The seal of the Department of Defense Industrial Policy is a large, light blue circular emblem. It features a central shield with an eagle, a gear, and crossed arrows. The shield is surrounded by a ring of stars. The outer ring of the seal contains the text "DEPARTMENT OF DEFENSE" at the top and "INDUSTRIAL POLICY" at the bottom.

# Industrial Base Analysis and Sustainment (IBAS) Program

PE: 0607210D8Z

## Workshop on Rare Earth Element and Critical Minerals

Director

Adele Ratcliff

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571-372-6240



# Industrial Policy's Mission

Ensure robust, secure, resilient, and innovative industrial capabilities upon which the Department of Defense can rely in an era of great power competition to fulfill current and future Warfighter requirements.



“A healthy defense industrial base is a critical element of U.S. power and the National Security Innovation Base. The ability of the military to surge in response to an emergency depends on our Nation’s ability to produce needed parts and systems, healthy and secure supply chains, and a skilled U.S. workforce.”

*2017 National Security Strategy*

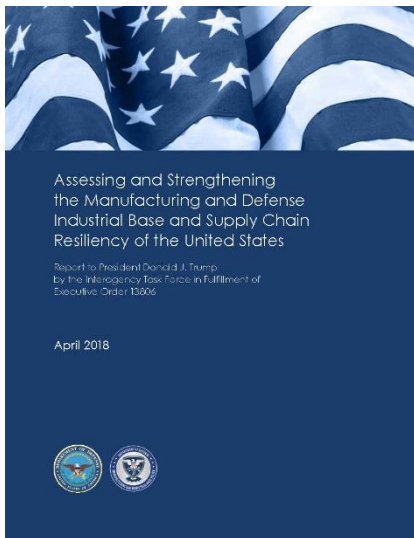


# Strategic Alignment

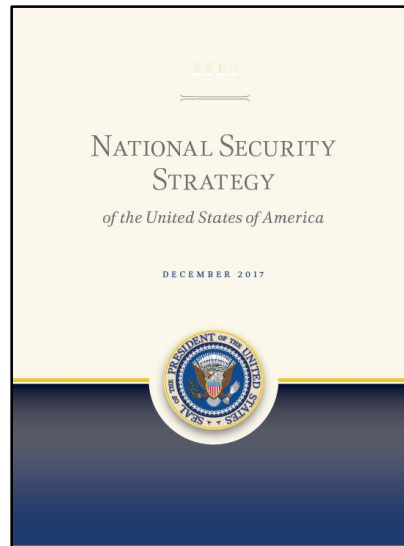


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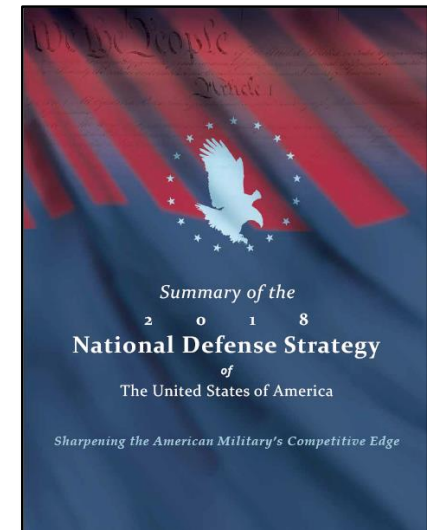
## Executive Order 13806 July 2017



## National Security Strategy December 2017



## National Defense Strategy January 2018



“A healthy defense industrial base is a critical element of U.S. power and the National Security Innovation Base. The ability of the military to surge in response to an emergency depends on our Nation’s ability to produce needed parts and systems, healthy and secure supply chains, and a skilled U.S. workforce.”  
~ 2017 National Security Strategy



# Industrial Base Analysis and Sustainment (IBAS)



PE: 0607210D8Z

## “The Next Generation of the Arsenal of Democracy”

“A healthy defense industrial base is a critical element of U.S. power and the National Security Innovation Base. The ability of the military to surge in response to an emergency depends on our Nation’s ability to produce needed parts and systems, healthy and secure supply chains, and a skilled U.S. workforce.”

*2017 National Security Strategy*

**E.O.13806 Report:** “Assessing and Strengthening the Manufacturing and Defense Industrial Base and Supply Chain Resiliency of the United States”

### **10 U.S. Code § 2508. Industrial Base Fund**

1. to support the monitoring and assessment of the industrial base
2. to address critical issues in the industrial base relating to urgent operational needs;
3. to support efforts to expand the industrial base; and
4. to address supply chain vulnerabilities.

**Mission:** Strengthen the posture of the US Defense Industrial Base (DIB) in the era of great powers and global competition

**Vision:** A modern Industrial Base that fortifies traditional and forges emerging sectors to respond at will to National Security Requirements

### **Priorities:**

- **Ready the Modern DIB** - Advance and sustain traditional defense mfg. sectors
- **Prepare for the Future** - Identify, attract, and cultivate emerging defense sectors
- **Assess and Shape the Risk** - mitigate supply chain vulnerabilities within the Global DIB
- **Build and Strengthen** - Partnerships in the Global DIB



# Overview



PE: 0607210D8Z

- DoD is working to better secure supply chains for strategic materials and minerals including rare earth elements (REE)
- China is the worlds' largest producer of REE including oxides, metals, alloys, and magnets
- Section 871 of the National Defense Authorization for Fiscal Year 2019 (Public Law 115-232) prohibits procurement of certain REE containing alloys and magnets as well as some forms of tungsten from China, Russia, North Korea & Iran
  - **The following slides are a high level overview of supply chains and not guidance on compliance with Defense Acquisition Regulations. Please review the published regulations before procuring materials.**
- Leveraging existing domestic and foreign Section 871 compliant capabilities is the best short-term option for compliance with new restrictions in defense acquisition regulations as well as mitigating overall supply chain risk
- Longer-term, U.S. Government support for domestic production of REE at different tiers of the supply chain might be required



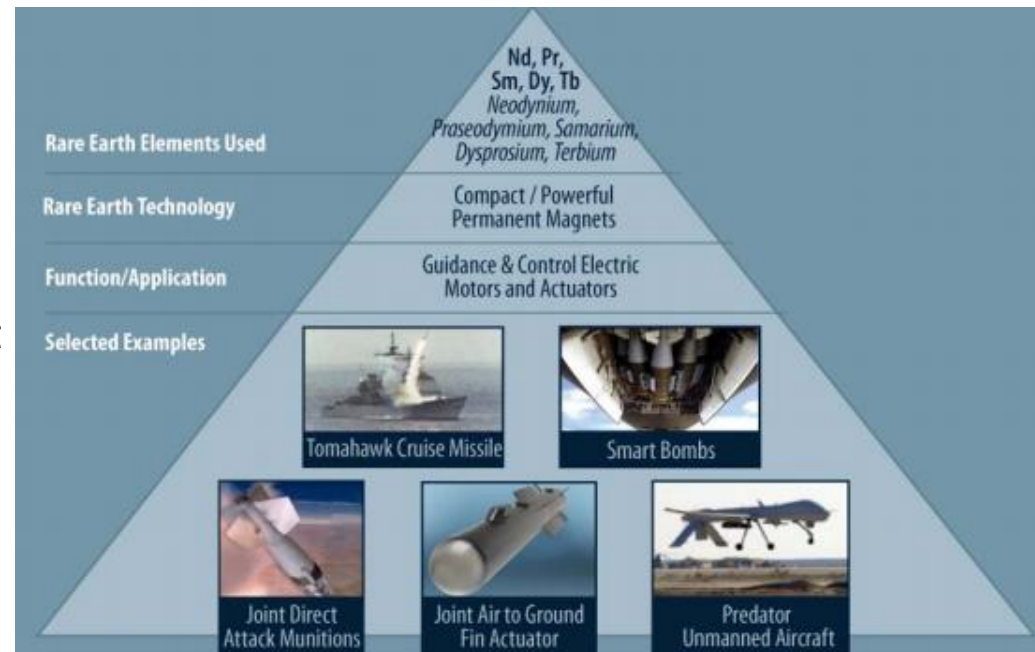
# Rare Earth Elements in critical DoD systems



PE: 0607210D8Z

“The unique properties of REEs are indispensable to defense applications, such as in the production of jet engines, missile guidance systems, antimissile defense systems, satellites, and communication systems”- US Government Accountability Office

- One of the most critical DoD applications for REE are rare earth permanent magnets (REPMs)
- Cost of actual magnets can often be quite low but the value add when integrated into defense systems is enormous.....systems that depend on REPM include:
  - Precision guided munitions
  - Naval radar systems
  - Lasers
  - Sensors/actuators on F-35
  - Electric propulsion for future aircraft
- Critical Commercial Uses
  - Petroleum refining
  - Auto catalysts
  - Electric Vehicle Motors





# What are the risks to the Defense Industrial Base?



PE: 0607210D8Z

*Executive Order 13806: Assessing and Strengthening the Manufacturing and Defense Industrial Base and Supply Chain Resiliency of the United States<sup>1</sup>*

## Three Key Findings for Strategic & Critical Materials

1. Over Reliance on Sole Foreign Sources for Unique and Proprietary Advanced Materials

2. Foreign Trade policies that Cause Injury to Domestic Companies

3. Overreliance on China for Strategic and Critical Materials

“China represents a significant and growing risk to the supply of materials deemed strategic and critical to U.S. national security.”

“Areas of concern to America’s manufacturing and defense industrial base include a growing number of both widely used and specialized metals, alloys and other materials, including rare earths and permanent magnets.”

“When China needs to flex its soft power muscles by embargoing rare earths, it does not hesitate, as Japan learned in a 2010 maritime dispute.”

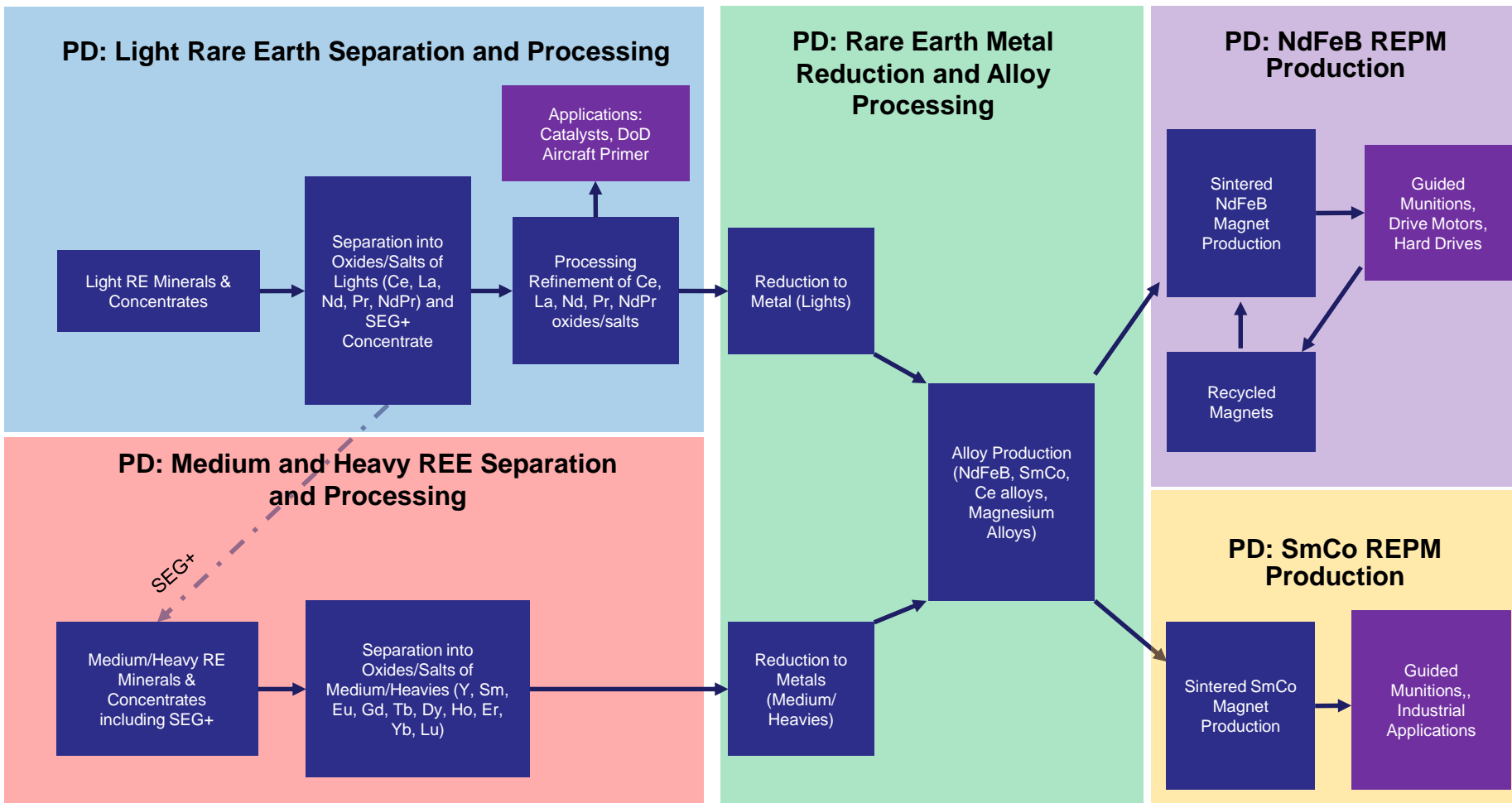
1. <https://media.defense.gov/2018/Oct/05/2002048904/-1/-1/1/ASSESSING-AND-STRENGTHENING-THE-MANUFACTURING-AND%20DEFENSE-INDUSTRIAL-BASE-AND-SUPPLY-CHAIN-RESILIENCY.PDF>



# Potential Areas DoD Support in REEs Supply Chain



PE: 0607210D8Z





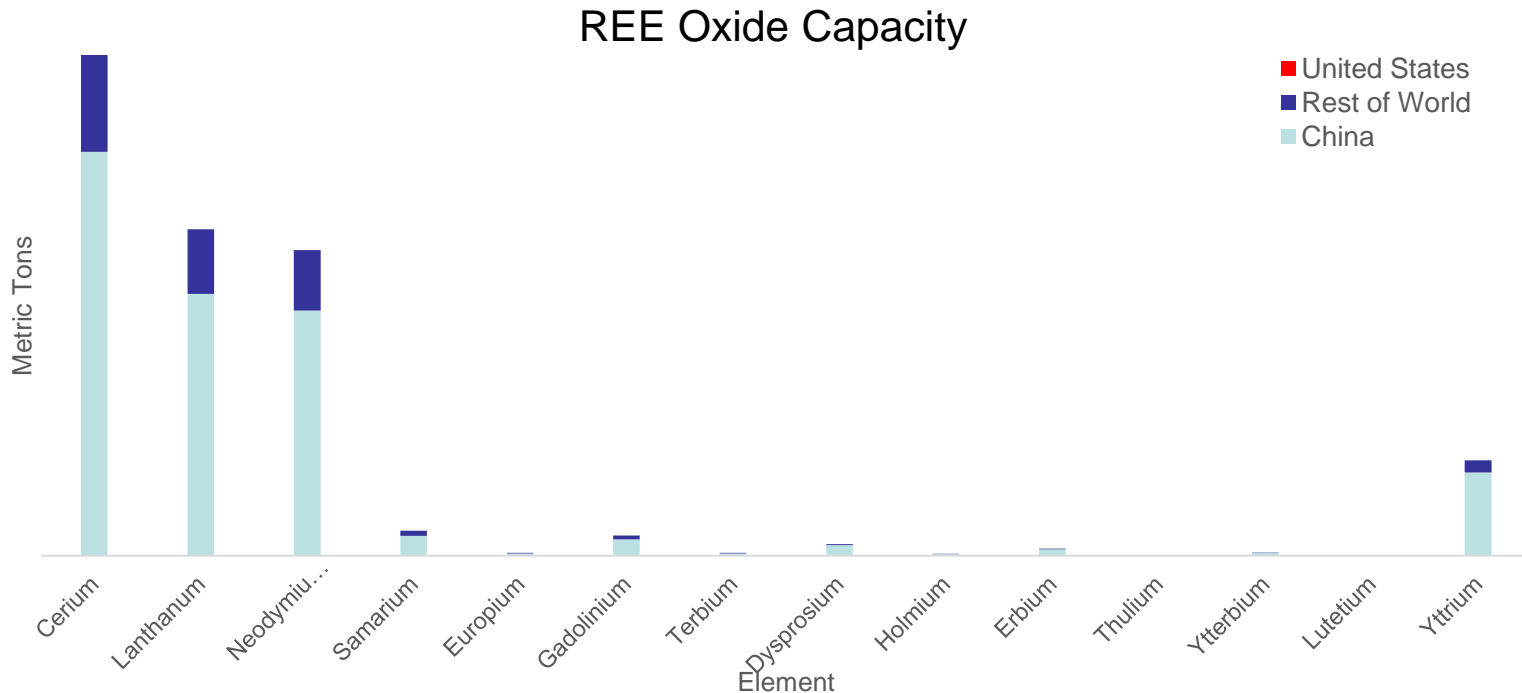


# Capacity by Element



PE: 0607210D8Z

- The LREEs represent approximately 90% of the volume for all REEs.
- In order to produce the NdPr and Dy required by the NdFeB market, most of the other REEs have to be overproduced as they are generally all co-located in the same minerals and current separation technologies generally produce all REE rather than selective production.





# IBAS Investments: Rare Earths



PE: 0607210D8Z

- IBAS currently has one heavy rare earth open solicitation:  
“Cornerstone Initiative CS-20-0802 Heavy Rare Earth Element Separations”

Links to current open solicitation:

<https://ibasp-public.ria.army.mil/cornerstone/>

&

[https://beta.sam.gov/opp/07b7dd6b25a8379f7f2bcea7670ff0f3/view?keyword=s=CS-20-0802&sort=-relevance&index=&is\\_active=false&page=1](https://beta.sam.gov/opp/07b7dd6b25a8379f7f2bcea7670ff0f3/view?keyword=s=CS-20-0802&sort=-relevance&index=&is_active=false&page=1)

- IBAS has a proposed SAC-D Add for a \$5M effort for “**Rare Earth from Coal Ash**”
- IBAS is developing the acquisition strategy with its DoD and USG partners for a competitive solicitation via the Cornerstone OTA.



# Cornerstone OTA



PE: 0607210D8Z

## VISION

A modern Industrial Base that integrates traditional and emerging sectors to respond at will to National Security Requirements.

## Cornerstone Benefits

- No cost to join
- No definitive expiration date
- Flexible mechanism for public-private collaboration
- No overall funding ceiling and local signature level authority <\$100M
- Awarded tasks are tailor negotiated
- Single common Consortium Management Agreement (CMA) for all members
- Common IP Agreement –
- Common Data Sharing Agreement –
- Common Management Agreement –

Cornerstone is a **government-run**, integrated industrial base resiliency mechanism to create dynamic relationships across the Defense Industrial Base using Industrial Base Analysis and Sustainment (IBAS) Program – Title 10 S.2508 Authority:

- Monitor and assessment of the industrial base
- Address critical issues in the industrial base related to urgent operational needs
- Support efforts to expand the industrial base
- Address supply chain vulnerabilities

Cornerstone OTA authority originates from 10 U.S. Code 2371b – Authority of the DoD to carry out certain prototype projects. The industrial base resiliency and supply chain assurance initiative will focus on “prototype” projects, capabilities, and capacities in support of a range of defense industrial base requirements.

## MISSION

Strengthen the force posture of the US Defense Industrial Base.



***Cornerstone of the American Military Competitive Edge***



# Prototype Requirement



PE: 0607210D8Z

To qualify for OT authority, a project must meet each of the following conditions covered in 10 U.S.C. 2371b:

## 1) Enhance Mission Effectiveness

- Prototype projects that are directly relevant to enhancing the industrial base's ability to increase the effectiveness of military personnel, systems, components, and/or materials proposed to be acquired or developed by the DoD

## 2) Fit Prototype Definition

- Preliminary pilot, test, evaluation, demonstration, or agile development activity used to evaluate the technical or manufacturing feasibility or military utility of a particular technology, process, concept, end item, effect, or other discrete feature
- May include systems, subsystems, components, materials, methodology, technology, or processes
- Quantity should generally be limited to that needed to prove technical or manufacturing feasibility or evaluate military utility

## 3) Meet Contractor Requirements = Must meet one of the following conditions

- There is at least one nontraditional defense contractor participating to a significant extent in the prototype project
- All significant participants in the transaction other than the Federal Government are small businesses or nontraditional defense contractors
- At least one third of the total cost of the prototype project is to be paid out of funds provided by sources other than the Federal Government
- The senior procurement executive determines that exceptional circumstances justify the use of an OT to provide an innovative business arrangement not feasible under a contract, or to expand the defense supply base in a manner not practical under a contract



# Cornerstone OTA Benefits



PE: 0607210D8Z

## Benefits

- Single, common Consortium Management Agreement for all members
- No consortium membership fees
- No definitive expiration date
- Flexible mechanism for public-private collaboration
- No overall funding ceiling and local signature level authority <\$100M
- Awarded agreements are tailor negotiated

## Sectors

1. Aircraft
2. Radar & Electronics Warfare
3. Shipbuilding
4. Ground Vehicles
5. Soldier Systems
6. Space
7. Chemical, Biological, Radiological, and Nuclear
8. Materials
9. Machine Tools
10. Cyber for the Industrial Base
11. Optics
12. Advanced Technology/Advanced Manufacturing
13. Electronics
14. Command, Control, Communication, & Computers
15. Munitions & Missiles
16. Industrial Base & Manufacturing Skills
17. Private Equity
18. Other
19. Special Operations Forces

***Members can work collaboratively within their sector, create specific sub-sectors, and partner across sectors to address common requirements and supply chain issues***



# Membership Process



PE: 0607210D8Z

- **Visit the Cornerstone website:** <http://ibasp-public.ria.army.mil/cornerstone/>
  - Complete the Initial Membership Request form
  - Review Cornerstone OTA and Consortium Management Agreement (CMA)
  - Sign and return CMA to Cornerstone mailbox, [usarmy.ria.rdecom-ecbc.mbx.cornerstone-ota@mail.mil](mailto:usarmy.ria.rdecom-ecbc.mbx.cornerstone-ota@mail.mil)
- All applications are reviewed by Cornerstone OTA Program Team
- Eligibility:
  - United States held companies or legal entities
  - National Technology and Industrial Base (NTIB) country held companies or legal entities (England, Canada, Australia and New Zealand)
  - Federally Funded Research and Development Centers (FFRDCs)
  - United States academic institutions
  - Organic Industrial Base
- Cornerstone **restricts** foreign participation, access and transfers, and permit participation on a case by case basis, and only when in the best interest of the United States and/or DoD