Operational Energy Capability Improvement Fund (OECIF) and Operational Energy Prototyping Fund (OEPF) Fiscal Year 2024 Project Selection Evaluation Instruction

APPROVED: 3 May 2023

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I. Introduction

A. This plan establishes and assigns roles, responsibilities, timelines, and procedures for executing the Operational Energy Capability Improvement Fund (OECIF) and the Operational Energy Prototyping Fund (OEPF) proposal evaluations and selections for Fiscal Year (FY) 2024.

B. OECIF and OEPF are funded in two program elements (PE) - 0604055D8Z and 0604555D8Z respectively.

II. Background

A. The OECIF and OEPF programs develop and prototype Operational Energy (OE) relevant technologies providing innovative operational overmatch solutions for warfighters and allies. OECIF is DOD's dedicated Joint operational energy investment program. The OECIF and OEPF programs guide operational energy innovation via targeted science and technology (S&T) investments (OECIF) and moves them to/through prototyping (OEPF). OECIF is an advanced technology development fund focusing on technology integration and demonstrations for first-of-a-kind innovations. Both programs operate in collaboration with the Services and leverage, not replicate, the existing infrastructure and organization in the Services. Each Service's OE lead works collectively with the programs to develop, select, and oversee the program investments.

   OEPF advances technologies created within OECIF, industry, and other entities into transition-ready prototypes for the Joint Force. The purpose of the OEPF is to bridge the transition gap that many projects experience when moving from first-of-a-kind technologies into prototypes for testing and demonstration and ultimately into new joint capabilities. These validation testing and demonstration efforts accelerate the movement of technology investments from the laboratory to the warfighter. They inform the requirements process by demonstrating operational value and suitability to the warfighters. They also provide data needed by the acquisition community to manage their programmatic risk. Quantifying operational value also supports analysis and wargaming and accelerates integration of the new capabilities into operations. OECIF and OEPF are not supplemental funding to support Service-unique requirements for which Services are responsible. Rather they develop and de-risk technologies and prototypes to address Joint requirements shared across Services or domains for which no single Service can or should fund individually. Capabilities resulting from OECIF and OEPF investments are intended to be "born Joint" rather than be developed independently by multiple Services.

B. OECIF and OEPF fund energy innovation and improve Joint Force operational effectiveness through targeted investments. These investments perform two primary functions:
   1. Develop, demonstrate, and rapidly transition operational energy technologies, processes, or standards that improve military OE capabilities, reduce costs, and decrease carbon emissions.
   2. Establish sustainable institutional capacities that continue research, development, training, education, and adoption of OE innovations.

C. The OECIF and OEPF programs provide "seed money" for consolidating or initiating promising OE projects for transitioning to the Joint Forces, Combatant Commands (CCMDs), Department of Defense (DOD) agencies, and/or the Services. Congress created OECIF in FY 2012 in the National Defense Authorization Act (NDAA) and the OEPF in the FY 2021 NDAA.

III. Roles and Responsibilities

A. The OECIF and OEPF programs include five stakeholder groups that represent the OE users and the technology community.
   1. Office of the Undersecretary of Defense for Acquisition and Sustainment (OUSD A&S), Deputy Assistant Secretary of Defense for Environment and Energy Resilience (DASD(E&ER)).
   2. Director, Operational Energy-Innovation (OE-I).
   3. CCMDs and Service Energy Offices.
   4. Proposal Evaluation Board (PEB).
   5. Government proposers.

B. Collectively, these groups ensure that projects selected for funding meet valid DOD requirements, are scientifically and technologically sound, and are effectively managed and executed. Note that "requirement" is used extensively throughout this document. In the context of the OECIF/OEPF proposal process, it can mean either a formal requirement as codified in a Service or CCMD annual Integrated Priority Lists (IPL) or other requirements submissions; or an informal requirement as expressed by an acquisition or procurement authority, warfighting organization with authority to establish requirements, or a Service OE Director. Further, the OE-Innovation Director encourages the submission of one-year studies that develop data and analysis to improve energy-informed decision making by the formal requirements development processes.
   1. DASD(E&ER). The DASD(E&ER) or their appointee/designee has responsibility for:
      a) Overseeing policy and guidance for administering the OECIF/OEPF programs.
      b) Providing Congress accountability for PE 0604055D8Z Operational Energy Capability Improvement Fund and for the PE 0604555D8Z Operational Energy Prototyping Fund.
   2. Director, Operational Energy-Innovation (OE-Innovation). The OE-Innovation Director serves as the program manager and selection official with responsibility for:
      a) Ensuring that proper procedures and safeguards are in place to protect the integrity of the selection process including the proper and efficient conduct of pre-proposal evaluation.
      b) Coordinating the annual *Project Selection Evaluation Instruction* to be distributed to the Service Deputy Assistant Secretaries for Operational Energy (or the Service's equivalent), the Defense Logistics Agency-Energy, and the CCMDs.
      c) Managing the full proposal evaluation including technical review and award selection.
      d) Overseeing funding distribution to government labs, federally funded research and development centers (FFRDC), and contracts or cooperative agreements with industry and academia.
      e) Seeking guidance from the Office of the DASD(E&ER) on the proposed priorities.
      f) Nominating members of the annual PEB.

g) Chairing the PEB.
h) Reviewing the PEB's evaluation of the proposals including recommendations for priorities, down-selection, and selection decisions.
i) Approving and announcing a funding priority "1-N" list based on feedback from the PEB, Services, and CCMDs with full consideration for administrative costs, past performance, on-going and future projects funding set asides.
j) Providing lifecycle program management of the selected projects and tools.

3. CCMD Science and Technology (S&T) Advisors and Service Energy Offices. Manage their internal process for reviewing and submitting their prioritized list of proposals to the PEB in response to the OECIF/OEPF calls for proposals. In addition, they have responsibility for:
   a) Providing feedback and recommendations for the annual OECIF/OEPF theme and all calls for proposals.
   b) Recommending and provide guidance for incorporating their OE needs and integrated priority lists into the solicitation process.
   c) Providing to the PEB process:
      (1) A "1-N" ranking of their nominated proposals.
      (2) A qualitative 1-5 score for each proposal based on PEB selection criteria.
      (3) Advocate for proposals with "yes/no" recommendation for funding.
   d) Participating as non-voting members in during PEB deliberations and respond to PEB requests for supplementary information.
   e) Optionally, reviewing and providing comments/reclama on final project ranking and funding to the selection official.
4. OECIF/OEPF PEB has responsibility for:
   a) Serving as the official proposal review body for collecting, sorting, evaluating, and ranking all proposals.
   b) Being nominated by the OE-I Director who ensures the PEB has the required expertise to evaluate proposals objectively and credibly.
   c) Being composed of at least seven voting members; four from the Office of the DASD(E&ER), including the OE-I Director (chairperson); and three or more subject matter experts (SME) with project-specific technical knowledge, OE experience, and/or understanding of OECIF/OEPF themes. The SMEs may be from the government, academia, or "not-for profit" organizations including FFRDCs.
   d) Reviewing submitted proposals within 15 days of submission.
   e) Providing initial feedback through the Operational Energy Management System (OEMS) within thirty days of proposal submission.
   f) Recommending proposals that require a briefing to the full PEB.
   g) Attending all PEB deliberations and interact with Government Proposers and other PEB members to ensure integrity and achieve a consensus of the "1-N" rankings.
5. Government proposers have responsibility for:
   a) Reviewing annual rules and submission procedures.
   b) Building best-of-breed teams and proposals.
   c) Creating an OEMS account at https://oecif.org.
   d) Submitting proposals and documents using OEMS.

e) If invited to present, reviewing PEB comments ahead of presenting to PEB (at PEB's discretion) and address comments during PEB.
f) If selected,
    (1) Working with the OE-I Directorate to ensure the project meets Joint, OE-Innovation expectations.
    (2) Completing project management and financial data entry using the OEMS systems.
    (3) Attending all OECIF/OEPF Program events.
g) Completing all end of project requirements including records management and accountability expectations.

Note: Figure 1 depicts the proposal submission and scoring process described in section IV(G).

IV. Call for Proposals

A. Within the DOD S&T OE strategy areas, OE-I solicits for FY 2024 proposals for OECIF under the following topics:
    1. ***Commanding Energy (CE)***: Harnessing energy data and information to better shape battlespace decisions, including through Joint All-Domain Command and Control (JADC2), and creating improved OE planning tools. OE-I solicits projects that 1) enhance OE command and control, 2) better capture and understand allied and adversarial battlespace energy profiles, and 3) support OE education to transform Joint Force energy management command and control from reactive to predictive. An energy profile in this context means energy availability, energy demand centers, prioritization of energy needs based on operational imperatives, and logistics capabilities available to physically move energy cross the battlespace. It applies to both allied and adversary forces. The Commanding Energy Portfolio areas of focus [Appendix 1] are:
        a) Operational Integration: Providing warfighters continuous, uninterrupted, and overwhelming advantage against an adversary during operations and engagements. Support operations at all echelons and integrate OE into JADC2.
        b) Metering and Monitoring: Improving the collection, integrity/assuredness, utility, and communication of energy data to enhance battlespace decision-making. Enabling standard, cybersecure, uniform systems and structures to ingest and process operational energy data.
        c) Tools and Analytics: Providing integrated, uniform tools, architectures, and methods enabling a common Department-wide capability for collecting, analyzing, and communicating battlespace OE information. Supporting the development of machine learning/artificial intelligence through advanced algorithms to maximize warfighting value from OE data. Developing solutions, techniques, and methods to improve the capture and understanding of energy profiles at all echelons across the battlespace. This provides the warfighter OE awareness in real time at the point of need.

d) Modeling and Simulations: Applying analytic techniques, to include modeling, simulation, standards, and tools to support integration of OE considerations into force planning, gap analyses, requirements, and acquisition program risk management.
e) Training and Education: Developing OE education and training materials to accelerate integration of OE and OE innovations into operational use. This includes using and sustaining OE systems used in the battlespace, new tools used by operational and logistics planners, or new analytic techniques used by wargamers and joint scenario developers.
f) Mission Planning: Developing new analytic tools tailored to the needs of Joint operational strategists and planners throughout DOD to improve the effectiveness and sustainability of Joint operations.

2. ***Advanced Technology Development Relevant to Aviation and Space Efficiencies Tranches.***
   a) Aviation Efficiencies (AE) Tranche: Most of DOD's OE use is for aviation fuel. The cost of procuring and delivering this fuel in terms of money, logistics and operational assets, and lives during combat operations is significant. Reducing aviation fuel consumption across the Services through greater efficiencies lowers risk throughout the supply chain, especially in times of conflict. It also reduces greenhouse gas emissions. Significant opportunities exist for improving operational effectiveness including through improved efficiency, advances in aviation powerplants (i.e., electrification, hybridization, etc.), flight software planning tools, inflight algorithms, and composite airframe structures, among other emerging technologies [Appendix 2].
   b) Space Efficiencies (SE) Tranche**:** The United States (U.S.) and its allies rely on U.S. space superiority, but U.S. military advantages in space are increasingly at risk. The Space Efficiency effort supports the development of resilient space-based OE capabilities to improve operations in a highly contested environment. Maneuver, resiliency, agility, and innovation are instrumental to supporting multidomain operations from space. Improvements in space access, maneuver, and mission power help maintain U.S. space superiority. The transformation of the space-based force from a relatively smaller number of large satellites to an order of magnitude number of microsatellites is fundamentally changing the energy needs of the space force, demanding innovative approaches and new technologies. [Appendix 3].

3. ***Ground Vehicle Hybridization and Electrification (GVH&E) Tranche:***
   a) Ground Vehicle Hybridization and Electrification. GVH&E reduces energy demand while maintaining overmatch, improving combat effectiveness, extending operational reach, and reducing operational and logistics risk. Ground vehicle electrification improves maneuverability (acceleration, speed), survivability (thermal and acoustic signature, hub motor resilience against attack), lethality (greater SWaP for HE weapons, targeting, command, control, communications, computers, cyber, intelligence, surveillance, and reconnaissance (C5ISR), and active defense and exportable power), efficiency and enables new capabilities such as robotics and autonomous systems. This tranche seeks to improve vehicle electrification technologies, such as high energy and power density networks, fast forming microgrids, high power and frequency pulse forming networks, thermal and mechanical stress management techniques and

technologies, higher power, and energy dense safe energy storage and vehicle-to-grid technologies.

b) Hybrid Vehicles. For hybrid vehicles, industry trends include transitioning from the production of internal combustion engines to the development and production of alternative propulsion systems to improve energy use/costs, sustainability, and climate impacts. Tactical ground vehicle electrification (TGVE) provides warfighting advantages mentioned above. Hybridization is on the critical path toward full electrification, but it is not yet possible to store sufficient electrical energy on-board a tactical vehicle, so some type of fuel powered generator is expected. The goal is to develop technologies that enable a migration to less on-board fuel storage and more on-board electrical storage to meet mission requirements. [Appendix 4].

B. To encourage greater participation by innovators, beginning in FY 2024 OECIF invites three types of proposals:
   1. Multi-year (up to three years) traditional project proposals for up to $2.5 million (M) per year. Each project must have go/no-go criteria at the end of each year and must be making appropriately significant progress to qualify for continued funding. OE-I Director approves continued funding of all projects.
   2. One-year surge project proposals for up to $5M, and
   3. One-year studies up to $1M.

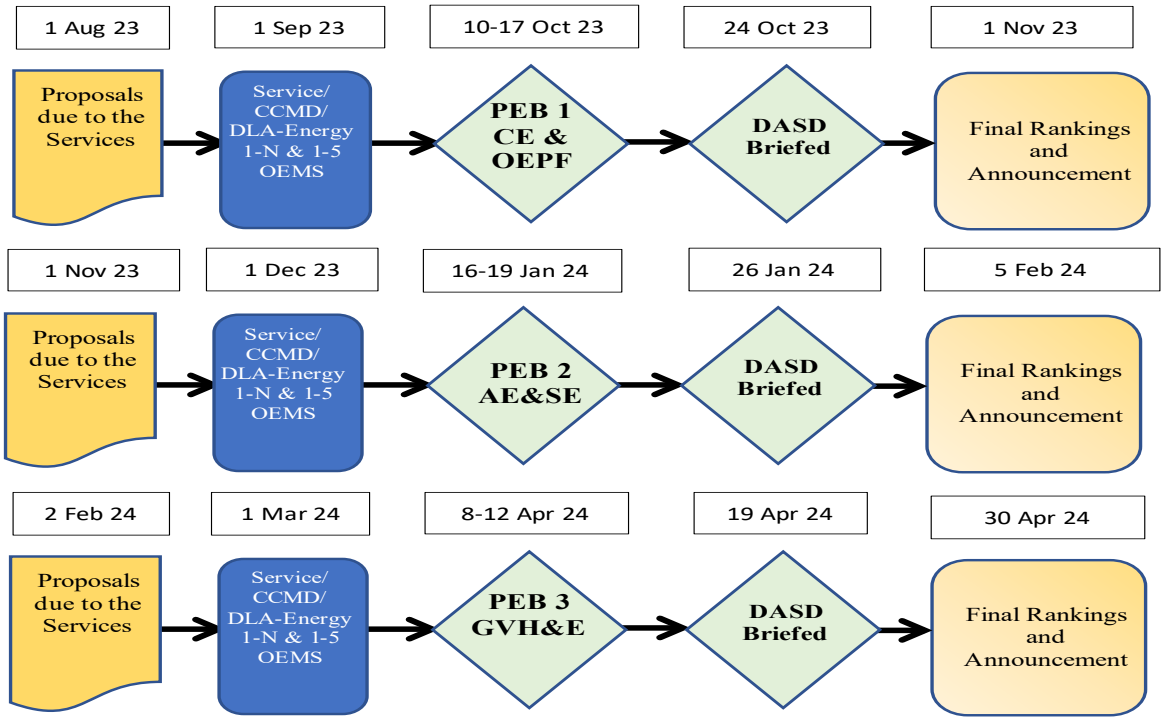
C. Within the DOD S&T OE strategy areas, OE-I solicits FY 2024 proposals for demonstration and prototyping under the OEPF program. The OEPF call is open to any maturing S&T component technology with OE-impact that is ready to transition, but 1) is not yet included into a Service/CCMD program of record or 2) does not have bridge funding to its program of record. OEPF proposals must have a transition partner who states they have or are attempting to submit for FY 2025 or FY 2026 program objective memorandum (POM) funding. As of FY 2024, OEPF projects no longer need to be prior OECIF projects. OEPF accepts surge project proposals with one-year of funding. OEPF projects that have not been successful in securing FY 2025 or FY 2026 POM funding for transition will be considered for one additional year of funding if 1) they are making significant progress across requirements development, analytics, acquisition strategy development, assessing warfighter feedback, and 2) the Service sponsor remains committed to pursuing transition via the POM. The OE-I Director approves continued funding of all projects.

D. The Services, CCMDs, or other DOD components who receive OECIF or OEPF funding are responsible for managing execution of all projects, with oversight by OE-I and the OECIF/OEPF portfolio/tranche leads.

E. Proposals must originate from DOD components. PEB scoring strongly favors projects that collaborate with industry and academia.

F. Proposal Documents. Proposers must submit (up to) a six-page (Times New Roman 12-point font) whitepaper describing their candidate project using the template format provided in Appendices 5 and 6 (FY 2024 OECIF and OEPF Proposal Formats). They must also submit an accompanying quad-chart describing their candidate project using the template format provided in Appendix 7—FY 2024 OECIF and OEPF Quad Charts.

Figure 1: Review process and schedules with three-round details:



G. FY 2024 PEB Schedule.

1. PEB 1: Commanding Energy (CE) and OEPF—submit by 1700 EST on Tuesday, 1 August 2023.
   a) Commanding Energy: See Call for Proposals section IV.A.1 above for description and goals.
   b) OEPF: See Call for Proposals section IV.C above. Government proposers submit OE projects that build and test OE system prototypes. These projects must be at a technology readiness level (TRL) 6 (system/subsystem model or prototype demonstration in a relevant environment) or TRL level 7 (System demonstration in an operational environment). OEPF precedes transition, so, proposals should focus on requirements, acquisition strategies, analytics (including those required for programming), futures wargames, and warfighter demonstration with planned reaction time to incorporate recommendations.
   c) Proposers provide additional information as noted in section V.A (below) Proposal Criteria and Scoring.

2. PEB 2: Aviation Efficiencies and Space Efficiencies – submit by 1700 EST on Wednesday, 1 November 2023.
   a) Aviation and Space Efficiencies: See Call for Proposals sections IV.A.2.a. and IV.A.2.b. above for descriptions and goals.
   b) Proposers will provide additional information as noted in Section V.A. (below) Proposal Criteria and Scoring.

3. PEB 3: Ground Vehicle Hybridization and Electrification (GVH&E) – submit by 1700 EDT on Friday, 2 February 2024.
   a) Ground Platform Hybridization and Electrification: See Call for Proposals section IV.A.3. above for descriptions and goals.
   b) Proposers will provide additional information as noted in Proposal Criteria and Scoring section V.

V. Proposal Criteria and Scoring

A. The PEB reviewers rate OECIF and OEPF proposals against the same criteria, but because they have different objectives, the criteria are weighted differently in scoring. OECIF weighs more heavily toward OE development (versus effectiveness) and OEPF weighs more heavily toward Service commitments to transition and demonstration. The scoring percentages are reflected below. Where two numbers appear, OECIF is the first weighting and OEPF the second weighting.

B. Reviewers evaluate the proposals against five criteria:
   1. Improve Operational Energy Effectiveness. (40%/20%): *The military benefit of the proposed project*. The extent to which the proposed project will improve military OE capabilities and/or reduce logistics risk in a contested battlespace. Efforts shall quantify their impact on climate change assuming the technology transitions. The PEB looks for well supported and quantified analyses of operational value.
   2. Project Plan/Jointness. (15%): *The quality of the proposed technical and managerial approach*. The goals, approaches, schedules, and processes of the proposed project should be clearly identified, logical, and demonstrate a clear understanding of the path forward. The PEB will look for a clear connection between the improved performance/capabilities sought, the technical goals, and project approach to achieve them. Proposals should describe the test data the project will collect to support acquisition, requirements, and war-gaming. Projects that deliver Service unique rather than Joint capabilities are out of scope and not be considered for funding.
   3. Personnel/Team Caliber. (15%): *The quality of the project team.* This includes qualifications, expertise, and demonstrated experience and accomplishments in work relevant to the proposed project. Each team shall include a data analytical/modeling and simulation expert. Teams with student/intern contributions score better.
   4. Commitment to Demonstration and Transition. (15%/35%): *Commitments from Service, CCMD or other sponsors for demonstrations and transition (as appropriate).* At least one

transition partner must be active throughout the life of the proposal. A memorandum of understanding (MOU) or other formal partnerships between research and acquisition/in-service/fielding organizations will score better for OECIF and is ***required for OEPF***. Proposed projects that support current or forecast military requirements that have clear commitments to requirements, delivering capability, an acquisition strategy, analytics, and transitioning the technology score better. Proposed projects will exhibit commitment to the 'Transition Plan Outline' [Appendix 8].

5. Cost (15%): *The reasonableness of the cost for the proposed program/study.* Communicating project fiscal discipline, realistic resource requirements, and sound financial planning improves scores. Matching funds from other stakeholder organizations demonstrate confidence in the proposal and strength of the operational need.

C. Proposal Evaluation Board (PEB) Process.

1. Service/Combatant Command Review. For each PEB, the Services and CCMDs designated as proposal leads must provide a "1-N" ranking of all proposals nominated by them to the PEB. Service/CCMDs may choose to rank any or all other Services/CCMD/Defense Logistics Agency projects 1) in their "1-N" in ranking or 2) with "yes/no" advocacy for funding.
2. PEB Review. The PEB members record their scores and comments on each proposal within OEMS.
   a) PEB members review and initially rank all proposals before the PEB conference.
      (1) PEB members review all quad charts before sending invitations to proposal teams and answer the questions on reclama, on-topic, advocacy, and invitation. PEB members accomplish the initial review within 15 days after proposals are received.
      (2) PEB members' initial reviews shape the list of proposals that are invited to present at the PEB. The OE-I Director makes the final decision on which proposals are invited.
   b) The PEB members individually review and rank all proposals based on the five criteria outlined in Section IV.B.
   c) The PEB meets in person at the Mark Center or the Pentagon (both in Virginia) unless otherwise coordinated. Services and CCMDs may participate as non-voting members in the PEB and support PEB requests for related information.
      (1) The PEB facilitator organizes proposal reviews by sponsor, by type (multi-year, surge, or study) and by program (OECIF or OEPF).
      (2) Ahead of the proposal presentations, the sponsoring Service or CCMD may have 30 minutes to present their priorities and to advocate.
      (3) The selection official may approve PEB individuals with extenuating circumstances to attend via video teleconference (VTC). If necessary, the selection official may move the entire conference to VTC.
   d) The PEB members conduct a final review of the proposals based on the six-page maximum technical proposal, the Service/CCMD advocacy brief, and the proposal presentation.
      (1) All proposers brief the PEB and answer questions.

(2) Proposers should pre-read comments provided by the PEB ahead of their presentation and address these comments in their presentation.

e) Each PEB reviewer enters final scores and comments in OEMS for all five criteria based on the expanded PEB information and discussion.

f) The selection official, based on the PEB scores and discussion, creates a consolidated "1-N" priority list of proposals for each round.

g) The PEB considers both year one and out-year funding in their recommendation to ensure the programs have at least 1/3 of the funding available for new-starts each year.

D. DASD(E&ER) Briefing.

1. The selection official shall brief the DASD (E&ER) (or DASD appointed official) on the results of the selection process, and results of the FY 2024 call for proposals. Per DASD(E&ER) direction, different options may be presented.
2. After this briefing, the final "1-N" ranking of proposals will be disseminated to the Service/CCMD offices.

E. Service/CCMD Reclama.

1. The Services and CCMDs may submit reclamas within seven days of release of the PEB results, documenting their concerns with the "1-N" list and recommending specific changes. A justification must be provided for all suggested changes.
2. The selection official presents all reclamas to the DASD (E&ER) (or DASD appointed official) for consideration/guidance.

F. Final Selection.

1. Based on available funding and Service/CCMD reclamas, the selection official shall announce the final ranking.
2. After funding appropriation, the selection official will announce project funding to the Services, CCMDs, and proposal investigators.
3. After selection announcement, project investigators have 30 days to submit materials required for funding transfer—statement of work (SOW), Form 7600, etc.

VI. Future Guidance

A. This guidance will be reviewed at least annually for clarity and to update the processes and instructions.

B. Service energy offices and CCMDs can review and provide comment on this document each year prior to its publication.

Appendix 1

Commanding Energy (CE)

Initiating and Transitioning Joint and Interoperable Operational Energy Warfighting Solutions

Commanding Energy. Commanding Energy harnesses energy data and information and develops systems to better shape battlespace decision making as part of the Joint All-Domain Command and Control. It completes operational energy (OE) studies, supports development of OE education and training, and improves OE modeling and simulation.

Lines of Effort. Commanding energy technology focuses on the following lines of effort:

- Assures accountability and transparency of operational energy (OE) information across the battlespace to provide superior OE Command and Control (C2).
- Enables the warfighter to rapidly make OE decisions with collaboration, analytics, system wide tools, data handling, education, and training.
- Integrates OE into mission planning, execution, and modeling tools; war-gaming, and personnel development.
- Ensures that Department of Defense investment benefits include:
  - OE trained operational planners developing improved mission and campaign pre-positioning, force flow and battlespace distribution plans.
  - Creating better understand for OE trained field commanders on energy profiles of friendly and enemy forces – enabling real-time Joint Force contingency planning with improved C2 of battlespace OE in a more predictive and less reactive mode.
- Provides field commanders with tools for determining OE options in response to enemy action not otherwise available – enabling actions that might be less predictable by enemy forces.

Commanding Energy manages six focus areas that support the Lines of Effort:

- **Operational Integration:** Developing operational energy command and control to include common operating pictures; energy standards across all domains; an advancing energy weapons and power support. Providing the warfighter, a continuous, uninterrupted, overwhelming advantage against an adversary during operations and engagements.
- **Metering and Monitoring:** Enabling standard, cybersecure, uniform systems and structures to ingest and process operational energy data.
- **Tools and Analytics:** Providing integrated, uniform structures, frameworks, and methods to categorize taxonomies and align ontologies used in commanding energy. The use of machine learning/artificial intelligence and advanced algorithms in order to obtain maximum warfighting value from operational energy data. Developing solutions, techniques and methods to improve the capture and understanding of energy profiles at all echelons across the warfighting domain to provide an overmatching capability to the warfighter.
- **Modeling and Simulations:** The use of analytic techniques, modeling, and simulation tools for OE considerations in force planning, gap analyses, requirements, and acquisition program-related analysis.

- **Training and Education:** Supporting OE education to transform Joint Force energy management and educate the warfighter in the OE domain.
- **Mission Planning:** Enabling a unified Command and Control across echelons and entities to give the warfighter an overwhelming advantage and assist in decision making.

Appendix 2

Aviation Efficiencies Tranche

Aviation Efficiencies. The Department of Defense (DOD) is the largest single consumer of jet fuel in the world and is responsible for ninety-three percent of U.S. government fuel consumption. DOD incurred over forty-four percent of all operational energy costs on commercial jet fuel comprising almost two percent of the entire $800 billion plus DOD budget. Decreasing the significant fuel requirement can save money while reducing risk throughout the supply chain, especially critical in times of conflict.

There are significant opportunities to gain efficiency and lower energy consumption through advances in aviation powerplants (e.g., electrification, hybridization, etc.), flight software planning tools, inflight algorithms, and composite airframe structures, among other emerging technologies. Lower sustainment costs, lower footprints, and increased capabilities compel DOD to invest in current and future systems and seize the opportunities in aviation efficiencies.

Efficiency and lower energy consumption through advances in crewed or uncrewed 1) aviation powerplants (e.g., electrification, hybridization, etc.), 2) aerodynamics, 3) flight software planning tools, 4) inflight algorithms, 5) composite airframe structures, and 6) other emerging technologies to improve efficiency, lower energy consumption and/or reduce harm to the environment. This tranche also includes analytic, modeling and simulation, wargaming, and training and education opportunities.

While drag reduction initiatives, maintenance procedures, and education and training efforts help improve capabilities and generate savings in the near-term, the greater efficiency potential lies with more significant improvements in aircraft design and systems.

Submissions can focus on a number of areas to optimize aviation energy use including (but not limited to):

- Energy and logistics risk mitigation.
- Drag reduction devices on aircraft.
- Lighter weight aircraft parts.
- Streamlined flight plans during training.
- 21st century technologies and software.
- Engine sustainment processes.
- Optimized fuel loads.
- Efficient flight formations.
- Service member education and training.

Appendix 3

Space Efficiencies Tranche

Space Efficiencies. The United States (U.S.) and its allies are reliant on U.S. space superiority. The Department of Defense recognizes that U.S. military advantages in space are at risk and vulnerability is a concern. Space Efficiencies supports the development of resilient space-based capabilities to achieve operationally optimized capabilities, achieve moving target engagement and evasion at scale in a highly contested environment. Resiliency, agility, and innovation are instrumental to superiority and independence in multidomain operations. Space is no different. Mass and the costs of space lift remain challenges for the U.S. Space Force (USSF).

Space efficiencies could include but are not limited to 1) space access (platform launch and orbital transfer), 2) platform maneuver and station keeping/resupply, and 3) platform operation capabilities that improve energy efficiency, lower energy consumption, and/or reduce harm to the environment.

Submissions can focus on a number of areas to optimize space energy fuel use including (but not limited to):

- Responsive launch (mass and payload size are key factors in launch costs).
- Nuclear energy.
- Radioisotopes power.
- Power beaming.
- Platform operation capabilities that improve energy efficiency, lower energy consumption, and/or reduce harm to the environment.
- Energy resupply/energy conversion.
- Power/energy innovation / optimization for:
    - Links to, from, and around space.
    - Networks.

Appendix 4

Ground Vehicle Hybridization and Electrification Tranche

Ground Vehicle Hybridization and Electrification. Ground Vehicle Hybridization and Electrification (GVH &E) reduces demand while maintaining overmatch, improving combat effectiveness, extending operational reach, and reducing risk. GVH&E will improve effectiveness and efficiency, enable demand to be met at the point of need, employ new capabilities and employ robotics and autonomous systems. This tranche seeks to improve the capability of, and reduce risks to, the force by developing and adopting vehicle electrification technologies that improve the reach and endurance of ground forces and improve the mobility, lethality, and protection of ground systems.

For hybrid vehicles, industry trends highlight transitioning from the production of internal combustion engines to the development and production of alternative propulsion systems to improve energy use/costs, sustainability, and climate impacts. The primary objective of Tactical Ground Vehicle Electrification (TGVE) is to provide warfighting advantage. TGVE benefits warfighters through extended range and persistence; reduced maintenance costs and associated logistics footprint; enabled or extended silent watch; reduced thermal and audible signatures; the capability to export power; the ability to host advanced weapon systems; enhanced Command and Control, Communications, Computers, Cyber, Intelligence, Surveillance, Reconnaissance, Targeting (C5ISRT) capabilities; and improvements in platform and warfighter survivability.

Submissions can focus on a number of areas to optimize vehicle efficiency and to mitigate associated logistics includes (but not limited to):

- Charging/re-charging technologies.
- Vehicle-to-vehicle and vehicle-to-grid solutions.
- Electric, hydrogen, or other sustainable fuel technologies to reduce OE-demand in the near- and/or long-term or providing other asymmetric warfighting advantages.
- Vehicle hybridization.
- Vehicle electrification.
- Battery storage.

Appendix 5

FY 2024 Operational Energy Capability Improvement Fund (OECIF) Proposal

Project Title (and Acronym if applicable)

Type of Request (Surge, Study, or Multi-year proposal)

POC(s) Information: include PI and Alternative PI with email and telephone

MILITARY PROBLEM: Describe the military problem, gap, and/or modernization priority that your project will address.

TECHNICAL OPPORTUNITY: Describe the emerging technology that your project will mature and its operational impact.

TECHNICAL APPROACH: Describe your technical approach to advance the technology, including key milestones, go/no-go criteria, and demonstrations.

ANALYTICAL APPROACH: Describe warfighter input, data collection, and analytical products generated.

GOAL AND END STATE: Describe the improved capabilities your project will deliver (include quantitative comparisons to existing technology used today).

PARTICIPANTS: Include lead Service/Combatant Command and partners (government, industry, academic, and laboratories) as well as expected transition partners. Describe use of students/interns.

FUNDING REQUESTED: FY 2024: $XXM; FY 2025: $XXM; FY 2026: $XXM

Instructions:

- Limit information to six pages (both sides, Times New Roman 12 Font).
- In the header, only color in the *one* focus area box that your proposal *primarily* addresses (with the understanding that proposers might address more than one focus area).
- Include the appropriate Distribution level in the header.

Appendix 6

FY 2024 Operational Energy Prototyping Fund (OEPF) Proposal

Project Title (and Acronym if applicable)

POC(s) Information: include PI and Alternative PI with email and telephone

MILITARY PROBLEM: Describe the military problem, gap, and/or modernization priority that your project will address.

TECHNICAL OPPORTUNITY: Describe the maturing component technology that your project will prototype and its operational impact.

TECHNICAL APPROACH: Describe your technical approach to advance the technology, including prototype development, demonstration and quantification, key milestones, go/no-go criteria, and transition plans.

ANALYTICAL APPROACH: Describe warfighter input, data collection, and analytical products generated to assess operational impact and climate impact.

GOAL AND END STATE: Describe the improved capabilities your project will deliver (include quantitative comparisons to existing technology used today).

PARTICIPANTS: Include lead Service/Combatant Command and partners (government, industry, academic, and laboratories) as well as expected transition partners. Describe use of students/interns.

FUNDING REQUESTED FY 2024: $XXM

Instructions:

- Limit information to six pages (Times New Roman 12 Font).
- In the header, only color in the *one* focus area box that your proposal *primarily* addresses (with the understanding that proposers might address more than one focus area).
- Include the appropriate Distribution level in the header.

Appendix 7

OECIF and OEPF Quad Charts

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OECIF Project Title *(& Acronym if applicable)*

Date: YYYYMMDD

Acquisition and Sustainment

Insert picture here of your technology and how it will be utilized

Technology / Product / Objective:

Technology:
- Component 1: Description
- Component 2: Description
- Integration information

Product:
- Description of final system/component/product

Objective:
- Overall Goal

The So What:

Describe the impact your project will have on lethality, survivability, and readiness with emphasis on enhanced capabilities and DoD modernization priorities
***(Examples: Silent Mobility** - …*
***Extended Range** - …*
***Exportable Power** - …)*

"Bumper Sticker" Takeaway Summarizing Benefits/Goals/Objectives of Technology

Key Participants:
- *Project Lead Agency:* Service office
- *Govt Contributors:* Other Service offices, DOE, NASA, etc.
- *Transition Partners:*
  - PM/PEO
  - CCMD
- *Commercial Partners:* Company 1, Company 2
- *Type of Project:* Surge, Study, Multi-year

Key Deliverables:
- Deliverable #1
- Deliverable #2
- Deliverable #3
- Deliverable #4

Funding ($M)	FY 24	FY 25*	FY26*	Total
OECIF	x.xx	x.xx	x.xx	x.xx
Army – Office 1	x.xx	x.xx	x.xx	x.xx
Navy – Office 2	x.xx	x.xx	x.xx	x.xx

**Out year funding is contingent on the availability of funds within the year of execution; not available for surge or study projects*

Milestones/Demonstrations Leading to Fielded Capability
- Milestone #1: Q2 FY24
- Demonstration #1: Q3 FY24
- Milestone #2: Q3 FY25
- Demonstration #2: Q4 FY25

PL POC: Name; Email; Phone Number

Aviation Efficiencies
Contested Logistics
Ground Vehicle Electrification and Hybridization with DIU

← Select primary focus area and delete non-selected

CUI//CTI – Distribution Statement

CUI//CTI

OEPF Project Title *(& Acronym if applicable)*

Date: YYYYMMDD

Acquisition and Sustainment

Insert picture here of your technology and how it will be utilized

Technology / Product / Objective:

Technology:
- Component 1: Description
- Component 2: Description
- Integration information

Product:
- Description of final system/component/product

Objective:
- Overall Goal

The So What:

Describe the impact your project will have on lethality, survivability, and readiness with emphasis on enhanced capabilities and DoD modernization priorities
***(Examples: Silent Mobility** - …*
***Extended Range** - …*
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"Bumper Sticker" Takeaway Summarizing Benefits/Goals/Objectives of Technology

Key Participants:
- *Project Lead Agency:* Service office
- *Govt Contributors:* Other Service offices, DOE, NASA, etc.
- *Transition Partners:*
  - PM/PEO
  - CCMD
- *Commercial Partners:* Company 1, Company 2
- *Type of Project:* Surge

Key Deliverables:
- Deliverable #1
- Deliverable #2
- Deliverable #3
- Deliverable #4

Funding ($M)	FY 24	Total
OECIF	x.xx	x.xx
Army – Office 1	x.xx	x.xx
Navy – Office 2	x.xx	x.xx

Milestones/Demonstrations Leading to Fielded Capability
- Milestone #1: Q2 FY24
- Demonstration #1: Q3 FY24
- Milestone #2: Q3 FY25
- Demonstration #2: Q4 FY25

PL POC: Name; Email; Phone Number

CUI//CTI – Distribution Statement

Appendix 8

Transition Plan Outline

The Technology Transition Plan Outline is a guide that defines the aspects of transition that need to be addressed within the proposal. While it is recognized that projects may be at different stages of the technology transition process, it is important for all projects to address all 5 key elements below. If your response is "yes" to any of these questions, please follow with the appropriate information.

Please identify any known information in the following sections as part of your proposal submission.

1. **REQUIREMENTS** (Mapping the project to a formal acquisition requirement.)
   a. What organization(s)/individual(s) have been identified as the requirements stakeholder(s)?
   b. Is there a formal, documented operational requirement aligned with the project?
   c. How does the technical capability meet the operational requirements?
   d. Can this capability impact be quantified and validated through testing, experimentation, or modeling?
   e. If no formal requirement exists, is there a user need or capability gap that could be articulated as a new or existing requirement?
2. **ACQUISITION** (Planning to acquire the outcome of the project as a program requirement.)
   a. Has a specific Acquisition Program and transition point of contact (POC) been identified?
   b. Is there a program with an Acquisition Strategy (AS) drafted or approved for the requirement?
   c. How will the proposed development approach guide the project toward transition to an acquisition program of record?
   d. Does the project procurement approach enable a streamlined follow-on contracting strategy for the program requirement? (e.g., Prototype Other Transaction to Production Other Transaction or FAR contract)
   e. Has the project team engaged with or have a plan to engage with the receiving Program Office to discuss the systems engineering and/or acquisition factors to enable transition?
3. **PLANNING, PROGRAMMING AND BUDGETING** (Funding to transition project to program.)
   a. Who/What organization will be programming funding to integrate the capability into an acquisition program?
   b. Have future funding needs for transition and integration been estimated and discussed with the receiving acquisition program?

c. Are the future funding needs reflected by the acquisition program in the current or proposed Futures Year Defense Program (FYDP)?
d. Are there current or planned development funding contributions which may supplement or bridge OEPF and/or OECIF project funding in the event of a funding gap?

4. **MISSION ENGINEERING** (Engineering work during the project to enable transition to program.)
   a. To what extent has the project conducted Mission Engineering analysis described in DoD's Mission Engineering Guide?
   b. What analytical reports or models are available for reuse and further analysis?
   c. If applicable, does the project align with reference architectures and standards required of the target Program of Record?
5. **OPERATIONAL USER ADVOCACY** (Identifying support for the proposed project to increase the viability of transition.)
   a. Who/What organization will be providing operational feedback on the capability?
   b. What forums (e.g., Exercises, wargames) are planned to engage with operational users to build advocacy of the capability to support mission needs and a supporting acquisition requirement?