

A Hallmark of Mission Resilience: Sustainability in the Acquisition Process



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The Why of Sustainability

“When we operate more sustainably, we become more logistically agile and ready to respond to crises.”

Secretary of Defense Austin, Leaders Summit on Climate 2021





AGENDA

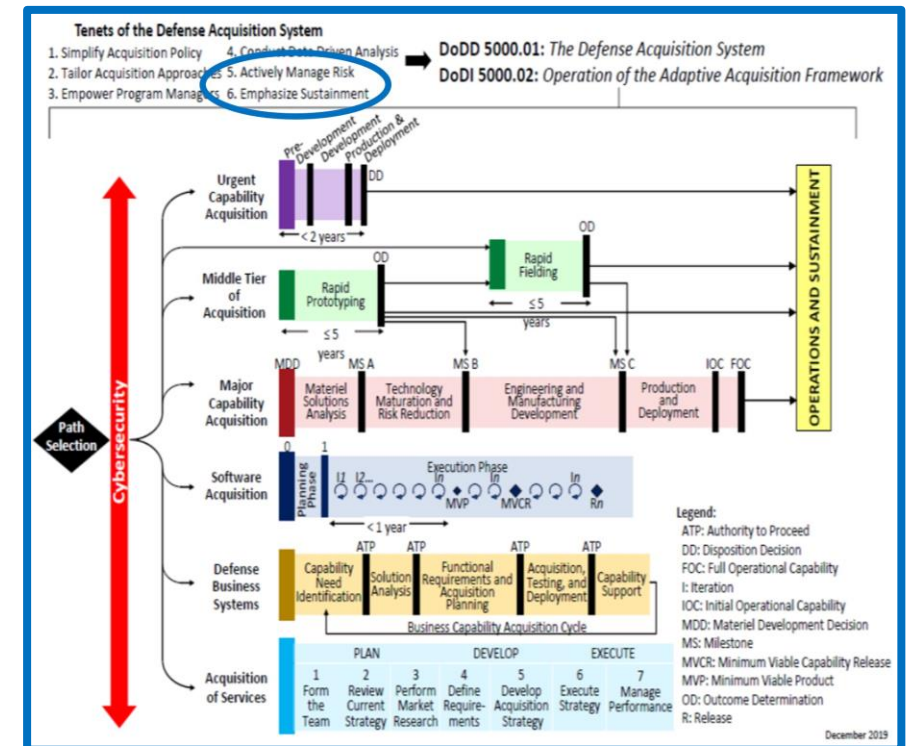
- **Department of Defense (DoD) Adaptive Acquisition Framework (AAF) and Sustainability Policies**
- **DoD Sustainability Overview**
- **DoD Sustainability in the AAF – Environment, Safety, and Occupational Health (ESOH) Risk Management and Requirements**





AAF Policy Drivers

- **DoD Directive 5000.01, *The Defense Acquisition System*, 9 Sep 2020; Change 1, 28 Jul 2022**
 - ESOH risks and requirements will be managed to minimize the injury to or loss of Service members and degradation of their equipment, and to reduce impact on the environment.
 - The Product Support Strategy is designed to facilitate enduring and affordable sustainment consistent with warfighter requirements.
- **DoD Instruction (DoDI) 5000.02, *Operation of the Acquisition Framework*, 23 Jan 2020; Change 1, 8 Jun 2022**
 - In consultation with the user representative, the Program Manager (PM) will determine which ESOH risks must be eliminated or mitigated, and which risks can be accepted.
 - Prioritize product support and affordability during early program planning to ensure sustained mission effectiveness.











AAF Policy Drivers (Cont.)

- **DoDI 5000.88, *Engineering of Defense Systems*, 18 Nov 2020**
 - The methodology in Military-Standard (MIL-STD)-882E will be used to address ESOH risk associated with system-related hazards.
 - The PM, with product support managers, will include supportability analyses as an integral part of the systems engineering process throughout the program life cycle.
 - Engineering analyses conducted by specialty engineering disciplines are used to inform the supportability analysis and sustainment risk mitigation strategies.
- **DoDI 5000.91, *Product Support Management for the Adaptive Acquisition Framework*, 4 Nov 2021**
 - Product support is critical to achieving and sustaining warfighter readiness and lethality and must begin at program inception to ensure effective and affordable readiness outcomes.
 - The PM, with the support of the Product Support Manager, begin life cycle product support planning by conducting early risk identification, mitigation, and product support analyses that inform best value solutions.



Sustainability Drivers

• Regulatory

- Farm Security and Rural Investment Act, Section 9002 
- Energy Policy Act of 1992, Section 303 / Energy Policy Act of 2005, Section 104  
- Energy Independence and Security Act, Sections 141, 142, 246, and 701 
- Resource Conservation and Recovery Act, Section 6002 
- Clean Air Act Title VI & American Innovation and Manufacturing Act 
- Executive Order (EO) 14057, *Catalyzing Clean Energy Industries and Jobs Through Federal Sustainability*

• Policy & Strategy

- DoDI 4105.72, *Procurement of Sustainable Goods and Services*
- Climate Adaptation Plan
- Green House Gas Mitigation Strategy
- Sustainability Strategic Plan
- Multiple FAR Rules
- Energy Key Performance Parameter (KPP)

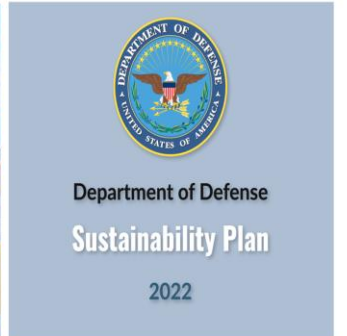


DoD and Sustainability – Resilience and Readiness

- **Military Departments need access to energy, land, air, water, and other natural resources to develop, train, and operate today and in the future.**
- **Emerging climate changes and crises are impacting our installations, equipment, and forces.**
- **Investments are prioritized and pursued that offer long-term value to resiliency, greenhouse gas reductions, and environmental preservation.**
- **Sustainable business practices and markets for advanced technologies are leveraged from DoD's substantial purchasing power.**

DoD's Sustainability Vision

Maintain the ability to operate into the future without decline — either in the mission or in the natural and man-made systems that support it.





DoD's Role In Sustainability to the Department's Mission

- **Maintain the ability to operate now and into the future.**
 - No decline either in mission or in the natural and man-made systems that support it.
- **Enhance and sustain mission readiness through cost-effective acquisition.**
 - Prevent pollution.
 - Ensure product availability.
 - Minimize ESOH impacts to the warfighter.
- **Promote and pursue advanced, cost-effective products and technologies.**
 - Field more sustainable and less hazardous solutions.
 - Support the mission.
 - Enhance operational readiness.

Sustainability crisscrosses into all facets of the strategic, operational, and tactical elements of the mission.



Sustainability in Weapon System Acquisition

- **Leveraging acquisition policy and guidance to achieve sustainable operations.**
 - Operations and support planning begins at program inception.
 - Both near-term development and production costs and the long-range operations and sustainment costs are considered early-on for deployed fleets and fielded systems.
- **Using KPPs to promote sustainability design considerations in systems.**
 - Sustainment KPP – Design in supportability for mission capability through Materiel Availability and Operational Availability.
 - Energy KPP – Ensure combat capability by balancing energy performance of systems and provisioning of energy to sustain systems/forces.
 - Increase energy supportability and reduce energy demand across all capability solutions.
 - Conduct Energy Supportability Analyses during new capability development.

EO Requirements Related To Sustainability & ESOH

EO 13990 (Jan 2021) – Incorporate Social Cost of Greenhouse Gases (SC-GHG) in areas of decision-making

EO 14107 (Feb 2021) – Assess climate risks to the availability, production, or transportation of critical/essential goods.

EO 14030 (May 2021) – Consider the SC-GHG in procurement decisions, and where appropriate and feasible, give preference to bids and proposals from suppliers with a lower SC-GHG.

EO 14057 (Dec 2021) – Achieve a carbon pollution-free electricity sector by 2035 and net-zero emissions economy-wide by not later than 2050. Secure a transition to clean, zero-emission technologies and transform procurement and operations.

EO 14081 (Sep 2022) – Harness biotechnology and biomanufacturing research & development sustainably and increased biobased procurement



Sustainability in Weapon System Acquisition (Cont.)

- **Challenge – Energy demand and operational risks are increasing.**
 - Historically, DoD’s ability to ensure the delivery of energy to Joint Forces was a key enabler of deterrence, forward presence, and warfighting capability.
 - However, demand is increasing for fuel and power by air, sea, and land forces.
 - Energy needs are growing across propulsion/mobility, sensors and supporting systems, and weapons.
 - Service operating concepts reinforce this trend through a focus on dispersed operating locations, austere operations, and longer distances and time on station.
 - Contested logistics environments are placing energy supportability of Joint Forces at risk.
 - Logistics and sustainment will be targeted by adversaries.
 - Risks to sustainment are a consistent conclusion of multiple wargames and campaign analyses.
 - Since 2009, 10 United States Code § 2911 directed the use of an energy KPP on new systems and modifications to current systems.
 - “Secretary of Defense shall develop and implement a methodology to enable the implementation of a fuel efficiency key performance parameter in the requirements development process for the modification of existing or development of new fuel consuming systems.”
 - However, the KPP does not seem to be positively affecting energy demand and supportability.



Sustainability in Weapon System Acquisition (Cont.)

- In response – Department is re-evaluating the approach to capability development.
 - Through the Climate Working Group, executed a Summer 2021 data call that identified inconsistent use of energy KPP across DoD programs.
 - In April 2022, Deputy Secretary of Defense directed that the Department reduce energy demand and increase energy supportability in capability development.
 - Initial review of demand/supportability in program.
 - Strategy guidance.
 - Requirements and acquisition procedures.
 - Best practices.
 - Recurring reporting framework.
 - On 6 Jun 2022, Military Departments were provided additional guidance on executing the initial program review.



DEPUTY SECRETARY OF DEFENSE
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APR 21 2022

MEMORANDUM FOR SECRETARIES OF THE MILITARY DEPARTMENTS
CHAIRMAN OF THE JOINT CHIEFS OF STAFF
UNDER SECRETARY OF DEFENSE FOR ACQUISITION
AND SUSTAINMENT

SUBJECT: Energy Supportability and Demand Reduction in Capability Development

In alignment with the 2022 National Defense Strategy, the Department is focused on building a resilient joint force and defense ecosystem, and is supporting interagency efforts on energy and climate resilience. Energy is an enabler of joint military capabilities, and ensuring the availability of sufficient energy supplies will only grow in importance with the development of new energy intensive capabilities designed to sustain and enhance warfighting capability. Distributed operations and contested logistics will challenge the sustainment of combat forces and place a premium on capabilities with longer range, time on station, endurance, and the ability to adapt to evolving energy needs and technology.

Through the Climate Working Group, the Department reviewed its record of applying the statutorily-required energy key performance parameter (KPP) (see title 10, U.S.C., section 2911 note, Consideration of Fuel Logistics Support Requirements in Planning, Requirements Development, and Acquisition Process). The Department assessed the extent to which it applied the energy KPP over 44 joint programs, and found an inconsistent application of the energy KPP and an uneven prioritization of energy supportability across joint programs.

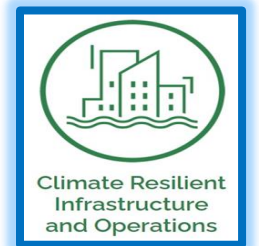
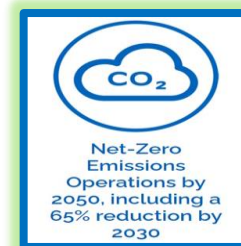
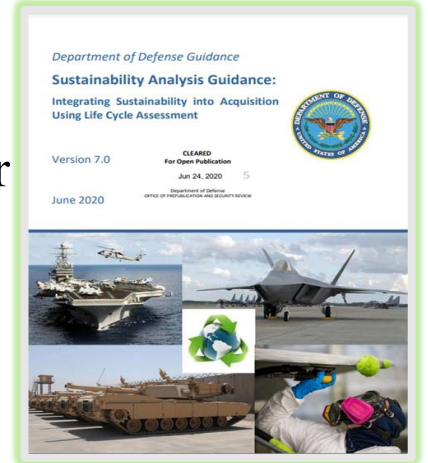
The Department's capability development activities, from requirements to acquisition to sustainment, must increase energy supportability and must reduce energy demand across all capability solutions. The joint capacity to meet the demand for energy needed to employ and sustain a capability in projected scenarios and threat environments should inform the energy performance requirements of all Department systems. To enhance energy supportability and drive energy demand reduction across the Joint Force, I am directing the following actions in the development of new capabilities as well as upgrades to current programs:

- The Secretaries of the Military Departments will assess how capabilities, including Major Capability Acquisition programs, capability modernization efforts, and other technology development programs, are enhancing energy supportability and reducing operational energy demand. The Military Departments also will review energy supportability and energy demand reduction efforts in programs using the Middle Tier of Acquisition pathway. The review will provide information on how fuel and power demands, opportunities for demand reduction, and energy supportability risks were assessed during initial system concepts, analysis of alternatives, development and fielding, or any modernization efforts after fielding. The Under Secretary of Defense for Acquisition and Sustainment (USD(A&S)) will provide guidance on programs to be included in these assessments no later than 14 days from the date of this memorandum, and the interim assessment will be provided by the Secretaries of the Military Departments 90 days thereafter.



Sustainability in Weapon System Acquisition (Cont.)

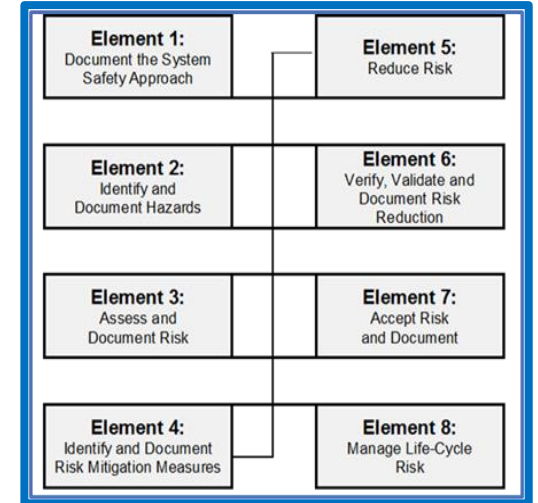
- **Providing guidance on how to incorporate sustainability considerations in support of acquisition requirements – *The Sustainable Analysis Guide*, 24 Jun 2020**
 - Promotes the design of sustainable systems that use fewer resources over the life cycle, have fewer impacts on human health and the environment, and have a lower total ownership cost.
 - Describes how to apply a life cycle assessment to quantify costs and impacts associated with resource requirements, environmental releases, and wastes for each phase of the system's life cycle.
- **Executing ESOH risk management and compliance integral with systems engineering and product support processes.**
 - Reduces operation and support costs by influencing system design early in development since the opportunities to do so decline significantly as the system matures.
 - Seek out alternative materials with less human and environmental impacts.





ESOH Risk Management and Requirements

- **System safety methodology used in weapon system acquisitions executed per MIL-STD-882E, *Department of Defense Standard Practice System Safety*, 11 May 2012.**
 - Enables the identification and management of hazards and their associated risks during system development and sustaining engineering activities.
 - Defines the eight elements of the system safety process to protect personnel, equipment, and the environment.
- **ESOH evaluations and analyses conducted throughout a system's life cycle.**
 - Identifies risks and operational/sustainment compliance considerations (e.g., hazardous materials usage, wastes, and pollutants)
 - Minimizes injury to/loss of Service members, reduces regulatory impacts to system availability, and mitigates impacts to critical environmental resources.
 - Seeks to realize hazards and risks associated with climate change and energy demand.





ESOH Risk Management and Requirements (Cont.)

- **Emerging chemical assessments performed to identify potential impacts to DoD's mission.**
 - Scans the current industrial landscape for chemicals and materials that may be regulated or restricted.
 - Protects readiness, people, and the environment by identifying and managing risks associated with the chemicals and materials DoD uses.
 - Expands the application of sustainable chemistry principles to improve the design of chemical products and processes that eliminate or reduce the use or generation of hazardous substances.

Chemicals and materials are vital to provide the United States with the capabilities needed to defend the Nation and maintain national security.





Sustainable Procurement

- **DoD is leveraging its purchasing power to achieve net-zero emissions procurement by 2050 in accordance with EO 14057.**

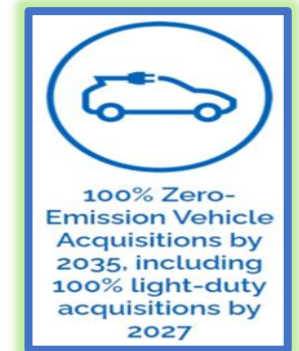
- Four Open Federal Acquisition Regulation Cases

- 2021-015 (EO 14030) – Disclosure of Greenhouse Gas Emissions and Climate-Related Financial Risk
- 2021-016 (EO 14030) – Minimizing the Risk of Climate Change in Federal Acquisition
- 2022-006 (EO 14057) – Sustainable Procurement
- 2023-XXX (EO 14057) – Implement EPA SmartWay Program



- DoDI 4105.72, *Procurement of Sustainable Goods and Services*, 7 Sep 2016; Change 1, 31 Aug 2018

- Implements United States Federal sustainable acquisition requirements (recycled and biobased content, energy and water efficiency, low emissions, green chemistry) within DoD.
- Establishes roles, responsibilities, and procedures.
- Will be updated to reflect additional requirements in EO 14057 [e.g., circular economy, Per- and polyfluoroalkyl substances (PFAS), and single-use plastics alternatives].
- Transition to 100% Zero-Emission Vehicle (ZEV) Fleet Acquisitions
 - Optimizing new ZEV allocation with the turnover of existing non-ZEV vehicles.
 - Includes portable solar charging stations and electric vehicle charging infrastructure.





Summary

- **Sustainability and ESOH Risk Management is inherent to:**
 - Mission Performance & Resilience
 - Improve performance – recent technology enhancements.
 - Improve logistics – shorter tail, less material into the field.
 - Price versus Cost over the Life Cycle
 - Use and dispose of less, longer life cycle, increase affordability.
 - Material Availability
 - Made from domestically sourced materials offering increased supply chain security.
 - Reduce dependency on fossil fuels.
 - Reduce impact on non-renewable resources.



Summary (Cont.)

- **Sustainability and ESOH Risk Management is inherent to:**
 - Health and Environmental Impacts
 - Reduce exposure to hazardous materials – lower liability.
 - Lower impact on personnel, operations and training lands.
 - Operational Energy Resilience
 - Is an essential enabler of military capability.
 - Relies on energy resilient forces and weapon systems to achieve the mission.
 - Assures access to sufficient and secure supplies of energy for successful military capabilities.

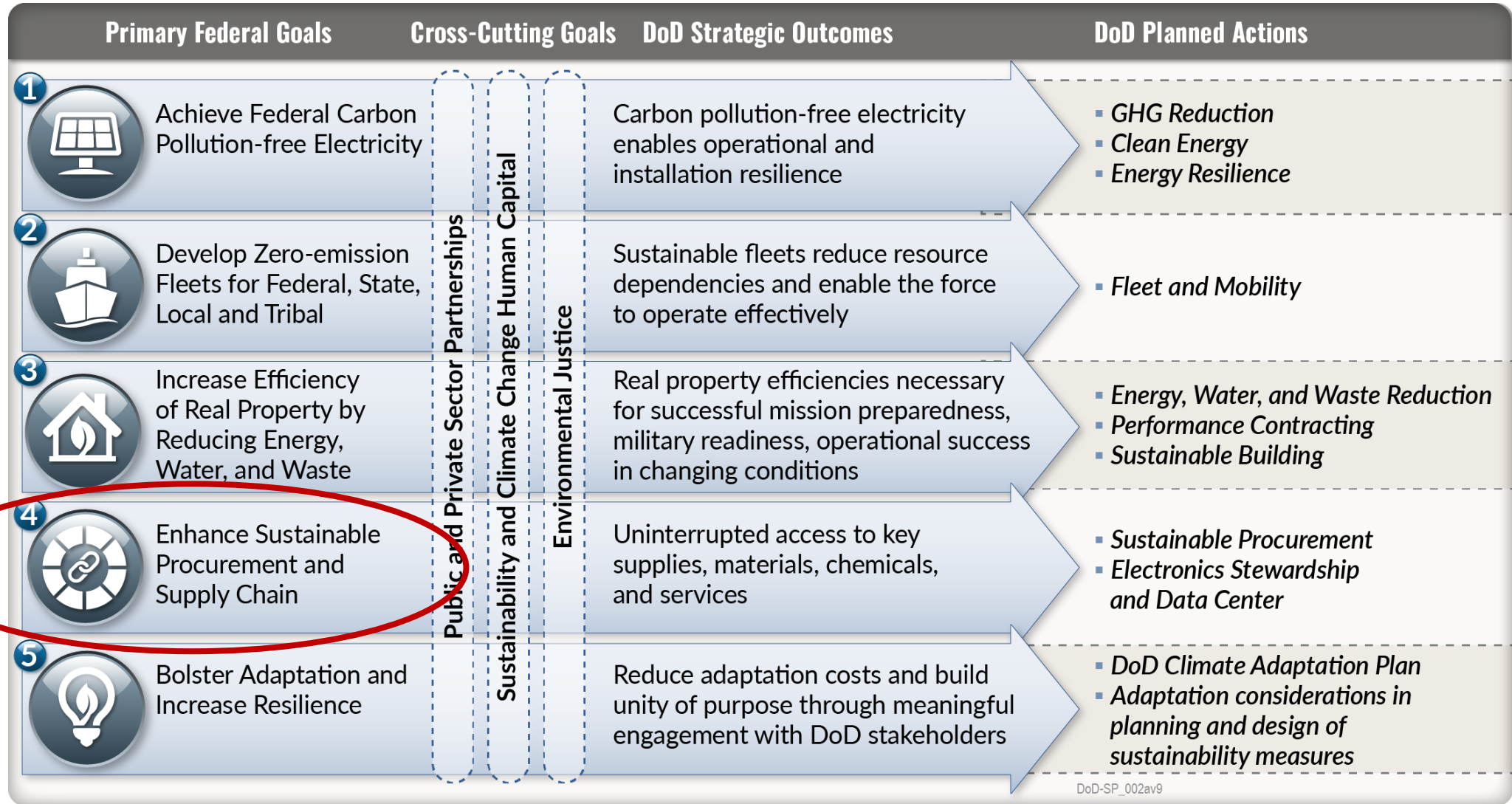


BACKUP





DoD Sustainability Plan Strategic Framework



DoD-SP_002av9



Transformations in ESOH and Sustainability

- **Zero-Emission Vehicle (ZEV) Fleet Acquisition**

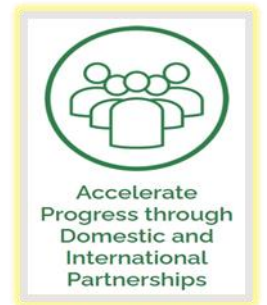
- Multi-phase acquisition of all electric non-tactical vehicles
- Includes portable solar charging stations and electric vehicle charging infrastructure
- 2,000 vehicles at 763 facilities
- 100% ZEV acquisitions by 2027



- **Technology Research and Development – Strategic Environmental Research and Development Program & Environmental Security Technology Certification Program**



- Environmentally Friendly Paint Removal From Military Components [Plasma Electrolytic De-painting (PEDP) and Ultrasonically Activated De-painting (UADP)]
- Capabilities Assessment of Commercially Available PFAS-Free Forms (New Fluorine Free Foams)
- Cold Spray Coatings for Chromium and Nickle Plating Replacement
- Demonstration and Validation of Siloxane-Based Aircraft Topcoat – Isocyanate-Free and Reduced Environmental Impact





Transformations in ESOH and Sustainability

- **DoD Sustainable Materials Alternatives Recommendations Tool**
 - Improve data accessibility to enable effective resource allocation for research and development, design, manufacture, and use of hazardous material-free technologies.
 - Develop and adopt DoD-relevant sustainable chemistry metrics.
- **Standardized Process for Environmentally Preferred Products**
 - Build upon enterprise-wide effort minimize procurement of general use hazardous material consumables at shore-based facilities.
 - Conducted pilot demonstrations using new tools and procedures.
 - Purchase of sustainable cleaners increased 1,500% from the previous fiscal year.
 - Authorizations of new hazardous cleaners fell 25%.
 - Safer product alternatives increased by 347%.

