Navy & Marine Corps Vertical Lift: Past and Future

22 Oct 2015

Presented to:

Center for Strategic and International Studies

Presented by:

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NAVAIR

PEO(A) Portfolio

PROGRAM EXECUTIVE OFFICE AIR ASW, ASSAULT & SPECIAL MISSION PROGRAMS

PMA-207 PMA-261 PMA-264 PMA-271 PMA-274 PMA-275 PMA-276 PMA-290 PMA-299

Tactical Airlift

C-9 C-12
C-20 C-26
C-37 C-40
UC-35 C-130

Heavy Lift Helicopters

CH-53E
MH-53E
CH-53K

Multi-Mission Helicopters

MH-60R MH-60S

Air ASW Systems

Sonobuoys, Multi-Static Active Coherent, High Altitude ASW, Airborne ASW Intelligence

Maritime Patrol & Reconnaissance Aircraft

P-3
P-8A

Airborne Strategic Command, Control & Communications

E-6B

UH-1N UH-1Y
AH-1W AH-1Z

Light / Attack Helicopters

MV-22
CV-22

V-22 Joint Program Office

VH-3D
VH-60N
VH-92A

Presidential Helicopters

PMA 299
Multi-Mission Helicopters

Mission Statement: Provide world class rotary wing warfighting capabilities and support to the global maritime community

Capabilities

Growth

Present

Emerging

Future

FAC/FIAC Defense

CNS/ATM Compliance

Improved Situational Awareness

Condition Based Maintenance

GPS-Denied Operations

Advanced FAC/FIAC Weapons

Electronic Warfare

Digital Interoperability

Enhanced Integrated ASE

Advanced ASW Sensors

Extended Range

Improved Performance

Directed Energy Weapons

HH-60H

Quantity: 23

- **Combat SAR, Spec Warfare Support, ASUW, SAR, MEDEVAC, Log Support**
- **Operational Since 1989 / Retire 2016**

MH-60S

Qty Delivered to Date: 266

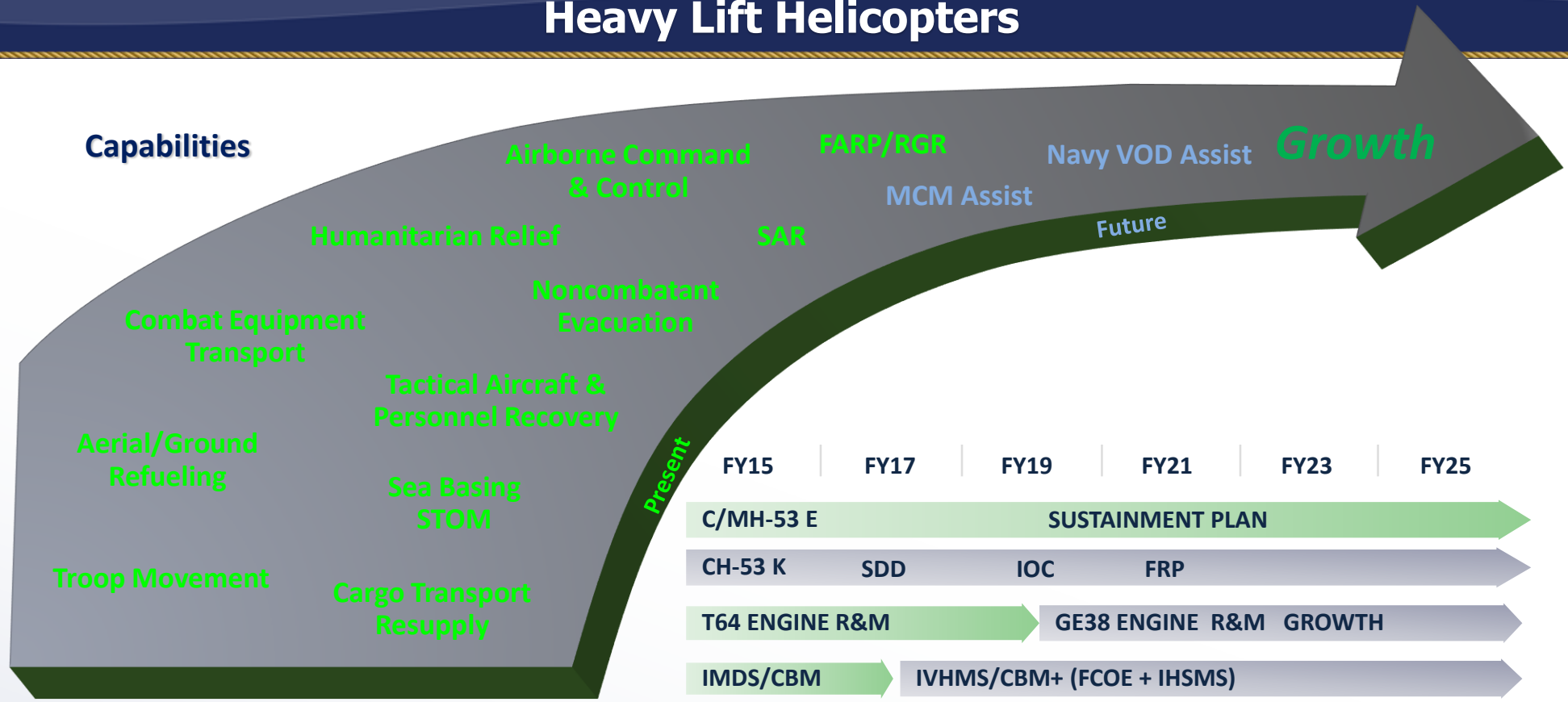
- **VERTREP, VOD, SAR, CSAR, ASUW, OAMCM**
- **IOC Aug 2002 / Retire 2030+**

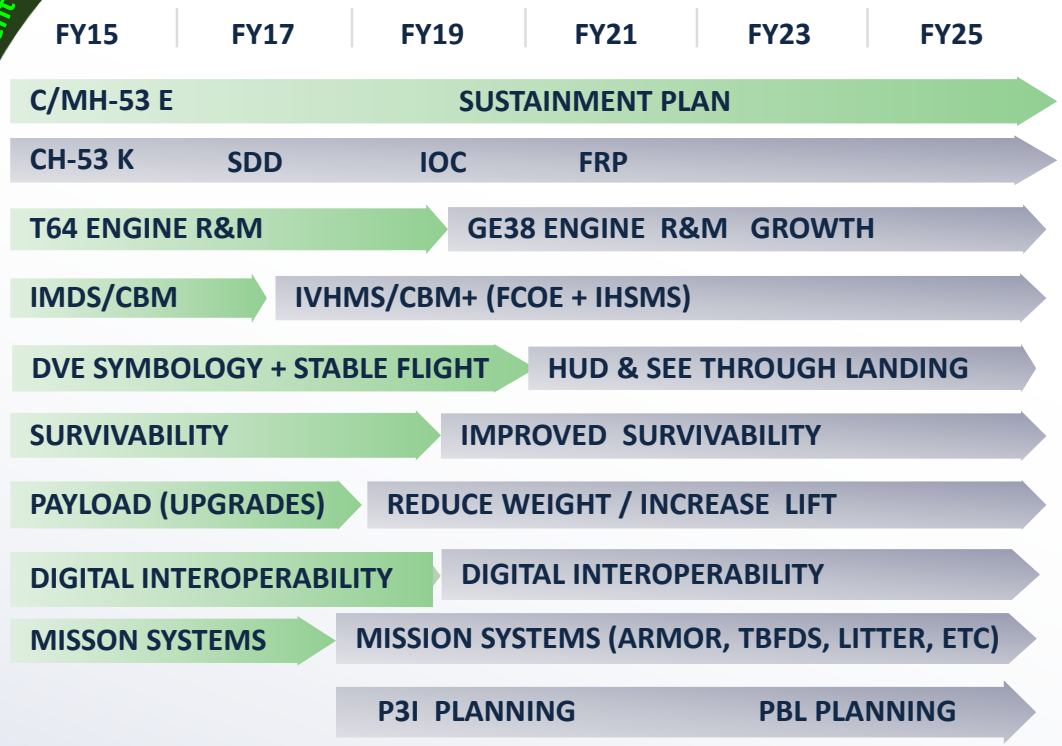
MH-60R

Qty Delivered to Date: 202

- **ASW, ASUW**
- **IOC Dec 2005 / Retire 2030+**
- **FMS Partners: Australia and Denmark**

PMA-261
Heavy Lift Helicopters





Mission Statement: To provide and sustain affordable products, services, and capabilities that enable the Navy / Marine Corps Team to accomplish the Heavy Lift Mission

Inventory:

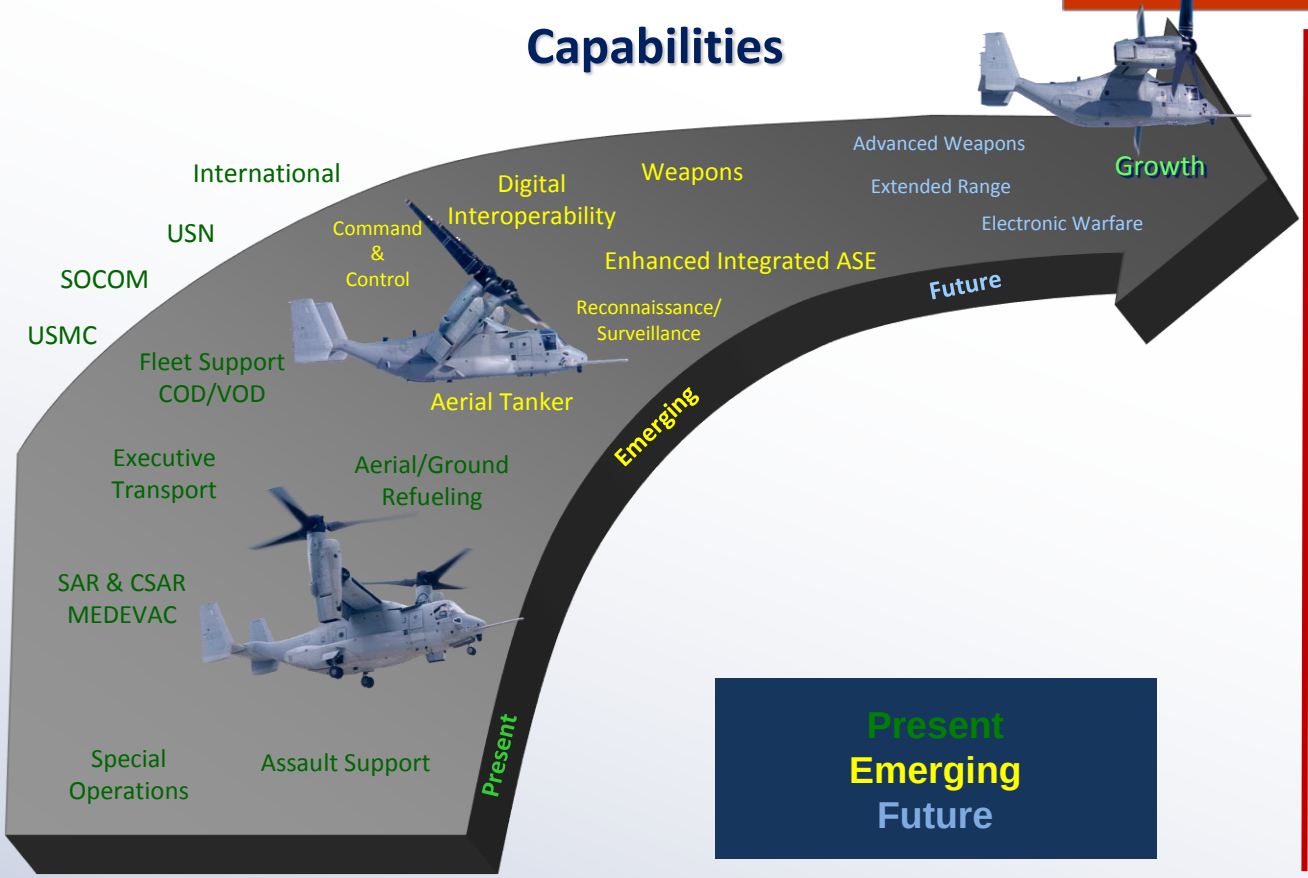
- CH-53E 149
- MH-53E 28

PMA-275
V-22 Osprey

Mission Statement: Develop, deliver, and support effective, suitable and affordable V-22 systems for our warfighter throughout the program life-cycle

USMC	USSOCOM	USN
360 V-22	52 V-22	48 V-22
• Combat Assault & Amphibious Assault • Special Operations Capable	• Long Range Special Operations (Infil / Exfil / Resupply) • Contingency Operations	• Sea Based Logistics • Personnel Recovery • Special Warfare

Capabilities

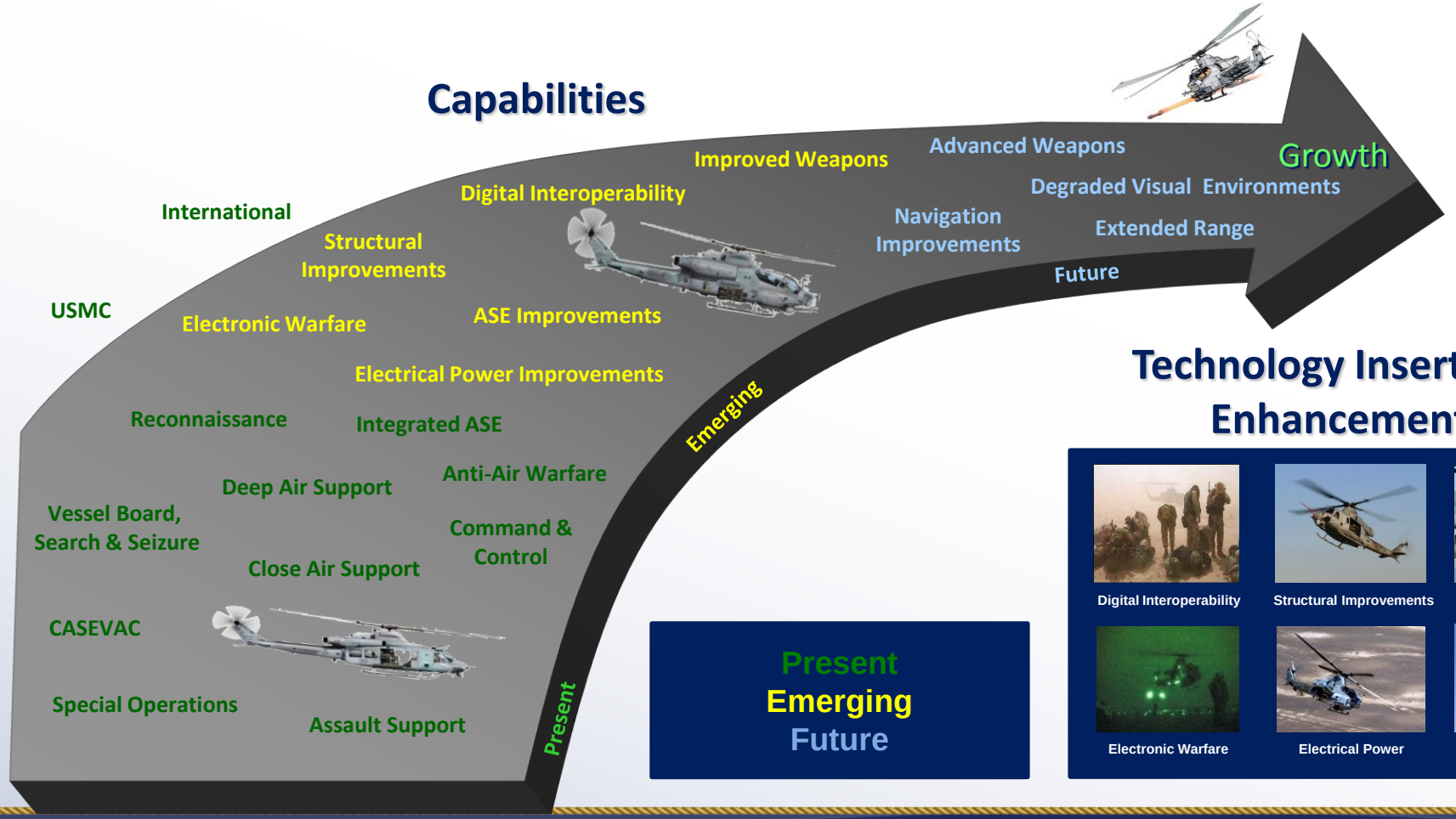


Technology Insertion & Enhancements

PMA-276
H-1 Upgrades

Mission: Develop, deploy and support affordable systems to maintain dominance throughout the life cycle of the H-1 aircraft

USMC	
160 'Y' / 189 'Z'	Aerial Escort (Y & Z) Air Evacuation (Y) Armed Reconnaissance (Y & Z) Close Air Support (Y & Z) Combat Assault Transport (Y) Command & Control Support (Y) Conduct Air Delivery (Y) Forward Air Control (Y & Z) Strike Coord & Recon (Y & Z)

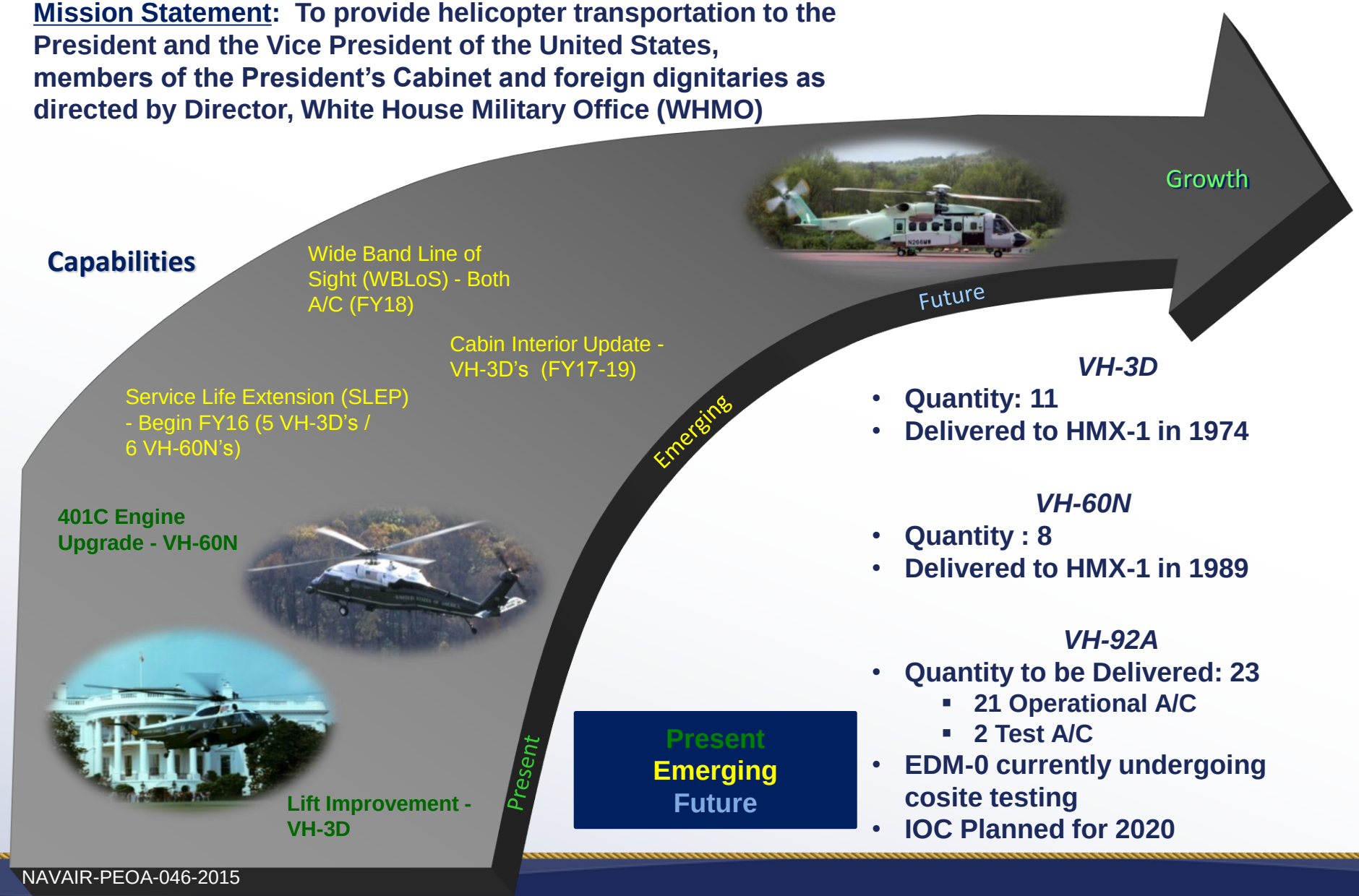


Present
Emerging
Future

Technology Insertion & Enhancements

PMA 274
Presidential Helicopters / Executive Lift

Mission Statement: To provide helicopter transportation to the President and the Vice President of the United States, members of the President's Cabinet and foreign dignitaries as directed by Director, White House Military Office (WHMO)



VH-3D

- **Quantity: 11**
- **Delivered to HMX-1 in 1974**

VH-60N

- **Quantity : 8**
- **Delivered to HMX-1 in 1989**

VH-92A

- **Quantity to be Delivered: 23**
  - **21 Operational A/C**
  - **2 Test A/C**
- **EDM-0 currently undergoing cosite testing**
- **IOC Planned for 2020**

Joint Future Vertical Lift

- Joint effort to design, develop and field a family of 21st century vertical-lift solutions
- Army-led Joint Multi-Role Technology Demonstrator (JMR-TD) S&T program through 2019
  - Significantly advances air vehicle performance and systems integration technologies

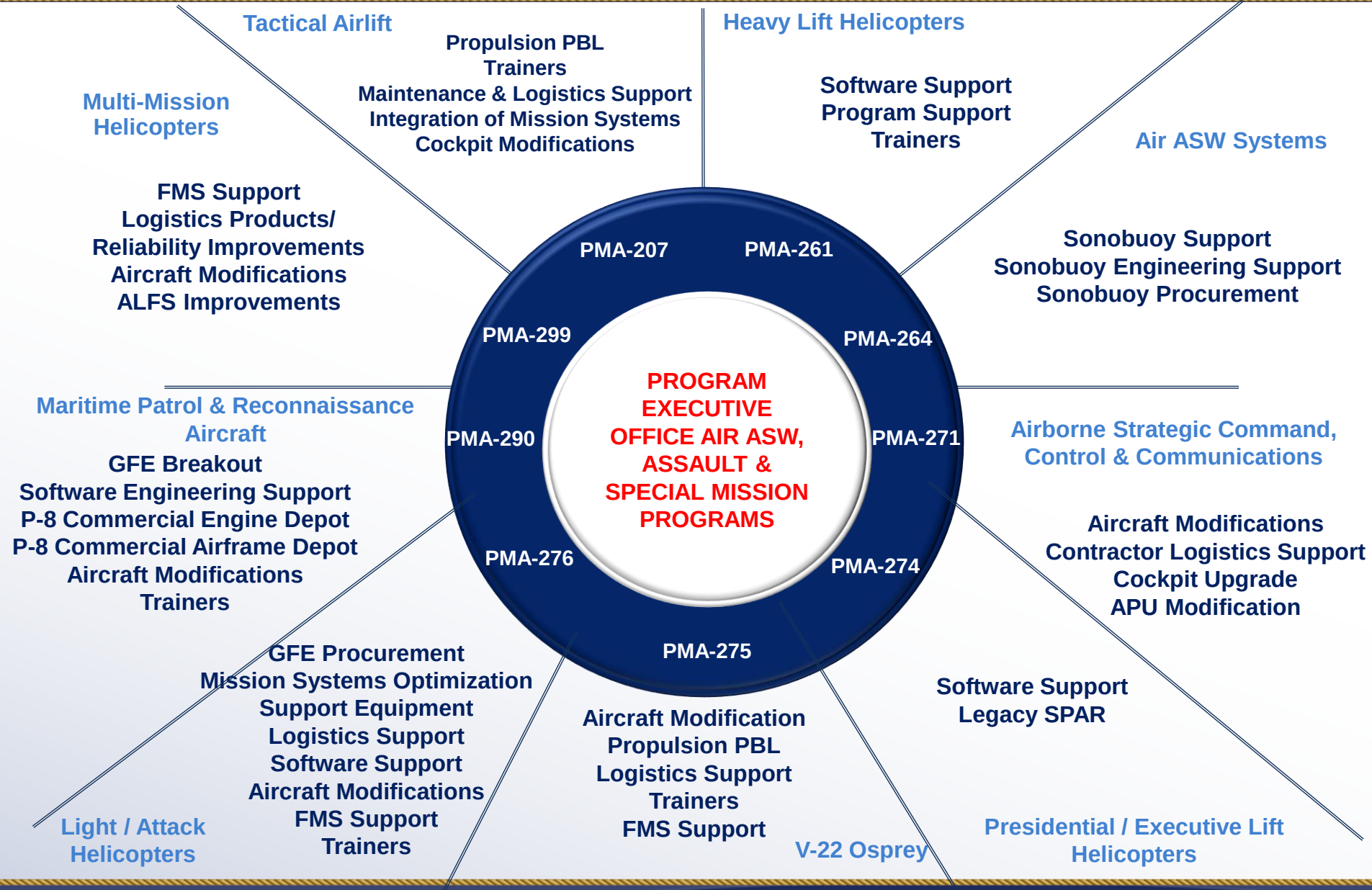
Bell V-280 Valor
JMR Demo

Sikorsky-Boeing SB>1 Defiant
JMR Demo

- Joint Future Vertical Lift (FVL) program definition underway
  - Five FVL Capability Sets defined covering all DoD vertical lift missions
  - JROC designated Navy lead for Common Systems team
    - Emphasizes Joint Common Architecture based implementation

JMR-TD will mature the technology basis and inform FVL

PEO(A) Near-Term Opportunities



PEO(A) Future Technology Needs

- Digital Interoperability
  - Collaboration with Unmanned Systems
  - Integration with Distributed Netted Systems
- Degraded Visual Environment
  - Sensors, Displays, Flight Control
- Survivability
  - Aircraft Survivability Equipment (ASE)
  - Engine Suppressor
  - Crashworthiness
- Energy
  - Replaceable/Rechargeable/ Harvesting
- Structures/Materials
  - Condition Based Maintenance/ Integrated Health Monitoring Systems
  - Damage Detection
  - Additive Manufacturing
- Data Fusion
  - Onboard and off-board sensors
- Software
  - FACE-compliant modular software
  - P-8A Applications Based Architecture
  - Cyber Information Assurance /Anti-Tamper
- Precision Navigation and Timing (PNT)
- Sensor Developments/Enhancements
  - Signal Processing/ clutter reduction algorithms
  - Reduced Size weight and Power
  - Software Defined/ Multi-mission sensors