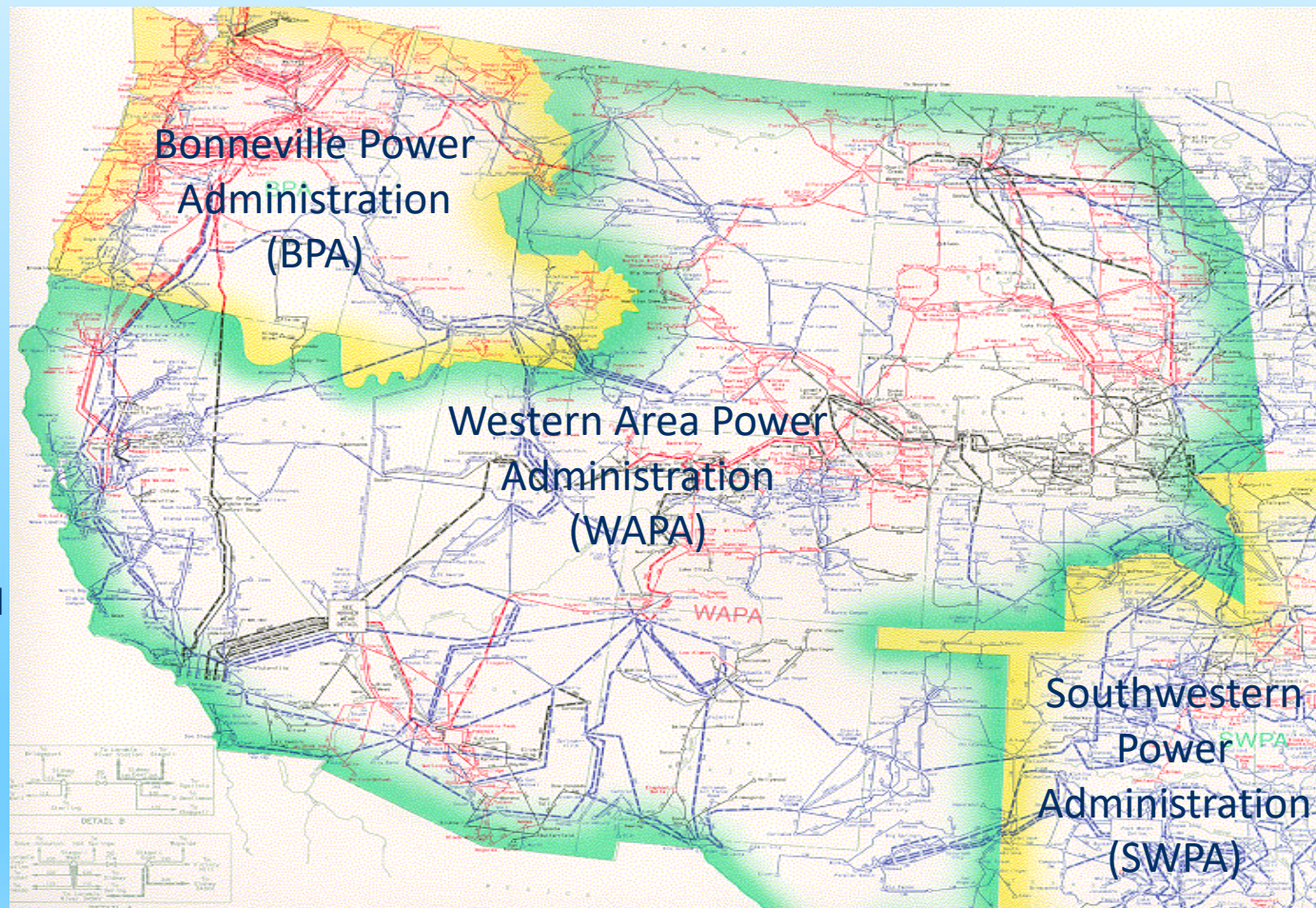


DOEs Power Marketing Administrations (PMA)



Mission

- Deliver reliable and secure power and transmission services
- Meeting strict reliability/availability objectives as required by law
- PMAs operate approximately 2060 assignments
- It's critical for DOE to maintain uninterrupted access to this band to ensure reliable power usage throughout the US



Los Alamos National laboratory (LANL)

Mission

- Prometheus is a series of CubeSats developed by LANL to evaluate low-cost satellite development and operations while assessing the operational utility provided with CubeSat technology
- LANL is in the process of final certification and frequency approval for its most recent CubeSat project (NACHOS 1 & 2)

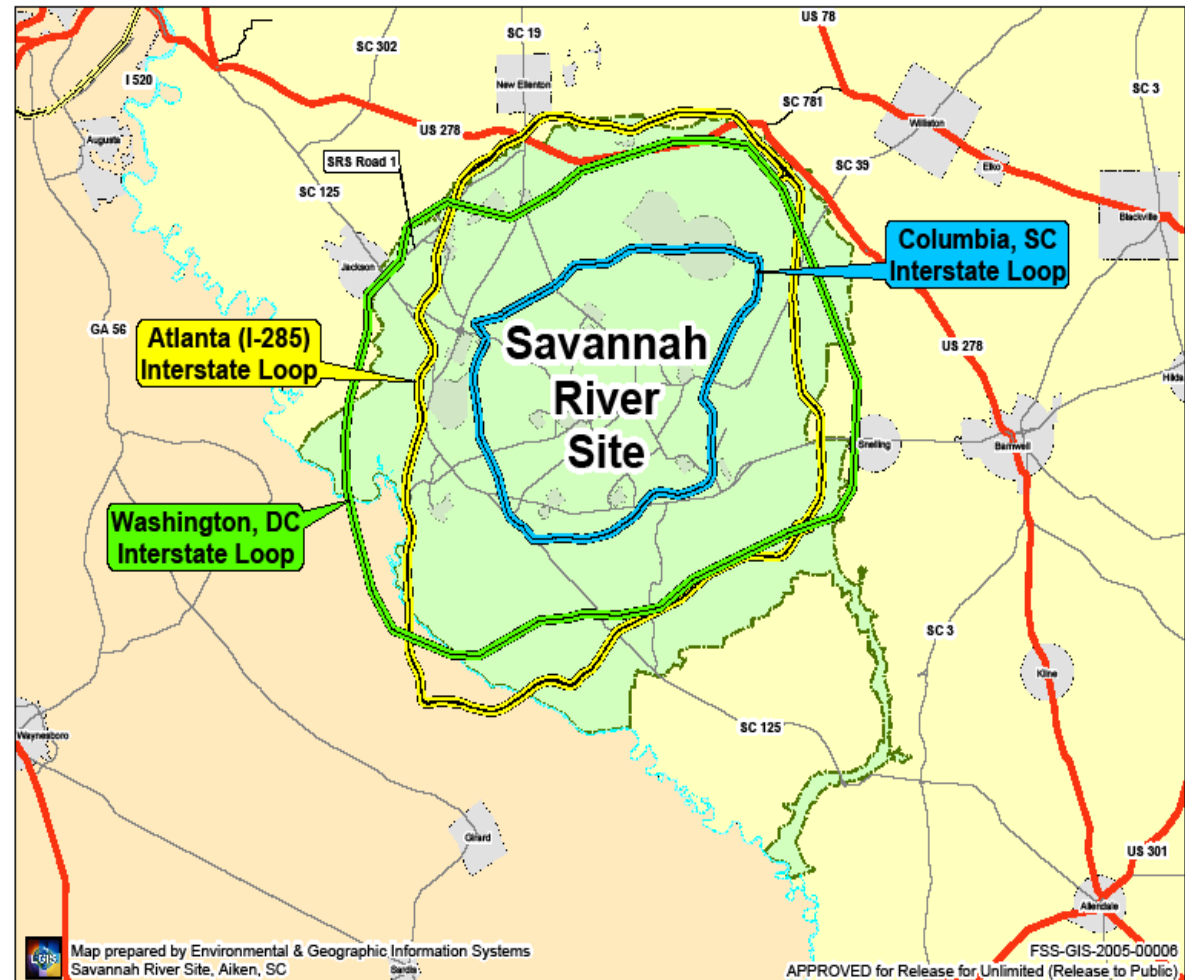




Savannah River

Mission

- Environmental Stewardship
- Develop New Technologies to Improve Environment and National Defense
- Experimental Station Status under 7.11/Annex C





Richland/Hanford Site

Mission

- Restoring the Columbia River Corridor
- Develop technologies to solve environmental problems

Spectrum usage

- Protective Force
- Fire Protection
- Emergency Preparedness
- Emergency Support

Shared Federal Frequencies

- Forest Service
- U.S. Fish & Wildlife



Idaho National Laboratory (INL)

Wireless national User Facility (WNUF)

Mission

- Facilities located in Idaho Falls, ID and on the 890 square mile testing facility
- Supports extensive Wireline & Wireless Communications, Cyber Security and Applications Research, Development, Demonstration and Deployment (RDD&D)
- Facilitates in the development, validation, and adoption of next generation wireless communications technologies
- Experimental Station Status under 7.11/Annex C





National Laboratories

- Researching wireless protocols and capabilities
- Spectrum Sharing Techniques
- Network Implementation
- Security
- Interoperable Communications





Detriments

The loss of DOE radio frequency spectrum services would undermine the support of critical DOE mission functions, including:



- Power Grid Control
- Electricity Transmission
- Radiological Assistance
- Perimeter Protection
- Intrusion Detection
- Environmental Remote Sensing
- Wildlife Monitoring
- Seismic Monitoring
- Radar
- Fusion Energy Research
- Cyclotron Operation
- Remote Controlled Robotics
- Machinery Operation
- Protective Force Communication
- Wireless Networks
- Land Mobile Radio/Trunking



Subcommittee Representatives

Interdepartment Radio Advisory Committee (IRAC)

☐ Bradford Benbow
(Primary)

Frequency Assignment Subcommittee (FAS)

☐ Pam Main
(Primary)

Spectrum Planning Subcommittee (SPS)

☐ Leon Knight
(Primary)

SPS Working Group WG-5 (EL-CID)

☐ Leon Knight
(Primary)

Technical Subcommittee (TSC)

☐ Leon Knight
(Primary)

Radio Conference Subcommittee (RCS)

☐ Johnnie Best
(Primary)

Space Systems Subcommittee (SSS)

☐ Johnnie Best
(Primary)

Ad Hoc 1965 (Update NTIA Manual)

☐ Leon Knight
(Primary)

Subcommittee Representatives



**Ad Hoc 181
(US/Canada
Coordination)**

☐ **Robert Hill
(Primary)**

**Ad Hoc 170
(US/Mexico
Coordination)**

☐ **Robert Hill
(Primary)**

**Emergency Planning
Subcommittee (EPS)**

☐ **Pam Main
(Primary)**



Questions?