ARMY GUIDE:
Developing Renewable Energy Projects
Leveraging Private Sector Finance

Securing army installations with energy that is clean, reliable and affordable

www.armyeitf.com
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Technical Note

This Guide does not provide technical information on renewable energy resources or technologies. For background on the technical aspects of renewable energy generation, see the following resources:

**Renewable energy technology basics:**
- [http://www.nrel.gov/analysis/re_futures/](http://www.nrel.gov/analysis/re_futures/)

**Renewable resource and technical potential:**

**Market reports:**

**Department of Energy (DOE) Resources:**
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<td>ACSIM</td>
<td>Assistant Chief of Staff for Installation Management (see also OACSIM)</td>
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<td>AEC</td>
<td>Army Environmental Command</td>
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<td>AEMR</td>
<td>Annual Energy Management Report</td>
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<td>AEWRS</td>
<td>Army Energy and Water Reporting System</td>
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<td>AMC</td>
<td>Army Materiel Command</td>
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<td>Assistant Secretary of the Army for Financial Management and Comptroller</td>
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<td>Army Stationing and Installation Plan</td>
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<td>Business Case Analysis</td>
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<td>Bureau of Land Management</td>
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<td>CG</td>
<td>Commanding General</td>
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<td>DASA (CE)</td>
<td>Deputy Assistant Secretary of the Army for Cost and Economics</td>
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<td>DASA (E&amp;S)</td>
<td>Deputy Assistant Secretary of the Army for Energy &amp; Sustainability</td>
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<td>DASA (IH&amp;P)</td>
<td>Deputy Assistant Secretary of the Army for Installations, Housing &amp; Partnerships</td>
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<td>Defense Logistics Agency - Energy</td>
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<td>DOA</td>
<td>Determination of Availability</td>
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<td>Department of Defense</td>
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<td>DOE</td>
<td>Department of Energy</td>
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<td>DUSD (I&amp;E)</td>
<td>Deputy Undersecretary of Defense for Installations and Environment</td>
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<td>EA</td>
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<td>ECP</td>
<td>Environmental Condition of Property</td>
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<td>Energy Initiatives Task Force</td>
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<td>Energy Savings Performance Contract</td>
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<td>Federal Energy Regulatory Commission</td>
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<td>FONSI</td>
<td>Finding of No Significant Impact</td>
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<td>Finding of Suitability to Lease</td>
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<td>GC</td>
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<td>GW</td>
<td>Gigawatt(s)</td>
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<td>HQDA</td>
<td>Headquarters Department of the Army</td>
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<td>HRO</td>
<td>Highest Ranking Offeror</td>
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<td>Installation Management Command</td>
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<td>IRR</td>
<td>Internal Rate of Return</td>
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<td>kW</td>
<td>Kilowatt(s)</td>
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<td>LCCA</td>
<td>Life Cycle Cost Analysis</td>
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<td>LCOE</td>
<td>Levelized Cost of Energy</td>
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<td>MATOC</td>
<td>Multiple Award Task Order Contract</td>
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<td>MICC</td>
<td>Mission and Installation Contracting Command</td>
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<td>MILCON</td>
<td>Military Construction</td>
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<td>MOU</td>
<td>Memorandum of Understanding</td>
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<td>MW</td>
<td>Megawatt(s)</td>
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<td>Acronym</td>
<td>Definition</td>
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<td>MWh</td>
<td>Megawatt-hour(s)</td>
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<td>NDAA</td>
<td>National Defense Authorization Act</td>
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<td>NEPA</td>
<td>National Environmental Policy Act</td>
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<td>Net Present Value</td>
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<td>National Renewable Energy Laboratory</td>
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<td>O&amp;M</td>
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<td>OACSIM</td>
<td>Office of the Assistant Chief of Staff for Installation Management</td>
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<td>Office of the Assistant Chief of Staff for Installation Management Operations Directorate</td>
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<tr>
<td>OGC</td>
<td>Office of the Army General Counsel</td>
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<tr>
<td>OMB</td>
<td>Office of Management and Budget</td>
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<td>OSD</td>
<td>Office of the Secretary of Defense</td>
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<td>PAIO</td>
<td>Plans, Analysis and Integration Office</td>
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<td>PEIS</td>
<td>Programmatic Environmental Impact Statement</td>
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<td>PMA</td>
<td>Power Marketing Agency</td>
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<td>Power Purchase Agreement</td>
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<td>PTC</td>
<td>Production Tax Credit</td>
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<td>PUC</td>
<td>Public Utility Commission</td>
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<td>PVR</td>
<td>Project Validation Report</td>
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<td>PDG</td>
<td>Project Development Guide</td>
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<tr>
<td>QASP</td>
<td>Quality Assurance Surveillance Plan</td>
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<tr>
<td>REC</td>
<td>Renewable Energy Certificate (or Credit)</td>
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<td>REEO</td>
<td>Army Regional Environmental and Energy Offices</td>
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<tr>
<td>RESA</td>
<td>Renewable Energy Services Agreement (commonly referred to as a power purchase agreement or PPA)</td>
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<td>RFP</td>
<td>Request for Proposal</td>
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<tr>
<td>RGB</td>
<td>Realty Governance Board</td>
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<td>ROA</td>
<td>Report of Availability</td>
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<td>RPMP</td>
<td>Real Property Master Plan</td>
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<td>RPS</td>
<td>Renewable Portfolio Standard</td>
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<td>SAW</td>
<td>Service Acquisition Workshop</td>
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<td>SCAR</td>
<td>Service Contract Acquisition Request</td>
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<td>SME</td>
<td>Subject Matter Expert</td>
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<td>SOP</td>
<td>Standard Operating Procedure</td>
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<td>SOW</td>
<td>Statement of Work</td>
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<tr>
<td>USAR</td>
<td>United States Army Reserve</td>
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Introduction

Privately financed renewable energy projects can deliver significant value to the Army, support its mission, and enhance the resiliency and sustainability of installations through the delivery of clean, reliable, and affordable energy. To accomplish these projects economically and achieve its strategic goals, the Army needs to invest its own resources in early-stage project development.

This Guide provides an overview of principles, tools, and processes for use by installations, landholding Commands and the Army’s central management office to pursue privately financed renewable energy project opportunities, manage the Army’s project development risk, and prepare projects to attract private sector investment. Developing privately financed energy projects differs from developing projects using appropriated funding sources such as Military Construction (MILCON). The key difference is that Army goals for these projects must align with market conditions and be evaluated against financial metrics that measure industry investment returns. In addition, the Army may be purchasing energy from the project, so the cost of that energy and the potential savings from the project is an important consideration. Timing also becomes an important aspect of project planning, as market conditions that support financial returns can change quickly, disabling project feasibility.

The use of contract authorities for contracting terms greater than 10 years is a key tool in accomplishing these projects with private financing. Large-scale renewable energy projects require significant upfront capital investment, with project costs up to, and in some cases exceeding, $50 million. Long-term contracts help attract private investment by allowing investors an adequate time horizon to recoup their investment and earn a competitive return. The use of long-term authorities requires Army approvals that must be gained prior to release of contract solicitation or lease offering. Federal and DOD notifications, certifications and/or approvals may also be required. Approvals require development and submission of a business case and supporting documentation to the appropriate approving authority to demonstrate project feasibility, value, and risks.

To efficiently manage its project development resources (time and budget), the Army uses tools and processes to quickly recognize value, evaluate risks, and allocate development resources in a disciplined manner by supporting only financially and technically strong projects with the highest probability of success. The principles behind these tools and processes are similar to those used in the private sector, and apply to any size project that leverages private capital financing. Standard tools and processes allow the Army to consistently identify energy projects that contribute to the Army’s goals, account for the needs and constraints of installations, and are attractive to private developers and investors.

The procurement of these projects involves detailed requirements development followed by the solicitation, evaluation, award, and administration of contracts and agreements related to power purchases and/or real estate transactions. This work must be conducted in accordance with applicable sections of the Federal Acquisition Regulation, in partnership with a qualified procurement partner that has staff experienced in the use of authorities and related policies, guidance, and law for the development of energy projects. Once a notice of award is announced, the awardee (developer) works at its own risk and expense to complete the design and development of a project and negotiate related contracts and agreements with vendors, utilities, permitting agencies, and financiers or investors. The Army participates as a motivated partner and stakeholder interested in achieving project success, while also negotiating and managing the project to achieve the desired results.

Construction and long-term operations support are not a focus of this Guide, although an overview of these phases of development is provided for reference.

Using this Guide – Installations and Landholding Commands

Installations, in cooperation with landholding Commands, (Installation Management Command (IMCOM), Army National Guard (ARNG), U.S. Army Reserve (USAR), or Army Materiel Command (AMC), hereinafter referred to as Commands) are currently responsible for development of projects less than 10
megawatts (MWs). Installation Directorate of Public Works staff and energy managers can use this guide to augment existing knowledge and expertise when pursuing these projects. Personnel can use this Guide to gain an understanding of (1) the Army and Federal approval processes, (2) the key data points necessary to screen projects that meet Army requirements, and (3) how to prepare competitive projects to be financed and executed by private sector developers. Installations and Commands will benefit from the use of standard tools and processes to manage development risk, allocate resources, and gain project approvals.

Using this Guide – Projects Greater than 10 MW

The Army has established the Energy Initiatives Task Force (EITF)¹ as the central management office for projects greater than 10 MW. This Guide can help to inform installation and Command personnel when working with the EITF. Other stakeholders, both internal and external to the Army, will benefit from an understanding of the language, process framework, risk management techniques, and roles and responsibilities implemented across the Army to successfully develop privately financed renewable energy projects. Processes outlined in this guide would also be applicable to the development of other, more traditional forms of power generation when conditions warrant.

The FEMP Guide

The Department of Energy’s (DOE) Federal Energy Management Program (FEMP) has released related guidance, “Developing Renewable Energy Projects Larger than 10 MWs at Federal Facilities,” (subsequently referred to as the FEMP Guide). The FEMP Guide is a useful reference and primer on the subject of developing energy projects on Federal facilities, developing a common language, and addressing project development risk. The Army Guide builds on many of the concepts developed and described by the FEMP Guide, adding specifics related to the unique authorities and processes, and language used by the Army. A copy of the FEMP Guide is available online at: http://www1.eere.energy.gov/femp/pdfs/large-scalereguide.pdf.

Scope of this Army Guide

This Army Guide is not a manual, and is not intended to present a step-by-step process. This Guide represents an evolving body of knowledge with respect to a consistent, transparent approach to developing privately financed energy projects by and for the Army. As processes, policies, and tools evolve, this document will be updated and expanded to include additional details and operating procedures useful for Army staff.

¹ More information on the Army Energy Initiative Task Force (EITF) can be found at http://armyeitf.com/.
SECTION 1 - Overview

1.1 THE RENEWABLE ENERGY CHALLENGE

The Army requires access to secure energy sources to accomplish its mission. In addition, installations require cost effective, reliable, and sustainable energy sources to sustain operations. Overreliance on a vulnerable commercial power grid jeopardizes the security of Army installations and mission capabilities. In response, the Army is securing installations with energy that is clean, reliable, and affordable, and has committed to a goal of developing 1 gigawatt (GW) of renewable energy to fulfill this vision.

The challenge lies in the fact that at times, three elements of this overall vision—energy security, mandates for clean energy, and economic benefits—often compete with one another. While it is possible to secure installations with additional energy security from renewable sources generated on Army lands, it may not always be affordable to do so. The addition of infrastructure such as control systems or micro-grids can increase energy security benefits, but may lower economic benefits. The challenge is to balance these competing elements on a project-by-project basis, to best support the Army enterprise and installation energy goals. (Figure 1)

Figure 1. BALANCING ENERGY SECURITY, MANDATES, AND ECONOMICS

Energy Security

For the Army, energy security is about forging resilience in the Army’s energy supply and sustaining installation operations. The security of water supplies is also related to energy security due to the energy demands of water supply systems. In addition to historical roles in testing and training, installations are playing an increasing role in theater operations and disaster relief. Securing reliable energy and water supplies, including resistance to cyber and intelligence (cyber/intel) threats, to support these missions at a predictable, sustainable cost over the long term is the primary goal of the Army’s overall energy strategy.

2 Energy security is defined in 10 U.S.C. 2924 as “having assured access to reliable supplies of energy and the ability to protect and deliver sufficient energy to meet mission essential requirements”. 

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This strategy begins with energy efficiency and conservation, because the benefits of renewable energy are maximized when implemented in coordination with investments that first minimize energy demand.

**Mandates**

The “clean” energy element to the vision is quantified through multiple renewable energy mandates. The Energy Policy Act of 2005 (EPAct 2005) requires 7.5% of the total electricity consumed by the federal government to come from renewable energy sources by fiscal year 2013. Congress established a Department of Defense (DOD) goal in the fiscal year 2007 National Defense Authorization Act (NDAA) to produce or procure not less than 25% of DOD’s facility energy consumed from renewable sources by fiscal year 2025.

In 2012, the President announced a DOD-wide goal to deploy 3 GW of renewable energy by 2025. As its portion, the Army has committed to deploy 1 GW of renewable power generation on Army installations by 2025. In 2013, as part of the President’s Climate Action Plan, a new goal was established for the federal government to consume 20% of its electricity from renewable sources by 2020.

**Economic Benefits**

The Army’s vision must be achieved within reasonable economic costs. In cases where the Army is purchasing renewable energy produced by a project, aggregated annual energy costs for an installation must stay at or below existing costs, with the potential to create life cycle savings. Savings comes from locking in a low energy rate for 20 or 30 years that is not subject to market-driven rate increases typical of traditional energy generation sources. When Army lands are utilized to produce energy from renewable sources, in-kind consideration or cash revenue can be generated for the fair market value of the property interest conveyed. This revenue can be used to offset energy costs or support energy security projects, subject to certain restrictions. Stable long-term pricing or lease revenues from renewable energy projects help mitigate budget uncertainty in the face of rising and volatile energy costs.

**1.2 ARMY RENEWABLE ENERGY DEVELOPMENT STRATEGY**

The Army’s overall renewable energy development strategy includes the following key elements:

- Leveraging private sector finance;
- Investing in early-stage project development to mitigate project risks and attract capital;
- Developing large-scale projects (10 MWs or greater) supported by centralized management and developing small and medium-scale projects led by installations.

**Leveraging Private Sector Finance**

Fiscal constraints limit the use of appropriated funds to pay for projects. As an alternative, private sector entities including project developers, financial firms, or utilities can finance the capital cost of projects in exchange for the proceeds from the sale of energy to the Army or to other consumers. Because of the

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6 Early-stage project development refers to the work performed in the earliest phases of the project life cycle, typically including Phase 1 and Phase 2, as introduced in Figure 2.
investment characteristics of renewable energy projects, long-term contracts will often be necessary for developers to secure financing.

The Army and the DOD have contract authority, unique in the Federal government, allowing long-term energy contracts and real estate transactions up to 30 years. Long-term contracts help attract private sector investment in projects with large capital budgets that can be $50 million or more. Using these authorities, the Army can leverage private sector financing and enhance energy security, receive economic benefit, and achieve mandates while conserving the Army's own capital resources.

**Investing in Early-Stage Project Development**

Early-stage project development includes identification of project opportunities and performance of the necessary due diligence to define the technical details and economic feasibility of the project before solicitation of proposals. The Army makes an investment in early-stage project development for two reasons: (1) to mitigate project risks that increase the cost of privately-financed development efforts, and (2) to retain the ability to identify and select projects that best serve the Army's own strategic interests.

Early-stage development efforts are inherently risky because outcomes are uncertain. As a result, private investors demand high rates of return on funds invested in development, and this cost can become a barrier to affordable renewable energy for the Army. By investing its own resources and managing its risk, the Army lowers risks for developers and investors, making renewable energy more affordable.

**Developing Small and Medium-Scale Projects**

Installations, in cooperation with landholding Commands, are responsible for leading the development of small and medium-scale projects. Small-scale projects are those less than 1 MW in size; medium-scale projects are greater than 1 MW and smaller than 10 MW. Small and medium-scale projects are most often developed primarily to serve the energy strategy of the host installation. These projects can also make a material, cumulative impact to achieving the Army's 1 GW goal.

It is recommended that installations leading these projects utilize the tools and processes presented within this Guide to support resource allocation decisions, manage development risks, and satisfy approval requirements for privately financed energy projects. Small and medium-scale projects will be subject to many, if not all, of the same risks and requirements described herein.

**Developing Large-Scale Projects**

Investment in smaller renewable energy projects will continue through the efforts of installation staff, but this alone cannot achieve the 1 GW goal by 2025. Therefore, the Army must also develop projects larger than 10 MW in nameplate capacity in order to meet its goals and mandates in the established timeframe.

The Energy Initiatives Task Force (EITF) serves as the central management office to focus specifically on projects 10 MW in size or greater. The EITF also develops the tools and processes that are applicable to small- and medium-scale projects led by installations. The purpose of the EITF is to develop an operating model and to enable early successes before transitioning within the Army to a permanent office. For the purposes of this Guide, any reference to the EITF refers to the Army's central management office responsible for the execution of privately-financed energy projects 10 MW or more.

### 1.3 Managing Project Development Risk

Project development risk is the risk that the development resources (personnel hours and budget) expended in the pursuit of a project opportunity does not result in an executed project. To achieve the 1 GW goal cost effectively, the Army must manage this risk.

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7 More information on the Army Energy Initiative Task Force (EITF) can be found at [http://armyeitf.com/](http://armyeitf.com/).
Installations, the EITF, and commercial project developers typically share one thing in common—scarce resources. The availability of funds, human resources, and time to identify and execute completed, functioning projects is limited; and resources must be used efficiently to be effective. Investment of these resources is subject to project development risk, which can stem from unknowns such as changing market conditions, permitting or regulatory requirements, or technical issues. To be successful, risks must be identified quickly and early in the development process so that valuable resources can be focused on the most promising projects while avoiding projects where risks are too great.

Three key operating principles are important to managing project development risk: value, speed, and discipline. Used in conjunction with a consistent process and tools to measure the accuracy and quality of work performed, these principles help to manage risk on both large and small projects.

### Value

A key test of feasibility for a privately financed project is its ability to create value. A project that creates value can provide competitive financial returns that attract capital while keeping prices low and energy costs affordable and competitive. Projects that create value are feasible; those that do not are not feasible and should be avoided or suspended. To be feasible, privately financed projects must provide value to both the Army and private sector developers and investors. The Army receives benefit in both economic terms, through energy cost savings and/or real estate revenue, and in noneconomic terms, such as enhanced energy security and meeting energy mandates. Developers and investors measure value in financial terms.

Commercial fundamentals are the characteristics that make renewable energy projects valuable; for example, a project with identified off-take, located with access to strong renewable resources, available transmission, and within a market with a high price for grid electricity. These fundamentals are unique to local and regional market conditions. Strong fundamentals create resiliency against other factors that can erode returns. After evaluation to determine that projects meet Army requirements, development risk can be mitigated by quickly differentiating between weak or strong fundamentals that drive value, and consistently allocating development efforts and resources toward projects with strong commercial fundamentals.

### Speed

Speed is important to capitalize on strong projects that are time sensitive, and it is just as important in suspending efforts on weak projects to conserve scarce resources. The principle of speed is not just about pace; it is also recognition of the importance of timing on project feasibility, and aligning the timing of Army processes with market conditions, including the availability of incentives to support project economics. Extended development cycles can increase risk because of greater exposure to market fluctuations, which can degrade the financeability, and therefore the feasibility, of a privately financed project.

### Discipline

Discipline must be used in deciding what projects to pursue, and what projects not to pursue. Because of the scarcity of resources available to conduct these activities, an economy of effort must be maintained to
accomplish development goals cost effectively and manage project development risks. Discipline is essential to maximize investment of resources in activities that materially advance strong projects toward a successful outcome. Selecting and prioritizing projects must be objective and disciplined, minimizing resources spent on weak projects. Efforts made on a specific project must also be disciplined and cost-effective, prioritizing activities that have the highest impact to move a project forward while incurring the least cost.

1.4 IMPLICATIONS FOR INSTALLATIONS

Installations and Commands benefit from renewable energy projects in tangible and intangible ways – operational readiness, economic benefits, and contributions to the Army’s energy goals. All of these benefits are related to the three elements of the Army’s energy vision: energy security, economics, and mandates.

Renewable energy projects can provide immediate energy security benefits when combined with a microgrid and energy storage or similar infrastructure that allow consumption of electricity from a project in the event of service disruption from the grid. If the required infrastructure is not present, projects can still be a first step toward resilience, allowing for connection to micro-grids with storage or supplemental generation, at a later date.

In terms of economics, the long-term price structure of typical renewable energy power purchase agreements delivers stability and economy in overall installation energy costs. In addition to cost savings, installation could also benefit from in-kind consideration or cash revenue realized from the lease interest of the land. Lower utility bills and/or lease revenue means more dollars for sustainment, restoration, and modernization projects on the installation. An example of this is the recent construction of a 4 MW solar energy system on White Sands Missile Range, New Mexico. This project is expected to generate about 10 million kilowatt-hours (kWhs) of clean electricity annually, and provide significant cost savings.

Recognition of contributions by installations toward Army goals in achieving mandates is acknowledged as part of Federal, DOD, and Service Award Programs, and is recognized as leadership in the area of environmental and economic sustainability.
SECTION 2 - Overview of Tools and Processes

Standard processes and tools developed by the EITF can be applied to all project efforts, including small and medium-scale renewable projects led by installations. These processes would also be applicable to projects involving more traditional forms of power generation that are privately financed. These tools enable the Army to quickly and efficiently identify value, manage risk, and develop projects on a consistent and transparent basis. The principles of speed, value, and discipline are reflected in the key tools and processes, and are noted throughout this Section.

Key Tools and Processes:

- A well-defined project life cycle;
- Utilization of long-term contract authorities for power purchase agreements and land leases;
- Evaluation of key financial performance metrics;
- Consistent evaluation of project risks using 8 Assessment Criteria;
- An iterative process that manages exposure to project development risk.

Users of this Guide should use judgment in the application of these tools and processes to a given project. Installation staff leading smaller projects may not have the resources or the need to strictly apply all elements of the process, but will benefit from understanding the principles behind them. Larger projects, including those led by the EITF, require a more rigorous application of these tools and processes throughout the project life cycle.

2.1 PROJECT LIFE CYCLE

The project life cycle is used as a frame of reference to plan and manage projects (Figure 2). This life cycle also provides a common language to facilitate communication within the Army, with the private sector, with external project stakeholders, and with other federal agencies. Projects are selected for development and then pass through five phases: 1) Project Assessment, 2) Project Validation, 3) Contracts and Agreements, 4) Construction, and 5) Operations and Support.

Small-Scale Project Requirements

Smaller projects can move faster than large-scale projects, but are subject to the same risks and requirements. Installations should utilize the steps and discipline of the project lifecycle to effectively manage development risk, ensure financial performance of projects and economic benefit to the Army, and meet the approval requirements necessary prior to project execution.

The development life cycle, including Army and Federal approval and procurement requirements, can require a significant level of effort, specialized expertise, and implied schedule constraints. The use of a consistent approach and standard evaluation criteria results in high quality projects with lower risks and clear parameters defining requirements. Private sector developers gain confidence, take less risk, and can lower pricing. The Army increases its ability to balance the elements of its vision and achieve objectives affordably.

Projects will not progress through the life cycle at the same speed, therefore life cycle phases are centered on activities and milestones rather than timing. Market awareness is necessary, as Army processes must be planned to coincide with predicted commercial market conditions leading up to financial commitments made by private sector developers in Phase 3. (Figure 2)

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2.2 LONG-TERM CONTRACT AUTHORITIES AND BUSINESS MODELS

Renewable energy projects typically require long-term contracts (longer than 10 years in length) to produce financial returns competitive enough to attract investors. The primary long-term authorities the Army can use for privately financed renewable energy projects are:

- 10 U.S.C. § 2922a “Contracts for energy or fuel for military installations;” \(^9\) and;
- 10 U.S.C. § 2667 “Leases: Non-excess property of military departments and defense agencies” \(^10\)


Authorities are used to secure energy contracts (power purchases) or to enable real estate transactions related to energy projects. Depending on market conditions, long-term contracts are not always necessary, and when market conditions or financing approaches support shorter contracts, alternative authorities such as FAR Part 41 can be used.

**Value**

Long-term contracts enable developers and the Army to realize the economic value of projects. On a given project, a contract with a 20-year term can provide energy at a lower cost to the Army today, while still providing attractive financial returns to investors over the long term.

Business models refer to the structure and nature of contracts and agreements put in place to construct, finance, and operate a project. The three standard business models associated with long-term authorities are summarized in Table 1. These are often the building blocks used to create a solution for a given project opportunity; actual business arrangements can vary widely. Variations can be driven by the project objective, local regulations, local renewable resource, or opportunistic relationships with existing utilities and privatized utility service providers. Business models, acquisition authorities, and procurement strategies are discussed further in Section 3.3.4.

<table>
<thead>
<tr>
<th>Description</th>
<th>Authority</th>
<th>Army Actions</th>
<th>Army Benefit*</th>
<th>Developer Benefit</th>
</tr>
</thead>
<tbody>
<tr>
<td>#1 Power purchased by the Army, generated on private land.</td>
<td>10 U.S.C. § 2922a (30-year term) or FAR PART 41 (10-year term)</td>
<td>Army power purchase</td>
<td>++ Renewable mandates ++ Economics + Possible Energy security</td>
<td>Low-risk revenue from Army utility payments</td>
</tr>
<tr>
<td>#2 Power purchased by the Army and generated on Army land, requiring lease of Army land.</td>
<td>10 U.S.C. § 2922a (30-year term) or FAR PART 41 (10-year term) (power purchase), and 10 U.S.C. § 2667 (lease)</td>
<td>Army power purchase and lease of Army land to developer</td>
<td>++ Renewable mandates ++ Economics ++ Energy security</td>
<td>Use of Army land, low-risk revenue</td>
</tr>
<tr>
<td>#3 Lease or use of Army land for construction of energy generation asset; energy to be sold to off-takers on the market (no purchase of energy by the Army).</td>
<td>10 U.S.C. § 2667 (lease)</td>
<td>Lease of Army land to developer</td>
<td>++ Renewable mandates + Possible economics + Possible energy + Security</td>
<td>Use of Army land</td>
</tr>
</tbody>
</table>

*See Figure 1

**Table 1. Summary of Typical Business Models, Authorities, and Benefits**

### 2.3 Key Financial Performance Metrics

A project that creates value can produce energy at a competitive price while delivering attractive financial returns to investors. Value can be defined simply as the economic savings or benefit created from implementation of a project (Figure 3). Projects that do not create value while providing returns are not feasible to be privately financed.

Value for the Army and a developer is determined based on two financial performance metrics - Energy price and Project Yield, respectively. The price of energy is determined at the installation and is based on either a utility rate analysis or assessment of market conditions. Project yield is the expected annual net income of the project to the developer divided by overall project cost. It is determined based on the revenue generated from the sale of energy, and other renewable energy products such as RECs, and tax attributes, divided by the total cost to develop, construct, and commission the project.
When the Army is buying energy from a project, price is the key financial metric representing economic feasibility. The same applies for projects that are utilizing Army lands, but not selling energy to the Army. If the price of energy from the project is not competitive for other consumers in the marketplace, pursuing the project will not be a prudent use of Army resources, and the Army will not likely receive fair market value for the property.

**Value, Discipline**

A utility rate analysis is essential to accurately evaluate renewable energy project value, and therefore is a key tool used early in the development process to evaluate project feasibility. Disciplined development efforts will suspend projects that do not produce value.

**Utility Rate Analyses as a Tool to Determine Price**

Determining energy price is not a simple calculation due to the complexity of electricity pricing schemes and tariffs. Two analysis tools, (1) a utility rate analysis, and (2) a utility rate impacts analysis, should be
used to accurately establish the price ceiling, or the “not-to-exceed” value that the Army is willing to pay for energy.\footnote{The project has approval as long as pricing comes in below not-to-exceed parameters. If it does not, the project must either be terminated or re-approved. Approval processes are detailed further in Section 4 and Appendix D.}

A project that appears competitive against the overall blended electricity cost ($/kWh) may in fact not be competitive because of the effect of the utility rate structure and demand-based charges. A utility rate analysis provides a comprehensive model of the utility rate structure. Utility rates commonly include two types of charges: (1) energy charges, which equal the amount charged per kilowatt-hour of energy consumed, and (2) demand charges, which equal the amount charged per kilowatt of peak demand incurred during a billing cycle. These two types of charges combine to form the “blended rate” which is calculated by dividing total consumption by total cost over a period of time. A blended rate can be used for high-level economic study, but is inaccurate in determining the price ceiling because renewable energy projects typically offset the kilowatt-hour consumed from a utility, but may not offset demand-based charges proportionately, especially for intermittent renewable resources like wind and solar.

A utility rate impact analysis shows how different project scenarios impact the total energy cost for an installation on an annual basis. The annual cost scenarios include the projected impacts to utility charges as well as the projected costs of energy from the renewable project. Because of the interplay between tariff elements like energy and demand charges, this may define constraints on the size, technology, or output of a project along with a constraint on the $/kWh “price” the Army will pay. To gain required project approvals (see Section 4 and Appendix D), it must be shown that the addition of a project will not increase the total cost of energy for an installation on an annual basis.

\textbf{Illustration: Utility Rate Analyses at Fort Lee, Virginia}

In 2012, Ft. Lee, Virginia consumed approximately 186,000 MWh of electricity at a cost of about $13.2M resulting in an average blended rate of $0.071/kilowatt-hour (kWh). Ground mounted solar energy prices for large-scale projects in the region were ranging between $0.06 - $0.08/kWh. An initial assessment therefore indicated that a solar project at Ft. Lee was economically viable.

A utility rate analysis, however, revealed that Ft. Lee's average blended energy rate of $0.071 kWh was across nine accounts, each with different rate tariff structures. In addition, 99% of the installation's load was served by two accounts with a lower blended rate of $0.069 kWh. This charge consisted of an energy charge of only $0.0347/kWh, with the remainder of the bill, made up of demand charges, riders, and other fees. The demand charges would not be lowered proportionally due to the use of solar. As a result, the utility rate assessment concluded that the energy "price-to-beat" at Ft. Lee is $0.0347/kWh versus the initial average blended rate of $0.071/kWh. This greatly constrained the competitive viability of a privately financed solar project.

This was further validated when the EITF conducted a rate impact analysis examining the long-term impact on the total blended utility rate. This analysis found that buying energy from a solar project would raise the overall energy cost to $0.11/kWh, as compared to the status quo of $0.07/kWh. In other words, the installation would spend 4 cents more on each kilowatt-hour it would purchase when incorporating a solar photovoltaic system.

\begin{center}
\textbf{Importance of Utility Rate Analysis}
\end{center}

When evaluating small and medium-scale project opportunities, installations must evaluate existing energy tariffs to understand how the cost of energy from the project will affect utility bills. This helps to ensure the project creates value for the installation through energy cost savings or price stability.

This is a crucial early step in evaluating the feasibility of a project in Phase 1 of the development process.
**Energy Price and Outgrant of Army Lands**

For projects where Army land is being made available for use by a developer, but the Army is not the buyer of energy, a similar forecasting exercise should be completed to demonstrate that a project on the land will be competitive. The calculation is typically more straightforward, as a comparison to wholesale market prices is less complicated than comparison to complex retail tariffs. This analysis will form the basis of the business case which will be required prior to obtaining Army approvals to make the land available for lease.

### 2.3.2 The Project Pro forma – Project Financial Yield

Project yield is an indicator of project value, and is the key financial metric for developers and investors. It is defined as the expected annual net income from the project as a percentage of the total cost to develop and build the project:

\[
\text{Unlevered Project Yield} = \frac{\text{Annual Net Income}}{\text{Total Capital Cost}}
\]

The financial returns to equity and debt providers are derived from the project yield and are measured by more precise financial calculations, including but not limited to, internal rate of return, return on investment, or cash-on-cash return metrics.\(^{12}\) These metrics can be calculated by a project pro forma. A pro forma is a forward-looking financial statement that models the financial performance of a proposed project and can be used to interpret the energy or electricity price and project yield for a particular project configuration, location, or design.

An unlevered yield of 8% to 12% is a common range applied to projects depending on project specifics, with 10% being a common test for early-stage feasibility. "Unlevered" indicates analysis without the use of debt financing. This is used to isolate the risk/return characteristics of a project vs. those that result when debt (leverage) is utilized. Projects with an unlevered yield in this range are typically considered attractive to the market and financeable; however, this range is a rule of thumb that should be verified by financial advisors familiar with current market conditions.

**Contributors to Project Yield for Renewable Energy Projects**

Energy sales revenue is not the only source of revenue that contributes to project yield. Renewable energy projects can also produce other sources of revenue, such as renewable energy certificates (RECs) and valuable state and federal tax benefits contribute to yield. The sale of these products produces non-energy revenue that can result in lower energy prices. The Army benefits from these sources of revenue because they drive down the energy price necessary to achieve a competitive yield.

Both State and Federal policy, along with regulatory policy, create non-energy revenue opportunities; the resulting market conditions often determine the value of non-energy revenue for sources like RECs. One example is state-wide renewable portfolio standards (RPS) that require utilities to acquire a percentage of overall energy sales from renewable sources, some or all of which can be satisfied through the purchase

\(^{12}\) The definition of yield is a simplified definition for purposes of introducing the concept of financial metrics. Detailed financial analysis and expertise are necessary to accurately calculate and interpret financial performance.
of RECs. In this example, a market for RECs is created and the sale of RECs can be as valuable, or more valuable, than the energy itself.

Tax attributes or tax benefits come in the form of tax credits. Some tax credits are transferable, and can be sold to investors seeking a return. Investors with tax liability can buy credits at a discount to their face value, thereby earning a return against the tax liability owed. Banks and other institutions with predictable, long-term tax liabilities often invest in tax credits. When tax credits or other tax attributes, such as depreciation, are sold, the sale generates cash used to finance the project.

**Army Renewable Energy Credit* (REC) Policy**

Army policy is to obtain the RECs from renewable energy projects whenever financially feasible, in order to count toward compliance with energy mandates (EPAct 2005 and the President’s climate goals both require RECs). If the financial viability of the project requires the developer to retain some or all of the RECs, the Army may choose not to acquire that portion of the RECs. The ownership of RECs is determined on a project-by-project basis, and documented in the applicable contract agreement. RECs delivered to the Army must include all environmental attributes, and must be certified unless the Army is the consumer of all electricity or is receiving all the RECs from a project. Once acquired, the Army cannot sell, or swap RECs, because RECs are considered Personal Property. However, prior to transferring RECs to the Army, developers may sell or swap project RECs if agreed to by the Army. By current policy, the Army cannot purchase unbundled RECs for compliance.

Army RECs are retained, and generated RECs are reported annually for energy mandate compliance. For accounting purposes, the installation maintains RECs and applicable documentation and tracks and reports RECs quarterly in the Army Energy and Water Reporting System (AEWRS).

### 2.3.3 INTERPRETING PRICE AND YIELD

For most projects, electricity price and yield are closely related. For a given set of project conditions, the higher the price, the higher the yield; the Army seeks to lower prices, the developer and investors seek higher yields. The key to managing risk and delivering projects is to quickly identify and develop projects that produce enough value to satisfy both, and prioritize those projects over less valuable ones.

The relationship between price and yield are shown graphically in a simple illustration in **Figure 4**. For a given capital investment and operating cost, the higher the price, the higher the yield, and vice versa. If a project can achieve a financial yield that is attractive to the market by demanding a price that is below the Army’s price ceiling (or the price of electricity willing to be paid in the market), the project creates value and can be considered a good candidate for development.

**Figure 4. Army Price Ceiling vs. Project Yield**
2.4 Evaluating Risks - 8 Assessment Criteria

A project that meets Army requirements and has the potential to create value must be evaluated for risks and barriers to execution. A framework of 8 Assessment Criteria has been developed as a tool to consistently evaluate and manage risks that may threaten project completion (Figure 5).

These criteria inform and help prioritize where development resources should be directed to mitigate risk and materially advance a project toward completion. Each criterion can be rated on a three-point scale (red, yellow, or green) with red indicating a high level of risk, yellow indicating moderate risk, and green indicating minimized risk. These Criteria can be adapted for evaluation of renewable or traditional power generation projects.

8 Assessment Criteria

- **Mission/Energy Security**
  - How does project enhance energy security on host and surrounding installations?
  - What are the possible impacts to installation operations or tenant missions?
  - Has the project been approved by Installation, Army HQ, and DoD staffs?

- **Economics**
  - What is the estimate of the baseline capital cost?
  - What is the value of any RECs or other incentives?
  - What is the predicted resource? Has it been validated?
  - What is existing utility rate and alternative tariffs?
  - What are the impacts of the project to the POM?

- **Real Estate**
  - What is the Real Estate approach and what authority is being used?
  - Identify and mitigate real estate siting, constructability, access, or land use issues.
  - Is the project consistent with the Installation Master Plan?

- **Regulatory and Legal**
  - What are the regulatory limits for interconnection, net-metering?
  - What is the status of getting required PUC approvals?

- **Market/Off-Take**
  - Will the installation consume all electricity generated?
  - What is the status of state PPS and other incentives to drive external demand?
  - If power is to be sold off the installation, have off-takers been identified?
  - Can the utility wheel power to other potential off-takers?

- **Technical/Integration**
  - Is there sufficient line and substation capacity? What upgrades are required?
  - Are flow studies are required? What is the status?
  - Is the system upgradeable for smart grid and energy storage technologies?

- **Environmental**
  - What are the major environmental issues?
  - During the project lifecycle, which parties will perform ECP and NEPA requirements, and when?

- **Procurement**
  - What is acquisition strategy and timeline to implement?
  - What performance risks are there with the developer or other partners?

Figure 5. The 8 Assessment Criteria Used to Assess Project Risks

**Speed, Discipline**

The 8 Assessment Criteria are used to assess risks and support objective, disciplined resource allocation decisions that direct Army resources to projects that not only create value, but are cleared of excessive risks. If risks are too high, project efforts should be suspended. Identified risks should have a specific mitigation plan to move forward.

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13 Appendix B of the FEMP Guide provides a similar framework of categories and questions for project development. The FEMP Guide can be found at: [http://www1.eere.energy.gov/femp/pdfs/large-scalereguide.pdf](http://www1.eere.energy.gov/femp/pdfs/large-scalereguide.pdf).
2.5 Due Diligence and Development Process

An iterative due diligence and development process should be used to manage development risk. Incremental investment of resources and frequent evaluation of project feasibility allows the amount of resources subject to development risk at any point in time to be closely managed, and supports resource allocation decisions between projects. The process should include three core activities:

- Gathering and assessing data categorized by the 8 Assessment Criteria (Box 1 of Figure 6);
- Applying constraints (defined below) to redefine the scope of the project (Box 2 of Figure 6);
- Measuring the impacts of the evolving project definition against both financial metrics and stakeholders concerns (Box 3 of Figure 6).

As a project team conducts iterations of development, the results of each iteration informs decisions to continue investing effort or suspend it, and if continuing, what work to do or questions to focus on to materially move the project forward. The first series of iterations should be focused on confirming commercial fundamentals and project value, technical and financial feasibility, and identification of primary areas of risks. A decision should be made based on the results to pursue or abandon the project. A comprehensive analysis is then pursued in following iterations, including detailed technical and financial studies, generation of required project documentation for approvals, and stakeholder engagement.

**Figure 6. Repeatable Due Diligence and Development Process**

*Project Constraints*

Project constraints are elements in the project environment - such as site limitations, regulatory limitations, tariff structures, and Army energy demand - that define limits to the size or performance of the project. Constraints exist for all projects, and result in a more precise project definition as the project moves forward. When constraints are identified, they should be applied to the project and then modeled to ensure financial metrics remain strong and stakeholder impacts are minimized.
**Excessive Risks**

Excessive risks are conditions that render a successful project outcome either impossible or improbable, and pose a challenge to the pursuit of the project on a risk-adjusted basis. As iterations of due diligence are conducted, projects should be continuously scrubbed for potential flaws or excessive risks. Judgment is needed to make the decision of suspending a project or investing in an attempt to mitigate excessive risks. Mitigation may include arrangements where the risk is assumed by another party. Projects with risks that cannot be mitigated for an acceptable cost should be considered for suspension.

**Stakeholder Impacts**

Energy projects can have multiple stakeholders, both internal and external to the Army, and early stakeholder engagement is important to the success of proposed projects. As the development process continues and the project definition is refined, continual outreach and communication with stakeholders is important to gauge stakeholder support and mitigate stakeholder concerns. Projects that negatively impact stakeholders may have excessive risks that limit development feasibility.

**Development across the Life Cycle**

The iterative development process can be effective across all early stages of development; starting with initial assessments that focus on Army requirements and market conditions, and progressing to more detailed studies in later phases (*Figure 7*). Phases 2 and 3 are more advanced stages of development, and projects that reach these are likely to be executed, though still may fail to be financed and executed due to changing market conditions, technical issues, or other complications. Project efforts are therefore still subject to risk, and the due diligence process is still useful to monitor the sources of risks and provide timely mitigation strategies. If risks cannot be mitigated economically, or if market conditions disable project economics, even projects in the later stages can and should still be considered for suspension.

**Small-Scale Project Approach**

Installations leading small and medium-scale projects should utilize this same incremental, iterative investment approach, consciously passing projects through development phases once risks have been evaluated and ongoing project feasibility is confirmed.

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*Figure 7. Army Due Diligence and Development Across the Project Life Cycle*
SECTION 3 - Early-Stage Project Development

When leveraging private financing, projects will only be successful when Army requirements and strong market conditions intersect. The early-stage development process should utilize the tools presented in Section 2 to identify and execute projects using the following summary steps:

1. Identify markets and projects that meet Army requirements and have commercial fundamentals that create value. Installations (for small and medium-scale projects) or the EITF (for large-scale projects) should assess the local energy markets, determine if renewables have a role, and evaluate private financing as an option.

2. Evaluate available sites that are de-conflicted with mission needs or environmental conditions and can support project economics, then invest resources incrementally against those opportunities to assess the specifics of projects, confirm and document financial performance metrics, and assess risks (Phase 1). Incremental investment will help manage development risk (Section 2.5).

3. Optimize the project design with the support of detailed technical and environmental studies, and refinement of financial models; then validate and document the detail necessary to gain Army approvals and scope a well-defined opportunity for the private market (Phase 2).

3.1 PROJECT IDENTIFICATION AND SELECTION

3.1.1 DEVELOPING AN ENERGY BASELINE, MARKET CONDITIONS, AND ENERGY STRATEGY

Developing an Energy Baseline for Installations

A baseline of information should be developed prior to investing resources in individual project opportunities. Multiple years of historic energy use is required to project future needs, combined with planned expansion requirements tempered by efficiency incentives. This baseline is used to help define the energy goals and strategy for an installation, establish constraints, identify where gaps may exist, and then determine whether renewable energy projects can play a role in filling those gaps.

At a minimum, baseline information should consist of:

- The installation’s historical demand profile;
- Utility rate analysis based on evaluation of installation energy contracts and tariffs;
- Historical energy bills, both monthly and annually;
Installation growth and energy demand projections;
- Energy supply sources, utilities, privatized utilities, co-operatives, and any self-generation;
- Energy economics for the region including utility rates and tariffs;
- Projected energy prices and market trends;
- An overview of existing and planned infrastructure or other energy generation projects;
- An assessment of the commercial viability of renewable resources.

Market Characteristics and Commercial Fundamentals

To leverage private capital financing, an Army project must have strong commercial fundamentals and create value that supports long-term cash flows and financial returns. Value is created through local market conditions with some combination of the following commercial fundamentals:

- Strong renewable resource;
- Minimal site-specific development costs;
- High, volatile, or rising energy costs in a regional market;
- Local policies that support non-energy based revenue streams for renewable energy such as renewable energy credits (RECs), state tax benefits, utility rebates, or grants.

When these fundamentals are present, a market can be a good candidate for development of privately financed projects. If these elements are lacking, a project may support the Army mission but simply may not be a good candidate to be privately financed. If one fundamental is weak in a local area, there has to be another that compensates for the loss. For example, an area of low renewable resource can be compensated by strong local policies and REC markets. New Jersey has been a good example of this in prior years, where state policies have created a strong solar REC market despite New Jersey’s relatively marginal solar resource quality compared to other areas in the United States.

Comprehensive Installation Energy Strategy

The energy strategy for a given installation will depend on the existing and future energy baseline and market conditions. Investments in energy efficiency – either through appropriated funds or private financing approaches such as energy savings performance contracts (ESPCs) – generally have the most favorable payback economics and therefore should be considered first, even before investment in renewable energy. The overall energy strategy can also include a combination of ongoing purchase of electricity and/or thermal energy from local utility provider(s), distribution infrastructure upgrades, backup power systems fueled by fossil or alternative fuels, and energy conservation programs. Overall, installations should seek to maximize the resiliency of supply while keeping costs affordable, and should consider a strategy, including development of renewable resources, that most efficiently moves toward this goal from the baseline existing conditions.

Installation Energy Strategy

Determining a role for privately financed renewable energy starts with a comprehensive installation energy strategy.

3.1.2 IDENTIFYING OPPORTUNITIES: DETERMINING THE ROLE OF RENEWABLE ENERGY FOR THE ARMY

Given the baseline and energy strategy, the elements of the Army goals shown in Figure 1 can be used as a tool to consistently frame and evaluate the role renewables can play in securing clean energy for an installation and for the Army as a whole. The next step is to identify opportunities by considering the following:

- **Energy security.** Can renewable energy play a role in energy security? For example, do renewables offer:
  - Added resiliency and access to energy during grid disruptions?
  - Diversification of supply or redundancy in case of disruption?
  - Price stability as a hedge against fuel volatility and rising utility prices?
  - Peak demand reduction or load shaping?
• **Economics.** Do privately financed renewable energy sources cost less and create value?
  - Are life cycle savings available?
  - Is the projected energy contract price competitive with energy costs from other sources, in particular energy charges from the local utility? (Based on a utility rate analysis).
  - Can projects offer in-kind services or rent from real estate that offset other energy costs?
  - Can the project create value for both the Army and investors?

• **Mandates.** Is there an opportunity to deliver clean energy to the market using Army lands, or can the Army consume renewable energy from projects located on or off the installation?
  - Renewable energy produced (but not consumed by the Army) on Army lands can contribute to mandates - is there local market demand for renewable energy, and is there transmission access?
  - If rent or in-kind consideration is available, can this be used as a funding stream for other renewable energy projects to meet mandates and/or energy security requirements? Renewable energy consumed can also contribute to mandates. Does the installation have a need (and is it economically feasible) to consume renewable energy produced by a project on or off Army land?

### 3.1.3 SELECTING A FINANCING MECHANISM: THE IMPLICATIONS OF PRIVATELY FINANCED PROJECTS

Renewable energy generation project(s) may have a role in achieving the energy strategy for an installation or for the Army overall, but not every project is a good candidate for private financing. Analyzing and assessing this is a key part of the early-stage development process.

The two key differentiators to consider when using private financing vs. appropriated funds are: (1) projects that use private financing must generate competitive returns for investors in addition to being price-competitive for the Army; and (2) the nature of long-term agreements will create an obligation of land and/or purchasing commitment by the Army. If either of these requirements cannot be supported for a project, appropriated funds may be a better choice to finance the construction of the project.

Some additional implications and factors of evaluating and implementing projects using private financing:

• Economic payback calculations used to evaluate projects paid for with appropriated funds do not generally apply to privately-financed projects. Developers and investors use different financial metrics based on cash flows and financial returns. Therefore, when considering private financing, project feasibility must be considered using these metrics.

• Renewable energy project feasibility is subject to changing market conditions across multiple markets such as state regulatory and legislative markets, renewable and conventional energy markets, and state and federal tax policies.

• Markets move independently and can affect private sector financial metrics, potentially disabling project feasibility. It may not be possible to adjust the project scope to overcome these changes. For this reason, it is important to move quickly while markets align and support project fundamentals.

• The Army or an installation can expect to invest 3% to 7% of the total project capital cost in early-stage project development. This investment should be returned, however, as decreased risk and expenditure by developers is likely to result in lower energy prices to the Army. Depending on the scale and complexity of the project, specialized private sector expertise may be required for the due diligence process. Like any large capital project, development cycles for medium and large-scale projects can last several years, and in some cases, longer.

• Privately-financed energy projects of all sizes are subject to Army and Federal approval requirements ([Section 4](#) and Appendix D). Gaining these approvals requires a robust,
documented business case and supporting documents to be submitted to the appropriate authorities. The time and expertise needed to develop this documentation must be taken into account in light of available resources and the timing of market conditions.

**Examples of Project Identification**

Several projects are discussed below to illustrate real-world examples of different circumstances involving project identification on Army installations. The baseline conditions play prominently in the determination that renewable energy project(s) could play a role in achieving the energy strategy, and how each one would contribute to the balanced approach required by the Army’s overall vision.

**Southwest United States.** An installation in the Southwest is supplied by electricity from a single source over a single point of connection that is vulnerable to service disruption and outage, making energy surety a potential security threat. A utility rate analysis was performed to establish the existing cost of electricity, and the solar resource was verified to be strong enough for commercial use. The economics of the project were not favorable however until an opportunity emerged to construct an on-site solar generation project that could leverage a state RPS program – implemented directly through the utility provider. The project will provide direct energy security benefits for the installation as well as contribute to renewable energy mandates.

**Pacific Northwest.** An installation located in the Northwest does not have an energy security need that could be met by renewable energy, and enjoys very low electricity costs powered by hydroelectric power plants. With a lack of a security need or economics to serve the Army’s demand, mandates were considered and an opportunity was identified to utilize significant non-excess real estate to support the development of a wind farm selling power commercially to utilities in the California market. In this case, though mandates drive the project, rent generated for the fair market value of the lease interest will provide economic value to the Army, a portion of which can be directed to other energy projects that directly impact energy security needs.

**Hawaii.** An installation in Hawaii operates with high energy costs driven by imported fossil fuels and is subject to disruption of service caused by severe weather conditions and an isolated island grid. Multiple project opportunities were identified and will be pursued as resources allow, with the first priority given to the development of an on-site power plant developed by the local utility. The power plant will be fueled in part by renewable biofuels, and offers energy security through a combination of black start capability and an agreement to provide priority service in the event of a system disruption. As the project develops and matures, other opportunities that may have less dramatic energy security impact, but strong economics, will be considered.

**Southeastern United States.** A major installation in the Southeast is on the leading edge of energy infrastructure development and enjoys a low cost of energy. As a result, renewables were not found to have an immediate role. Renewable energy projects do not always have an immediate role in energy strategy; in fact, for this installation, the best value project may be the implementation of a control system to coordinate the existing microgrid, on-site generation, and multiple serving utilities. Renewable energy opportunities will continue to be evaluated as local market conditions develop and the installation’s energy strategy evolves.

### 3.2 Assessing an Opportunity

Once an opportunity is selected for development, it should be defined in greater detail by the constraints of its technical, legal, and economic operating environment. As it is further defined, it should be iteratively evaluated for feasibility (Figure 6).

#### 3.2.1 Confirming Project Value and Siting

Economic and financial analysis tools should be used early in the assessment to calculate the key financial performance metrics (Section 2.3) and confirm the value and financial feasibility of the project. The utility rate analyses and a financial pro forma are used for this purpose.

Availability of real estate and the implications of site conditions on site-specific development costs are the next priority, in conjunction with technical integration with the existing electrical system and utility
interconnection requirements. The site assessment should focus on confirming the project has a site that can be developed cost-effectively, and can be available on a long-term basis without conflicts with master planning, real estate, or mission. The goal is to identify a site that:

- Is the right size to support a project that meets the objective;
- Is buildable for the chosen technology type;
- Has low site-specific development costs;
- Is likely to be available for the required time period;
- Is clear of environmental concerns, or environmental issues can be mitigated;
- Has a resource that is commercially viable;
- Can carry the cost of interconnection.

A buyer, or off-taker, for the energy from a project must be identified. The off-taker must be willing and able to buy at a price that also allows the project to produce attractive financial yield for developers. The Army or another entity in the energy market may be the off-taker. To evaluate alternative sites, the site-specific development costs for each are added to the project *pro forma*, along with required project yield, operation costs, federal, state, and local incentives, and energy production data. These are compared to the results of a market study or utility rate analysis that estimates the future prices the Army or market-based off-takers should be willing to pay.

Multiple iterations of the project due diligence and development process are likely to be required across different site options and technical configurations (*Figure 6*). Information is gathered and constraints applied to the project definition and design attributes (i.e., size, technology, site requirements, business model) for each alternative, then evaluated against financial metrics, as well as stakeholder concerns.

The amount of information to be gathered and the level at which it is verified at this stage will require professional judgment and will vary from project to project based on experience. For example, on smaller projects that have a lower cost and risk profile, it may be acceptable to use standard allowances for interconnection or operation costs. On larger, more complex projects, conceptual engineering estimates and system impact studies will likely be required to have confidence in the numbers prior to moving forward.

### 3.2.2 Iterative Development and Risk Analysis

As the value and site characteristics of the project are being established, the sources of risk within each of the 8 Assessment Criteria should be identified, and a relative risk assessment of red, yellow, or green (for high, medium, and low risks) applied. Appendix A includes a summary of typical analysis and work products generated at this phase of development.

The output of the first iteration of the project due diligence and development process should include an assessment of risks using the stoplight ranking system (*Figure 5*). Also included are a refined project definition based on new information gathered, and an initial measurement of both financial and stakeholder impacts. The financial metrics of the project should be well understood and supported by a utility rate analysis and the project *pro forma*.

During subsequent iterations of data gathering and analysis, incremental investments should be directed toward the highest risk areas to maximize the impact of risk reduction, and materially move the project forward at the least cost to budget and schedule. The iterative due diligence and development process...
(Figure 6) should be used to define project constraints, identify and mitigate excessive risks, and inform the recurring decision to continue or suspend efforts based on the results of development efforts. The project concept will evolve as constraints are identified and applied. As a result, a refined project definition will emerge that includes scope and size (in MW), performance characteristics, plant output (in MWh or British thermal units (BTU)), site location boundary, and infrastructure or interconnection requirements. Once all assessment criteria are viewed to be low or medium risk, or are at a level acceptable to the project proponent and stakeholders, the decision can be made to invest the time and money into detailed analyses and studies necessary to validate, document, and defend the business case for the project as necessary to obtain Army approvals (Section 4).

Throughout the assessment process, project information and analysis should be captured and updated regularly in a standard report or workbook that acts to aggregate all relevant project data into a cohesive and standardized form. The format and contents of a project validation report (PVR) is a good starting point, as the PVR represents the content and organization that is required to be presented for HQDA approvals, discussed in Section 4. A PVR outline template can be found in Appendix B.

3.3 Validating the Business Case

For a valuable and feasible project with acceptable risks, a defensible business case must be prepared and documented. This business case will be reviewed by the proper authority as a key step to obtain Army and federal approvals (Section 4 and Appendix D). These approvals are required prior to entering procurement in the Contracts and Agreements phase (Phase 3 from Figure 2). The business case should clearly demonstrate the value of the project to the Army, along with a description of energy security benefits and contribution to mandates. In addition, the business case should document the basis of economic analysis that supports the reasonable expectation that the private sector can finance and deliver the project at a value to the Army.

The business case is prepared and presented through a PVR, which is required to gain project approvals. Appendix B provides an overview of typical analyses required for validation of a project. The validation process should build on the work performed previously, but provide greater detail and mitigate remaining risks, such as renewable resource quality, technical integration requirements, or environmental issues identified through the Environmental Condition of Property (ECP) and National Environmental Policy Act (NEPA) processes. Financial and technical studies should be coordinated and cross-checked continuously to be in agreement with each other, and to ensure any financial impacts are represented in the financial analysis to verify the project continues to maintain viable financial performance metrics.

3.3.1 Optimizing the Technical Project Concept

The detailed characteristics of a project can depend on numerous overlapping requirements and constraints categorized by the 8 Assessment Criteria. Optimizing a project requires a detailed study of the entire system of influences that define the best location, configuration, size, technology and system performance characteristics, and necessary infrastructure improvements to balance the legal, regulatory, technical, and financial aspects of a project.

A summary of typical analyses required is provided in Appendix B. Examples of the types of constraints that can drive optimal project design can include, but are not limited to:

[14] An Environmental Condition of Property (ECP) report is required for any real property that will be transferred, sold, leased, or acquired, according to AR200–1 Environmental Protection and Enhancement, Section 15-5.
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- A wide range of technical factors such as resource and renewable technology performance, utility interconnection standards, site restrictions, line capacity restrictions, safety and constructability standards;
- A tariff structure with a mix of demand-based charges and energy charges that limit the economic viability of projects over a certain size due to utility rate impacts;
- The condition or location of infrastructure, which may limit the size or type of technology that can be connected to it, or create prohibitive costs due to extensive interconnection requirements;
- Site-specific development costs that represent fixed costs may increase the minimum size of a project that can be supported to gain economies of scale;
- Local legislation or regulations may provide incentives for projects that include cutoff points based on size or project output, limiting the size of an economic project;
- The energy demand of the installation, or the time of day that demand occurs, may not coincide with the projected energy output from an intermittent resource, causing the project to be limited in size to prevent exporting energy.

3.3.2 VALIDATING PROJECT ECONOMICS

The financial metrics of a project must remain within acceptable limits as the project is optimized and validated. Technical studies, such as integration studies, utility systems analysis, and even final site selection, can add site-specific development costs that must be evaluated against alternatives through life-cycle cost analyses supported by both utility rate impact analysis and the project pro forma.

In addition to capital costs and financing charges, revenue and operating cost assumptions should be continuously updated and evaluated against current market conditions. Cash flows, including those from supportive policies such as tax-based incentives, must not only meet overall payback requirements for financing renewable energy projects, but also be considered competitive when considered along with pricing and contract requirements of the Army.

3.3.3 VALIDATING STAKEHOLDER SUPPORT

Project stakeholders can be numerous for a given project. Stakeholders can vary depending on the location, impacts to surrounding communities, complexity of the installation mission, and type of technology being used. Key stakeholders should be identified and communications conducted regularly to confirm stakeholder support of the project as it is refined. Any concerns or barriers can then be addressed or mitigated prior to submittals to gain project approval from HQDA.

Key stakeholders can include but are not limited to: installation staff and leadership, the Army command and Department of the Army, U.S. Army Corps of Engineers (USACE), Army Environmental Command (AEC), real estate managers, the utilities serving the installation, privatized utility contractor, developers, and the contracting organization(s) being considered to support the procurement of the project. Neighboring communities, state and local governments, and regulators can also be key stakeholders since a project has the potential to impact citizens outside the installation.

To manage risks proactively, it is important to maintain contact with key stakeholders and regularly update them, and seek comments and input. As issues arise, engaging the stakeholder group directly and transparently provides the opportunity to understand and mitigate concerns prior to advancing a project into the approvals process.

3.3.4 VALIDATING THE PROCUREMENT STRATEGY

Projects are procured through various contracts and agreements between the Army and developers or private sector providers. The business models, including the parties to the contracts, structure and type of agreements can vary significantly and should be tailored to the circumstances of each large-scale project. Small and medium-scale projects should consider using simple, replicable business models to keep transaction costs affordable. Typical business models can be used alone or in combination, and are based on the long-term contract authorities available to the Army (Section 2.2):
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- **Power purchase.** The Army buys renewable energy from a project built outside of Army lands;
- **Power purchase and real estate transaction.** The Army purchases energy from and leases or otherwise outgrants land to a project;
- **Real estate transaction.** The Army leases or outgrants land to a private developer for a project, energy is sold to a third party.

**Alternative Business Models**

Each basic business model described above offers a template, given the Army’s priorities and authorities. From this template there are many variations and modifications that can be pursued by the Army, though the majority of project opportunities released to the market will likely follow the described business models. Variations can only be properly identified by an exhaustive examination of existing contracts at the location, state and local regulation of utility services, and a thorough understanding of the legal ramifications of the options. All transactions must adhere to federal acquisition and regulatory requirements. Section 4 provides an overview of the authorities, policies and guidance, as well as approval processes, for each of these basic business models.

**Procurement Strategies**

Different procurement strategies considered in Phase 1 should be revisited and confirmed during Phase 2, as the project is more fully developed and a decision on procurement strategy can be made. Strategies to consider include, but are not limited to the following – competitive solicitations, sole source awards, and utility partnerships.

**Competitive Solicitations**

A competitive solicitation is used typically for a long-term purchase agreement using U.S.C. § 2922a authority. The process for pursuing this option may be streamlined by utilizing the Army’s Multi-Award Task Order Contract (MATOC). The MATOC has been established by USACE, working closely with the EITF, and provides a task order procurement vehicle with an established pool of qualified developers. The MATOC is likely the most applicable approach for small and medium-scale projects.

If the project does not fit the MATOC contract structure, then the project solicitation may be accomplished through an RFP. This approach may require the development of a tailored Acquisition Strategy and Acquisition Plan, depending on the requirements of the selected contracting organization. The RFP should leverage the Renewable Energy Services Agreement (RESA) template developed by the EITF. The RESA template has been developed through discussion with industry, the Army, and other service acquisition officials. The RESA incorporates key terms and conditions that are critical to long-term power supply agreements in both the private and public sectors.

**Utility Partnerships**

Certain electricity markets – both regulated and deregulated – may present the opportunity for serving utilities to provide renewable energy services. These may be structured as sole-source contracts where the Army is the off-taker of the project. In other cases, off-take may be structured through an existing services agreement, such as the General Services Administration (GSA) Areawide Contract. Utility partnerships that involve a utility utilizing Army land or a developer that is providing power from a project to the utility may also be viable. In these cases, an easement may be viable as the out-grant authority.

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16 The RESA is a standardized Renewable Energy Service Agreement that can be used by any Army organization that purchases renewable energy utilizing the authority under 10 U.S.C. § 2922a. [http://armyeitf.com/index.php/events/presentations](http://armyeitf.com/index.php/events/presentations).
Arrangements of this type may be done competitively or non-competitively (consistent with FAR Part 6) and can be an effective way for a utility to partner with the Army to satisfy internal or state wide renewable energy goals.

*Sole Source Awards*

Sole source awards can be considered if appropriate justification exists in accordance with FAR Part 6 “Competition Requirements.” However, sole source awards have proven to be unlikely and are not encouraged because privately financed renewable energy projects inherently do not meet the requirements of an unsolicited proposal as described in FAR 15.6. Sole source justification has been successful in cases where the relevant state utility regulation permits only the regulated utility to provide electrical service. This does not apply in areas where utility deregulation has taken place and businesses and consumers, including the Army, can select from multiple sources of electricity supply.

*Other*

Other contract forms that might be considered include Utility Energy Service Contracts (UESC) or Energy Savings Performance Contracts (ESPC). Both of these types of contract vehicles and associated authorities are typically used for energy efficiency projects and have separate requirements that should be considered in terms of terms and payment structure. These unique features may make them unsuitable for most large scale renewable projects. However, installations should explore them for smaller scale renewable projects if the other options listed above do not seem viable.

*Contracting Organization*

The installation or the EITF should identify the contracting organization to be used to solicit, evaluate, award and administer the renewable energy requirement. In the case of a power purchase approach, USACE, Huntsville Center (HNC), or the Defense Logistics Agency - Energy (DLA-E) have significant experience working with the EITF and should be considered. For business models that provide a lease or other real estate instrument only, installations should work through USACE.

3.3.5  PREPARING DOCUMENTATION TO SUPPORT THE BUSINESS CASE

A fully documented business case is required to be submitted and approved as part of a PVR prior to releasing solicitations to the private sector. In addition, the PVR includes all the elements of the proposed project to be documented, including having the necessary approvals from the chain of command and the paperwork demonstrating all elements are in place to proceed with the project. A summary of the information that is typically included in a PVR, along with a sample outline of a PVR, is provided in Appendix B. The PVR must be supported by appropriate paperwork and signatures from the proper authority regarding the description and availability of real estate, including a Concept Report of Availability (ROA).

The level of documentation required for approvals will vary slightly depending on the business model being proposed. Projects involving both a power purchase agreement and the use of Army real estate will require the highest levels of documentation and support. This is discussed in greater detail in the following section.

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18 In a UESC, a utility arranges funding to cover the capital costs of the project, which are repaid over the contract term from cost savings generated by the energy efficiency measures. [http://energy.gov/eere/femp/utility-energy-service-contracts](http://energy.gov/eere/femp/utility-energy-service-contracts).

19 An ESPC is a partnership between a Federal agency and an energy service company (ESCO), where the ESCO designs and constructs a project that will generate energy cost savings sufficient to pay for the project over the term of the contract. [http://energy.gov/eere/femp/energy-savings-performance-contracts](http://energy.gov/eere/femp/energy-savings-performance-contracts).
SECTION 4 - Gaining Approvals and Procurement

Depending on the characteristics of the project, privately financed renewable energy projects will require Army Command approval, Headquarters level Army (HQDA) approval, DOD certifications and/or approvals, and Congressional notifications. In terms of the project life cycle, the approval process is initiated in Phase 2 through the development and submittal of a PVR. Once Army and applicable federal approvals are obtained, solicitations can be released to the private sector. Gaining necessary approvals is a milestone event after which the project transitions from due diligence efforts in Phases 1 and 2 to a procurement effort in Phase 3.

4.1 GOVERNMENT APPROVALS

Statutory and policy approval requirements are driven by the contracting authorities that are selected to execute the project. For each authority, thresholds for approvals exist based on project size, contract term, and business value.

Required approvals for Army projects are specified in the Assistant Secretary of the Army for Installations, Energy and Environment (ASA(IE&E)) memorandum Department of the Army Guidance for Energy Related Projects and Services. The project proponent, either the installation (small projects < 1 MW or medium-scale projects <10 MW) or the EITF (large-scale projects ≥10 MW), is responsible for obtaining approvals and performing notifications. (The EITF may be the project proponent for medium-scale projects on a case by case basis.) For installations, this includes approvals by the appropriate Chain of Command, as well as the higher level requirements described below.

For most medium to large-scale renewable energy generation projects, HQDA approval is required. These requirements also apply to ESPCs and UESCs that include a renewable energy generation component.

External reporting requirements from different acquisition and outgrant authorities may require Office of the Secretary of Defense (OSD) certification, OSD approval, and Congressional notification. OSD requirements are specified in the Department of Defense Guidance on Financing of Energy Projects. (This OSD policy does not apply to ESPCs and UESCs.) Requirements for congressional notification are described in 10 U.S.C. § 2662, Real Property Transactions: Reports to Congressional Committees; and NDAA 2012 Sec. 2822, Considerations of Energy Security in Developing Energy Projects on Military Installations Using Renewable Energy Sources.

4.1.1 ARMY PROJECT STAKEHOLDERS

The project approval pathway for privately financed renewable energy projects is through the installation, Army Command, and HQDA. Support from installation Department of Public Works (DPW), Master Planning, environmental, Director of Plans, Training, Mobilization, and Security (DPTMS), airfield operators, Network Enterprise Centers (NEC), legal counsel, Senior Commander, and Garrison Commander are critical to determine the ability of the installation to host the renewable energy project and to ensure the project supports the installation mission(s).

Once a project has the support of installation leadership, the appropriate Army landholding Command (IMCOM, ARNG, USAR, or AMC) should be consulted to ensure the project supports overall energy program priorities and that Army investment is appropriately managed. As described in the next section, HQDA approval may be necessary depending on the authorities used and certain project thresholds. This HQDA review ensures a project is meeting Army enterprise energy objectives and supports additional external reporting requirements to the Office of the Secretary of Defense (OSD) and Congress, as applicable.
4.1.2 Approval Requirements

The following project thresholds determine the specific requirements for HQDA approval and external reporting. A detailed explanation of the processes, including timelines and submittal requirements, is provided in Appendix D. HQDA requirements prior to release of solicitation:

- Projects with an estimated cumulative business value less than or equal to $750,000 that do not require the use of Army real property, or require the use of Army real property for a term not to exceed 5 years, are approved through the appropriate chain of command and do not require HQDA approval. HQDA approval is required for all projects that include an agreement under the authority of 10 U.S.C. § 2922a or a renewable energy contract with a term greater than 10 years.

- HQDA approval is achieved through Real Estate Governance Board (RGB) review and DASA(E&S) and DASA(IH&P) approval. This is required for all projects requiring the use of Army real property for a term exceeding 5 years. RGB requirements are described in the Deputy Assistant Secretary of the Army for Installations, Housing and Partnerships (DASA(IH&P)) memorandum, Real Estate Business Clearance Process.

- DASA(E&S) approval is required for projects having an estimated cumulative business value greater than $750,000, any agreement under the authority of 10 U.S.C. § 2922a, and any renewable energy contract with a total term exceeding 10 years (including option years and consecutive renewals) that do not have an associated real estate agreement with a term greater than 5 years.

External requirements:

- OSD certification and congressional notification is required prior to solicitation for privately financed energy projects containing an outgrant pursuant to 10 U.S.C. § 2667 with an annual rental FMV greater than $750,000, meeting the reporting requirements of 10 U.S.C. § 2662. Note that this is a high reporting threshold, so will not often be required.

- OSD concept briefing prior to solicitation and OSD approval prior to contract award is required for all privately financed energy projects using the authority found in 10 U.S.C. § 2922a. Congressional notification is also required prior to contract award for 10 U.S.C. § 2922a projects with terms greater than 20 years.

- OSD certification and congressional notification, as well as OSD concept briefing and approval are required if an agreement under 10 U.S.C. § 2922a includes a lease meeting the 10 U.S.C. § 2662 reporting threshold of an annual rental FMV greater than $750,000. The OSD certification and concept briefing packages submitted/performd before issuing a lease offering can be combined. However, OSD approval of the 10 U.S.C. § 2922a agreement is required just before final signing of the contract must be performed separately.

- Congressional notification per NDAA 2012, Section 2822 is required within 30 days of contract award for renewable energy projects that exclude the pursuit of energy security on the grounds that the inclusion of energy security is cost prohibitive. This applies to any project that does not provide energy to an installation or other energy security as defined by 10 U.S.C. § 2924. A CBA to support this decision is a required submittal.

Further discussion of the requirements for renewable energy projects can be found in the Army Regulation AR 420-1, Installation Management, Chapter 22.

4.1.3 Approval Process Flow Diagrams

The required government approvals, including HQDA and other federal requirements, are summarized in Figure 8 and shown graphically for each of the business models relating to specific applications of the long-term acquisition authorities. Figure 8 illustrates the timing of approvals relative to life cycle Phases 2 and 3, where the primary approval functions are accomplished.
SECTION 4 – GAINING APPROVALS AND PROCUREMENT

Approval Path for Business Model #1: Power purchased by Army, generated on private land (see Table 1)

- Solicitation, competition, source selection
- Negotiation
- Developer agreement and contract "ready to award"

Approval Path for Business Model #2: Power purchased by Army, generated on Army land (see Table 1)

- Solicitation, competition, source selection
- Negotiation
- Developer agreement and contract "ready to award"

Approval Path for Business Model #3: Lease of Army land; no Army power purchase (see Table 1)

- Solicitation, competition, source selection
- Negotiation
- Developer agreement and contract "ready to award"

CBA – Cost benefit analysis, as specified by NDAA 2012, Sec 2822
DOA – Determination of Availability, issued by DASA(H&P)
NOL – Notice of Opportunity to Lease
OSD – Office of the Secretary of Defense, or designee
PSP – Project submittal package, as required for OSD Certification or Approval per OSD Financing Renewable Energy Project Policy
PVR – Project Validation Report, required for submittal to DASA(E&S) or the RGB for project approval. See template in Appendix B.
RFP – Request for Proposals
RGB – Realty Governance Board

(1) If final project parameters fall outside the prior DASA or RGB approved range, a revised PVR must be submitted to DASA(E&S) or the RGB for re-approval. OSD should also be informally briefed, even if OSD approval is not required.
(2) For 10 USC 2022a, if contract terms are less than 10 years, congressional notification and a 14 day wait are required, per 10 USC 2662, NDAA 2013 revision.
(3) For 10 USC 2022a procurements and 10 USC 2667 leases requiring OSD Certification, congressional notification per NDAA 2012, Sec 2822 is required within 30 days if the project excludes energy security based on cost.
(4) For 10 USC 2667 leases with an annual fair market value rental > $750k, OSD Certification and congressional notification (with 14 day wait per 10 USC 2662) is required.

Figure 8. Approval Paths for Business Models Related to Long-Term Authorities
4.2 PROCUREMENT - CONTRACTS AND AGREEMENTS

For projects requiring HQDA approval, the Phase 3 procurement effort can begin once the required approval memo is received from the DASA(E&S) and DASA(IH&P), as applicable. Although typically a procurement action, the Army may not be directly contracting to purchase energy, but instead may be negotiating and signing contracts and agreements which facilitate the financing and construction of a renewable generation project on Army land through a lease or other appropriate real estate instrument (such as in business model #3, Section 2.2).

Phase 3, Contracts and Agreements, includes the following activities:

- Finalizing applicable RFP and/or NOL documents
- Solicitation
- Source selection and negotiations
- Final approvals and notifications
- Final development activities conducted by the contractor
- Award and signing of contracts and agreements

Appendix C provides a discussion of the procurement process and a summary of the analyses and project work typical of the Contracts and Agreements Phase.

The contracting organization selected in Phase 2 will have the lead in these activities and is central to successfully accomplishing the required procurement actions. Project proponents should expect a role of helping to both facilitate and track project implementation issues together with the developer and all project stakeholders.

Primary responsibility for development activities shifts from the Army and the contracting office to the developer during the Contracts and Agreements phase (Phase 3, Figure 2). Once an offeror is selected, early stage project development activity by the Army is complete. The developer, at its own cost and risk, is then responsible for completing the final development tasks, including but not limited to final permitting, engineering, interconnection, design, vendor supply contracts, construction contract procurement, and project financing.

Communication between stakeholders and identification of a critical path for completion of required documents and actions are vital to efficiently moving the project through the process. Maintaining the planned project timeline through the procurements process required reviews and approvals continues to remain essential to retaining the financial viability of the project through award and financing.
SECTION 5 - Construction, Operations, and Support

5.1 CONSTRUCTION

Facility construction is a well-documented process and not unique to renewable energy projects. Therefore, this Guide’s discussion of this Phase is limited.

Upon entering the construction phase, design, permitting, and other final development steps have been completed by the developer and the Army, and a notice to proceed is typically issued by the Army. The developer now has the lead to construct the asset and perform the testing and commissioning of the facility prior to operations.

Unlike projects procured through appropriations, the construction and operation of privately-financed projects are primarily the responsibility of the developer. The Army will monitor and support the construction to ensure the terms of contracts (including the real estate instrument) are adhered to and the performance of the project meets contractual requirements and safety standards. The Army is also required to provide access to the site and oversight to ensure compliance with Army requirements. Additional Army responsibilities generally include implementing the contract administration plan developed for the project.

5.1.1 CONSTRUCTION PROCESS

Construction of Asset/Army Oversight

The role of the Army during the construction phase is to monitor the progress of construction, ensure the developer is conducting all activities on Army land in a safe manner, and be aware of potential changes to the schedule that may affect the installation’s mission and ongoing activities. The Army contracting officer (CO) or their representative (COR), and the Real Estate contracting officer should reserve the right to make regular site visits for formal progress review sessions with the developer and/or the developer’s general contractor.

All projects differ and specific responsibilities and requirements are negotiated as part of individual contracts. Because the Army is not party to the construction contract directly, it does not have rights to impede, postpone, delay, or stop work, unless the work is conducted in an unsafe manner and poses a risk to mission or personnel, or other conditions are present.

Set Up of a Contract Administration Plan

If the Army is an off-taker, the Army will begin making payments for energy flowing from the project once construction is complete and commercial operations commence. Payments will be administered according to the terms of the contract. While construction is underway, the Army should set up the Contract Administration Plan and the required support structure to manage the contract requirements once the facility is operational. This includes working with the Office of the Assistant Secretary of the Army for Financial Management & Comptroller to establish oversight of in-kind consideration accounts and setting up a system to track any RECs received from the project.

The Army may also need to adjust payment activities under any other affected contracts, such as shifting to a new tariff for electric power or renegotiating an existing supply contract. While these changes need to be understood well in advance (during Phases 1 and 2), the actual execution of the adjustments typically take place concurrently with Phase 4, Construction, or the beginning of Phase 5, Operations and Support.
Section 5 – Construction, Operations and Support

Testing and Commissioning

The Army has a limited role in testing and commissioning, subject to contract requirements. As construction is completed, system testing will be performed by the developer to ensure any construction and reliability standards established in the award document or construction contract are met. The Government CO or COR will typically oversee the acceptance testing and review any data. The facility will then be commissioned into revenue service and move into Phase 5, Operations and Support. In some cases, this process may be structured to take place incrementally, such as for sections of a solar or wind project as they are completed. Doing this should improve project economics for the project.

Accounting for the Asset in the Real Property Inventory

Depending on the terms and nature of the contracts and agreements associated with the project, the installation and the relevant Army agencies may log the project into the real property inventory to facilitate tracking of the asset through its operational life, in preparation for eventual closure at the end of the contract term. Even if the asset is owned and operated by a private developer, tracking of the status of assets located on Army land is necessary.

5.2 Operations and Support

The Operations and Support phase begins at the close of construction, once the project has been commissioned, and ends with contract closeout. Most activities are predetermined by the long-term contract management agreements. The Army manages oversight responsibilities, including monitoring the operation for contract performance, ensuring proper tracking of payments, and managing in-kind considerations and RECs. At the end of the contract term, the Army and the developer should complete a transition of operations and asset ownership to close out the contract, as required by the contract documents.

5.2.1 Operation and Maintenance

Monitoring Contract Performance Commitments

Performance monitoring is necessary to adhere to Army REC policy guidance. The installation and the Army track the performance of the constructed project to ensure the developer is meeting the stated performance goals for the project over the life of the operational agreement. This may include elements such as but not limited to: enforcing performance guarantees relative to the energy generation profile including quality, energy security, non-interruption of mission; compliance with any federal, state, and local municipalities’ requirements; and warranty commitments.

Though the Army does not own the project, in the event that the Army is purchasing energy from the project, it has a vested interest in the developer continuing to adhere to the contracted energy performance profile of the project. In the event that power production and availability does not meet required levels, the developer should be given notice and address the deficiency. More details on how this should be structured contractually is provided in the RESA template.

To anticipate the need to react to any material defaults, the Contract Administration Plan should direct performance monitoring staff to relevant sections of the RESA which outline the Army’s remedies as well as explaining any rights of third party lenders to cure defaults and/or to step into the Developer’s position as a party to the transaction agreements in the case of a loan agreement default.

20 Department of the Army Policy for Renewable Energy Credits.
Energy Project Performance Reporting

Internal Army reporting requirements may differ from contractually required reports, but all efforts should be made to align these requirements in drafting contract language. Army energy project reporting is conducted through the energy managers' module section of the Army Energy and Water Reporting System (AEWRS). 21 Energy managers are expected to enter detailed energy project tracking information and data on renewable energy produced from each project. Required data includes energy type (electric on-grid, electric off-grid, or non-electric), type of renewable resource, ownership, purchase status, and siting status. Additionally, project description, utility or contractor details, funding source, and REC ownership should be documented. The installation is responsible for updating data monthly, as well as reporting data quarterly to ACSIM, including energy generated, energy used by the agency, and RECs retained.

Tracking Billing and Payments

Installation and contracting organization staff must plan payment activities to track payments, and manage in-kind considerations and RECs.

Validation of Activities against the Operation & Maintenance Plan

Each renewable energy project should have an operation and maintenance (O&M) plan that, at minimum, includes the maintenance and component replacement schedule for the equipment used in the project. In the case that the Army is purchasing energy from the project, the Army may seek to confirm and monitor maintenance activities are being performed according to the O&M plan in order to protect the installation from a reduction in available power as a result of poor maintenance. Doing so also protects the Army from having to possibly dispose of assets that are no longer performing and may be abandoned on Army land before the conclusion of the period of performance of the award. Verification of the O&M activities over the life of the project contract may also create the opportunity to extend the period of performance beyond its planned operational life, which could benefit both the Army and the developer.

Ongoing Site Visits

The installation staff will visit the site on a schedule that is prescribed by their security requirements, as documented in the project contract documents. Army staff and representatives of the contracting organization may visit on an annual basis or more frequently. Meetings held either at the project site or nearby will be used to review performance against the planned O&M schedule and overall contract parameters.

5.2.2 TRANSITION/CONTRACT CLOSE

Asset Transfer/Facility Closure

The final step of facility closure or asset transfer is performed in accordance with the terms of the contracts and agreements associated with a given project. Planning efforts should begin at least five years out from contract end date. Specific topics that will need to be addressed include removal of the project and any land remediation that will be required. Alternatively, the Army should assess the need and value of extending the supply contract and its respective real estate agreement, or purchasing the project at fair market value.

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21 AEWRS contains Army installation energy consumption data. Each installation is responsible for inputting accurate data monthly. Various government offices for energy conservation evaluation and other decision-makers with account access can then access this information. [http://army-energy.hqda.pentagon.mil/reporting/aewrs.asp](http://army-energy.hqda.pentagon.mil/reporting/aewrs.asp)
Outlook

Acquiring a clean, affordable, and reliable energy supply serves a critical role to sustaining the Army mission. Renewable energy projects offer many benefits to installations and the potential to serve operational energy needs. Under the right conditions, leveraging private capital offers strategic advantages over use of appropriated funds. The processes, tools and lessons learned in developing and financing renewable projects can be applied to many other applications including traditional energy project development.

Energy technology continues to advance, driving innovations in energy efficiency, generation, energy storage, infrastructure, and the use of hybrid systems combining renewable and traditional fossil fuel generation systems. The Army intends – both through the EITF and Army installations – to continue to pursue leading edge, commercially viable technological solutions and innovative business approaches to remain on the forefront of energy efficiency, sustainability, and resiliency.

For more information, or to contact the EITF, visit the website:

http://www.armyeitf.com/

Energy Initiatives Task Force
2530 Crystal Drive, 8th Floor
Arlington, VA 22202
Phone: 703-601-0568
Appendix A – Phase 1 Analysis and Activity Summary

This appendix includes a summary description of the typical data, analysis, and work products used in the assessment of project opportunities of all sizes during Phase 1 of the project life cycle. Information is also presented in abbreviated form in Table 3, at the end of this Appendix. This phase of work begins the detailed risk assessment and iterative development process used to confirm a project has strong commercial fundamentals, creates value and is likely to attract private sector investment, while also meeting the Army’s goals and the installation’s needs (Sections 2 and 3). The information gathered during Phase 1 will be used to determine what studies will be needed in Phase 2 to meet project requirements and optimize the project scope and design.

The work descriptions are organized by the 8 Assessment Criteria. Work products and key analyses should be assembled into a project workbook to serve as a record of the project during this phase of development. This can serve as the basis for the PVR, which is required for HQDA Approval in Phase 2. (See Appendix B for a PVR outline template) Some small and medium-scale projects may not be required to develop and submit a formal PVR (See Section 4 and Appendix D for Army approval threshold requirements), but should still maintain a project folder or binder to track information as a best practice.

Mission/Energy Security

The project goals and objectives are established and then constantly reevaluated along with any impacts of the project on installation mission and energy security as part of this risk criterion. Privately financed projects must at a minimum be designed to accommodate energy security attributes at a later date, and further, should be considered relative to cyber/intel threats. An excessive risk can exist if a project adversely impacts the Army or installation mission or fails to meet its goals and objectives.

Economics

Data is collected and analyzed to evaluate whether the project is economically viable for the Army and creates competitive financial returns for the private sector. This criterion is about evaluating input to each of the 8 criteria that impacts project cost or potential revenue, and confirming the project creates value and has strong commercial fundamentals (Sections 3.1 and 3.2). Economic evaluations should also include market information and existing and forecasted electricity rates paid by the installation. A Business Case Analysis (BCA) should be developed, and will be required for projects that meet the approval thresholds and require HQDA approvals.

Unless extenuating circumstances can be proven, which is rare, a project must not increase the overall utility cost or price volatility for the installation as a whole to gain HQDA approvals in Phase 2. A utility rate analysis, utility rate impact assessment, and economic alternatives analyses are essential to evaluate this accurately, along with a project pro forma that predicts the expected cost of energy from a proposed project, given a competitive market rate of financial return.

Real Estate

Siting a project may impact installation real estate and must be coordinated with mission requirements, master planning, public works, electrical, transportation, and other infrastructure. The EITF works with the installation and AEC to deconflict available land. Once a site is identified, potential aviation impact should be analyzed per DOD Siting Clearinghouse22 for height regulations, as well as glint and glare potential for solar considerations23. In addition, every project must have a viable, constructible site that can be conveyed to a private developer in a form that is accepted by the Army and acceptable to project lenders or investors. Title due diligence should be performed to support the concept ROA submittal, and

23 OSD Memo, Subject: Glint/Glare Impacts on DOD Aviation Operations
to confirm land ownership and encumbrances (easements, licenses, etc.), to verify control of the land, and to ensure the site qualifies for use with applicable acquisition authority. This information will be included in the PVR created and submitted in Phase 2 for HQDA approvals.

When real estate is evaluated for a project, consideration should be given to conditions that minimize site-specific development costs (costs caused by site conditions such as infrastructure upgrades that are site-specific). A heavy burden of site specific costs can have significant negative impacts on project financial returns, limiting feasibility using private sector financing. An analysis of available clear parcels should be conducted using Army Mapper (clear parcels are identified in Army Mapper) to indicate land availability and land use status on installations. The EITF or the installation should conduct a site visit to the potential project location, including a visual inspection of sites being evaluated to confirm actual site conditions.

**Regulatory and Legal**

The regulatory environment of the state or region in which the project is located should be researched to ensure that the project does not exceed any legal or policy limitations on construction, operations or contracting. These can include interconnection and net metering limits, and requirements for emissions and plant sizing. Also important to the structure and financial strength of the project are restrictions on third-party power purchasing, REC policies, and available federal, state, and local incentives, such as state RPS or local grant programs. These considerations should be revisited as the project is developed, to make sure regulations that represent technical or economic constraints are taken into account in the project concept (size, location, and business approach). By the end of Phase 1, all regulatory hurdles that would prevent development should be identified and cleared, or have mitigation strategies in place.

**Market/Off-take**

The energy off-take is a key element to the success of a privately financed transaction, as the off-take contract, or power purchase agreement, provides revenue against which project financing will be provided by investors. The credit and character of the off-taker can be a defining factor in determining the viability of a project, and can also have a strong influence on investors and developers. If the installation is expected to use all or some of the power generated, the needs of the installation must be clearly identified, and some type of federal power purchase agreement should be used. If off-take from other parties beyond the installation is being considered, a market analysis should be performed to evaluate whether there is sufficient demand to justify the project.

If there is opportunity to sell power on the market, a developer may be granted a long term lease, or use of the land through another real estate instrument to build a facility on non-excess Army land. The Army will then seek fair market value for the land in rental revenue or in-kind consideration from the developer. The market research performed in Phase 1 to define off-take can also be used in the procurement process to support selection of the type of contract agreement selected.

**Technical/Integration**

All the technical requirements to connect to the grid and any thermal loads should be identified. This may include limitations on available transmission and distribution capacity, substation capacities, potential infrastructure upgrades, metering provisions and other interconnection requirements either mandated by state and local authorities or by the public utility. A system impact study may be necessary or required. Technical considerations necessary to achieve energy security goals should be defined.

Coordination with and by installation staff through communications and site visits is recommended, as well as communication with privatized utility providers and local serving utilities. The cost of required infrastructure or transmission capacity needed to reach relevant markets, or issues that prevent cost effective integration of the project asset into existing electrical systems are typically the sources of excessive risks identified in this criterion.
ENVIRONMENTAL

The goal of Phase 1 environmental work is to begin development of the Environmental Condition of Property (ECP) required for real estate purposes, and identify the requirements of the likely path toward the issuance of a Finding of No Significant Impact (FONSI) and/or Record of Decision (ROD) for NEPA. Environmental considerations can be anything from an endangered species to a cultural heritage site, to the remnants of a toxic dump or explosives testing ground. Other considerations can include sites located in flood zones, geologic hazards or seismic zones, potential United States Fish and Wildlife Service (USFWS) issues, fire protection, biological assessments, or required air permitting.

In this phase, the status of sites should be investigated in coordination with the installation. The installation’s Environmental Office should be the starting point in determining current NEPA status and previous or ongoing studies, assessments or inventories. The Army Environmental Command (AEC) or USACE Mobile should also be brought in early on to provide guidance, and later to direct any required studies in Phase 2. Contracting, scheduling, and cost issues should be identified, as the timing of permits and authorizations can significantly impact the economics or viability of a project.

PROCUREMENT

The selection of a procurement strategy and business model is often driven by the long-term energy purchase and real estate authorities being used. The assessment of procurement strategies and the selection of applicable authorities also relies on information gathered in each of the other criteria, namely: the objective of the project, mission constraints, energy security requirements, the energy demand and load profile of the installation, installation energy costs and local energy prices, the availability of land on or off the installation, transmission capacity or availability, potential markets or off-takers, and regulatory limitations on the use of a power purchase agreement (if energy is purchased by Army).

One or more procurement strategy(-ies) should be identified at this phase of development. These strategies should take into account the proposed business models and counterparties to the Army in current power purchase and real estate contracts or agreements. In addition, the viability of short-term authorities or the need for long-term authorities should be evaluated, and any complications or potential risks in using these authorities identified. Federal acquisition specialists, regulatory experts, electricity and energy market analysts, and project finance advisors may be necessary to evaluate a project and to interpret the authorities, regulatory and contract options, market and financial considerations, and integration issues. Excessive risks related to use of contract authorities should be resolved in this phase, as this is a crucial component of project feasibility.

<table>
<thead>
<tr>
<th>Areas of Consideration</th>
<th>Conditions supporting a power purchase agreement such as a 10 U.S.C. § 2922a RESA</th>
<th>Conditions supporting a long term lease agreement such as a 10 U.S.C. § 2667 EUL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Site</td>
<td>Private land off the installation or non-excess land on the installation available</td>
<td>Non-excess land on the installation available</td>
</tr>
<tr>
<td>Energy Price</td>
<td>High installation energy price</td>
<td>High regional wholesale energy price</td>
</tr>
<tr>
<td>Regulatory</td>
<td>Use of a power purchase agreement is legal under local regulation</td>
<td>Sale of power off the installation is authorized in the location</td>
</tr>
<tr>
<td>Transmission</td>
<td>Economical local distribution available</td>
<td>Economical transmission capability to off-takers available</td>
</tr>
<tr>
<td>Off-take</td>
<td>Installation demand sufficient to use the energy produced by the facility</td>
<td>Off-takers other than the installation available to buy power from the facility</td>
</tr>
</tbody>
</table>

**TABLE 2. CONDITIONS INFLUENCING THE CHOICE OF BUSINESS MODEL**

24 A FONSI is a document that briefly states why an action will not significantly affect the environment, thus voiding the requirement for an Environmental Impact Statement.

25 The ROD is a document that states what the decision is; identifies the alternatives considered, including the environmentally preferred alternative; and discusses mitigation plans, including enforcement and monitoring.
<table>
<thead>
<tr>
<th>8 Assessment Criteria</th>
<th>Phase 1 Project Assessment Activities</th>
<th>Typical Work Products</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mission/Energy Security</td>
<td>Identify installation security requirements and how the project can support those needs</td>
<td>✓ Installation Assessment Report (Draft PVR)</td>
</tr>
<tr>
<td></td>
<td>Identify potential impacts of technologies and site options on installation operations or tenant missions</td>
<td>✓ Documented Mission impact</td>
</tr>
<tr>
<td></td>
<td>Develop and document project goals and objectives, including impact to 1 GW goal and energy security and/or installation energy strategy</td>
<td>✓ Energy security requirements</td>
</tr>
<tr>
<td></td>
<td>Perform OSD Clearinghouse review, cyber/intel threat, and Glint/Glare analyses, as applicable</td>
<td>✓ Project goals and objectives</td>
</tr>
<tr>
<td></td>
<td>Establish MOU with installation (For EITF projects)</td>
<td>✓ OSD Clearinghouse review</td>
</tr>
<tr>
<td>Expertise: Installation Master Planner, Energy Managers, Airfield Manager and Aviation Trainers</td>
<td>Stakeholders: Mission and Installation Commanders</td>
<td>✓ Glint/Glare analysis</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Goal: Army stakeholder buy-in on project goals and objectives, technology, and site.</th>
</tr>
</thead>
</table>

| Economics | Define installation energy requirements and role of privately financed renewable energy | ✓ Utility rate analysis |
| Perform utility tariff/rate analyses | ✓ Installation energy baseline data, energy requirements |
| Project utility rate ~20 years into future | ✓ Forecasted utility rates |
| Assess economic viability of renewable resources | ✓ Resource assessment |
| Define alternative courses of action | ✓ Pro forma |
| Perform business case and financial analyses (pro forma) to show economic viability of opportunity | ✓ Business case analysis |
| Expertise: Electrical and utility engineers, electricity and energy market analysts, resource assessment teams/data/equipment, financial analysts | ✓ Utility rate impact assessment |
| Stakeholders: Installation Commanders, utilities, off-takers | ✓ Economic alternatives analysis |
| Goal: Documented project value supported by commercial fundamentals | ✓ Life-cycle cost analysis |

| Real estate | Review Installation Master Plan and prior land use to identify conflicts | ✓ Site assessment |
| Investigate ownership/status of available land | ✓ Title due diligence |
| Identify project site(s), and consult Installation Real Estate Planning Board for their approval process | ✓ Clear Parcels Map |
| Expertise: Federal real estate specialists, USACE or BLM, Geographic Information Systems (GIS) experts, | Goal: Defined site or alternative sites that are available for long-term energy generation facilities, with costs that can be supported by project economics |
| Stakeholders: Mission Commanders, land holders, neighbors, FAA | ✓ Regulatory assessment |

| Regulatory and Legal | Perform a regulatory review to determine interconnection and net metering limits | ✓ Interconnection regulations |
| Review RPS and REC policies, and federal, state, and local incentives | ✓ REC policies and available incentives |
| Review state requirements for emissions and plant sizing, as needed | Goal: Clearing of regulatory hurdles (or at least identifying them at this stage) |
| Expertise: Legislative and regulatory expertise, energy market analysts, utility engineers | Stakeholders: Installation, utilities, state regulators | ✓ Regulatory assessment |

APPENDIX A – PHASE I ANALYSIS AND ACTIVITY SUMMARY
### Market/Off-take
- Perform an onsite and offsite market assessment, include state RPS and incentives
- Determine whether the installation will consume all electricity. Is there potential for, and is it legal to sell to, other off-takers?
- Determine if excess power can be wheeled to a utility or another off-taker

**Expertise:** Electricity and energy market analysts, regulatory expertise

**Stakeholders:** Installation, utilities, balancing authority, off-takers

- Identification of off-takers
- Regulatory and legal issues
- Market analysis (off-takers, RECs, incentives)

**Goal:** Defined project size (MW), market or Army demand, and off-taker(s) identified

### Technical/Integration
- Gather data on transmission and distribution issues, and substation capacities, and identify potential infrastructure upgrades needed
- Identify interconnection requirements either mandated by state/local authorities or by the public utility
- Review utilities privatization contract for the cost, integration and interconnection issues
- Determine what studies may be needed
- Consider potential requirements for smart grid and energy storage

**Expertise:** Electrical and utility engineers, regulatory expertise

**Stakeholders:** Installation, utilities, balancing authority, off-takers

- Identification of issues related to utility privatization contract (UP contract), substation capacities, and connection, transmission and distribution
- Interconnection assessment

**Goal:** Technical requirements for integration understood, along with cost or economic implications

### Environmental
- Gather information from installation on current environmental status/studies, and define process needed
- Identify NEPA contracting, scheduling, and cost issues
- Work with installation/USACE to being the ECP report for real estate documents

**Expertise:** AEC, environmental contractors, environmental experts

**Stakeholders:** Installation, developers

- Identification of NEPA requirements for EA, EIS, or tier off of existing EA or PEA or PEIS
- Draft ECP

**Goal:** As appropriate, understand path to achieve ECP and FONSI and/or ROD, including schedule and cost requirements.

### Procurement
- Gather information on existing contracts for utilities and real estate
- Review market research and potential off-take, siting options, and pricing for installation contracts and local markets
- Given the project objective, energy demand, market and regulatory environment, evaluate available authorities and business models

**Expertise:** Policy analysts, Federal Acquisition Specialists, electricity and energy market analysts, project finance advisors

**Stakeholders:** Utilities, off-takers

- Business model assessment
- Market research report

**Goal:** Defined business model or procurement strategy using Army authorities; recognition of approval or notification requirements prior to release of contract solicitation or lease offering notifications.

### Table 3. Phase I Project Assessment Matrix

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*Army Guide: Developing Renewable Energy Projects Leveraging Private Sector Finance*
Appendix B – Phase 2 Analysis and Activity Summary

Phase 2 consists of two steps: performing the due diligence to validate the project, and preparing for and obtaining HQDA approval of the project. An OSD concept briefing should also be done for projects utilizing the 10 U.S.C. § 2922a authority.

Appendix B includes a summary description of the typical data, analysis, and work products that are required during project validation, Phase 2 (Figure 2) to finalize definition of the project and document the business case validating the project. This work is summarized in a PVR, which is a required submittal for HQDA approval. (See Section 4 and Appendix D)

The activities and work products of Phase 2 are summarized at the end of the Appendix in Table 4 and organized by the 8 Assessment Criteria. These can be applicable to small, medium, and large projects.

PROJECT DUE DILIGENCE AND VALIDATION

MISSION AND ENERGY SECURITY

A detailed assessment of the viability of incorporating the technical requirements for the energy security strategy of the project identified in Phase 1 should be performed. If the project does not include energy security because cost is too high, a cost benefit analysis (CBA) must be prepared per NDAA 2012 Sec 2282 for a report to Congress after award. Any effect on the mission and other installation requirements should also be carefully assessed. As a best practice, once a site is selected, a formal submittal should be made to the OSD Clearinghouse for review and confirmation that the project is deconflicted. Written confirmation should be obtained from the installation and from the OSD Clearinghouse that there is no conflict imposed by the project. For solar projects, ensure results of Glint/Glare analysis of site are acceptable.

ECONOMICS

Detailed financial analyses are required to be included in the documentation for HQDA approval. The value of cash and in-kind consideration (IKC) benefits should be calculated, and a detailed cost benefit analysis (CBA) should be performed in accordance with the U.S. Army Cost Benefit Analysis (CBA) Guide. Large-scale projects should follow the Deputy Assistant Secretary of the Army for Cost and Economics (DASA(CE)), Standard Operating Procedure (SOP) for Large-scale Renewable Energy Projects, Business Case Analysis Review and Validation resulting in a CBA validation memo.

A cost sensitivity assessment should be made to define "not to exceed parameters" to be set during the Army approval process. Not to exceed parameters are typically the highest price acceptable for energy purchase. As new information is collected, the utility rate assessment and business case analyses should be updated to track the impact of the project on the installation’s energy bill (the Army price ceiling). In Phase 2, financial models and economic analyses should be finalized and should show support for the value of the project to both the Army and the developer.

REAL ESTATE

The project team should continue to work with installation leadership and master planning to validate one or multiple sites to be offered in the solicitation and to complete the ECP and other required outgrant documentation as needed for approvals. For proponents not located at the installation (such as the EITF), site visits are needed to engage stakeholders and verify site conditions. If not already completed in Phase 1, a walk-through of the actual site or sites should be performed to verify the condition, boundaries, geographic characteristics, current land use, and ownership/control of the site.

All relevant land-use issues, including environmental concerns and other potential constraints must be described in the required Concept Report of Availability (ROA) for the PVR. A preliminary appraisal or
estimate of value should be conducted to determine the potential lease consideration in terms of the fair market value (FMV) of the lease interest for the site. This estimate can be used to determine the value of potential cash or in-kind consideration benefits. A detailed map of parcels with supporting data and site justification is needed for approval.

**REGULATORY AND LEGAL**

The project team should engage with the local Regional Energy and Environmental Office (REEO)\(^{26}\) to ensure the regulatory environment is well understood. A comprehensive review of utility-related, local, state, and federal regulations, applicable incentives, and associated risks to the project should be made and documented in the PVR to validate the regulatory assessment. Benefits of Renewable Portfolio Standards (RPS) and other incentives to the project should be quantified and coordinated with the financial model. Regulatory risks to the project should be addressed, and the path forward for permits or other approvals should be determined.

**MARKET/OFF-TAKE**

If the installation does not plan to take all or most of the power, an in-depth market assessment, building on the efforts in Phase 1, should be conducted to define and validate the off-take potential. If the Army is not the off-taker, or is one of multiple off-takers, all offsite off-taker requirements and agreements should be quantified and qualified, and teaming agreements should be entered into where possible. The project team may elect to host a pre-proposal event, industry open house or release a Request for Information (RFI) to assess the market conditions and determine industry interest and best timing for the project release. In this phase, project size (MW) and business structure (lease or energy purchase) are validated by verification of off-take potential. Best practice is to ensure complete vetting with OGC and OSD on any multiple off-taker or offsite off-taker concerns.

**TECHNICAL/INTEGRATION**

Using industry best practices, a basic system design should be developed to determine capital and operational costs for the project, as well as interconnection requirements and layout design for siting purposes. Data on transmission and distribution issues and substation capacities should be validated, and potential infrastructure upgrades defined, as well as any requirements for smart grid and energy storage, and issues identified related to the Utilities Privatization (UP) contract. This installation systems analysis feeds into the utility analysis, the economic analysis, real estate siting, and the environmental analysis. A complete technical assessment of system integration requirements and cost should be captured in the PVR. Technical requirements should ultimately be included in the RFP.

**ENVIRONMENTAL**

The project team, in conjunction with installation master planning and the Army Environmental Command (AEC) or USACE Mobile, conducts environmental due diligence. Once the site(s) has been selected, AEC, USACE, or the project proponent completes development of the ECP and begins the NEPA process with development of an Initial Scope of Work Planning Package (ISOWPP). NEPA contracting, scheduling and cost issues should be identified, and the formal NEPA process and studies executed. Ideally the ECP should be completed prior to HQDA approval (typically before the RGB, as described in Appendix D), but as with NEPA, completion is required before the lease or other real estate instrument is signed. Status of the NEPA documentation is required to be provided for HQDA approval, prior to release of any solicitation for the project. The ECP can often be done by the installation with existing staff and expertise in 2-3 months. Alternatively, the ECP can often be performed by the NEPA contractor through a contract modification.

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\(^{26}\) The Army's REEOs protect and advance the Army military mission by engaging State governments, regional Federal agencies, non-governmental organizations and other stakeholders to identify and address issues and actions that may affect military operations. [http://www.asaie.army.mil/Public/InfraAnalysis/REEO/](http://www.asaie.army.mil/Public/InfraAnalysis/REEO/)
Once activity in the other criteria allow the confirmation of a business model, a contracting organization, such as USACE or DLA, should be identified to support the project through the contracting process. To accomplish the required transactions using the Army’s long term authorities, contracting agents with experience acquiring energy and energy services is recommended. The choice of partner should be made based on experience at the installation or in the region, transaction experience with the potential acquisition options and authorities, energy market knowledge, availability of resources to serve project schedules and workload, and timeline to advance the project. This expertise is available from many sources within the Army. For large-scale projects, this expertise can be found within the U.S. Army Corps of Engineers (USACE), the Defense Logistics Agency - Energy (DLA-E), and the Mission and Installation Contracting Command (MICC). If the contract is purely a lease, the contracting partner will be USACE.

The project team should identify the contracting organization early on in the project validation process and work with that organization to move forward on the best course of action for the procurement process. The due diligence in Phase 2 should culminate in a validated business model, and development of a draft RFP and applicable technical documents including a draft Performance Work Statement (PWS), Quality Assurance Surveillance Plan (QASP), evaluation criteria, and Measurement & Verification (M&V) plan. USACE conducts a Service Acquisition Workshop (SAW) and develops a Service Contract Acquisition Request (SCAR), as applicable. A long term Contract Administration Plan should also be drafted at this time, so the applicable terms can be included in the RFP.

Many of these steps are also presented in Appendix C as part of the solicitation process, such as final market analysis and development of technical specifications and attachments. These can often be completed in parallel to the final activities outlined here in Phase 2 to accelerate the timeline for procurement activities.

**ARMY (HQDA) APPROVAL PROCESS**

For projects requiring HQDA approval (See Appendix D), the approval process is completed in Phase 2. Documentation must be prepared and presented to the RGB or other authority in written form and through informal and formal briefings to obtain HQDA approval. The OSD must also be provided a project concept brief for all projects utilizing 10 U.S.C. § 2922(a) authority. Additional documentation required to be developed includes, but is not limited to, the following:

- **Report of Availability (ROA)** - A Concept ROA is developed, including in-kind consideration requirements.
- **Fair Market Value (FMV)** - A preliminary appraisal or estimate of value is conducted prior to the Phase 3 appraisal to determine the potential FMV of the lease interest.
- **Environmental** - Necessary funding is secured, and the Initial Scope of Work Planning Package (ISOWPP), NEPA requirements, and the ECP report are obtained.
- **Real Estate** - The project team works with USACE HQ to identify the USACE Division/District that will be responsible for coordinating the real estate documents for the project, and begin developing relevant real estate action attachments or other requirements of the real estate instrument being used.

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Approval of Small Projects

Approved through the appropriate Chain of Command is required for projects of all sizes being developed by installations. Subsequent HQDA approval should be performed as described in this Appendix, if required. See Section 4 and Appendix D for approval requirement thresholds.
• **Economics** - (a) Funding is secured, and a third party utility forecast and escalation rate analysis are performed, and (b) the required external cost benefit analysis (CBA) is received from DASA(CE).

When these documents have been coordinated, and the analyses discussed above and detailed in Table 4 are complete, the project team summarizes the findings by updating the PVR. In accordance with best practice, action officers of the RGB are briefed and concerns addressed. The OSD concept briefing should be made at this time to allow the team to receive input from OSD before final submittal for HQDA approval. The concept briefing can be performed after HQDA approval, but is required to be performed prior to solicitation. The PVR and required supplemental documentation, including the DASA(CE) validation memo (after third party assessment), is submitted and briefed to the DASA(E&S) or Realty Governance Board (as applicable). Once the resulting approval memo, signed by the DASA(E&S) and DASA(IH&P) as applicable, is received, the project can move into Phase 3, Contracting and Agreements.

**PROJECT VALIDATION REPORT OUTLINE TEMPLATE**

The outline below is provided to illustrate information generally required when submitting a PVR for project approval.

1. **Executive Summary**
   - Overview of the project definition, goals and objectives, cost implications (appropriated and non-appropriated), business model, market characteristics, risk assessment, anticipated project milestones, timeline for implementation, and overall impact to the Army.

2. **Project Description**
   a. **Resource and Technology Assessment**
      i. System overview and assumptions.
      ii. Integration with existing installation infrastructure.
   b. **Energy Goal Impacts**
      i. Impact on installation energy security/goals.
      ii. Impact on Army energy goals/mandates.
      iii. 10 U.S.C. § 2911(e)(1) or section (c) energy performance goals and master plan (ROA).
   c. Command endorsement

3. **Summary of Alternatives Evaluated** (Detailed matrix to be included in appendix.)

4. **Evaluation of Selected Project**
   a. **Mission/Energy Security**
      i. Mission Impacts: use of energy on the installation, potential impacts and mitigation plans.
      ii. Installation Security: impact on installation’s existing buildings and utilities.
      iii. Physical Limitations: description of any physical limitations present at the base, anything that could cause a problem to the development of the project.
      iv. Transportation and Site Access: description of all access available to the installation. State any limitations that may exist and what will be done to facilitate any necessary changes, i.e. new roads or paving.
   b. **Economics**
      i. Conceptual Cost Estimation Overview.
      ii. As applicable, address budget scoring in accordance with OMB Circular A-11.
      iii. Utility Rate Analysis.
      iv. Life Cycle Cost Analysis of alternative financial methods to acquire the project. Indicate that the project provides savings as compared to the conventional purchase of electricity.
      v. Financial Pro-forma.
APPENDIX B – PHASE 2 ANALYSIS AND ACTIVITY SUMMARY

(1) Assumptions of pro-forma.
(2) Private investment requirement: Net present value (NPV), internal rate of return (IRR), profitability.
(3) Calculated cost to the Army: Levelized cost of electricity (LCOE) and annual cost projections, NPV, IRR.
(4) Other Army costs, including government administrative cost associated with developing, reviewing and implementing the project.
(5) Energy security premium and justification.
(6) Risks and sensitivity analysis.

c. Real Estate
   ii. Description of property, including any improvements and description of adjacent property.
   iv. Previously intended use for the land, and reason for not being used.
   v. Real estate vehicle and terms & conditions, with exit strategy at end of term.
   vi. How will the site and proposed project incorporate into the approved Master Plan?
   vii. United States property interest.
   viii. Attach maps.

d. Regulatory and Legal
   i. Description of state and local regulations and impact on proposal.
   ii. Description of available project incentives.
   iii. Requirements for developer.

e. Off-take
   i. Market Area Analysis (If off-take beyond installation is anticipated.)
      (1) Utility(-ies) identification and assessment.
      (2) Renewable energy market analysis, current and forecasted.
      (3) Transmission capacities and availabilities.
   ii. Likelihood of developer interest in project.

f. Technical/Integration
   i. Interconnection assessment, including system impact study, if available.
      (Conceptual description of integration including transmission, infrastructure, and substation interconnection requirements.)
   ii. Expected impacts of integration into existing site infrastructure.

g. Environmental
   i. Summary of environmental conditions, issues, and concerns
   ii. Environmental Condition of Property (ECP)
   iii. Environmental Assessment (EA) or Environmental Impact Study (EIS) status/results. (Input by AEC or USACE Mobile.)

h. Procurement
   i. Developer requirements.
   ii. Proposed procurement strategy (Or business model; i.e. competition or sole source, RESA, lease, other authority).
   iii. Contract life cycle management plan.

5. Project Recommendations
   a. Desired procurement strategy and parameters for approval.
   b. Contracting organization and way ahead.
   c. Approvals and congressional notifications required.

6. Conclusion
   a. Summary of project benefits.
   b. Risk assessment summary chart.
## Summary of Phase 2 Project Assessment Activities

<table>
<thead>
<tr>
<th><strong>Assessment Criteria</strong></th>
<th><strong>Work Products</strong></th>
</tr>
</thead>
</table>
| **Mission/ Energy Security** | ✓ OSD Clearinghouse project de-conflicted confirmation  
✓ Acceptable Glint/Glare  
✓ Mission letter from Installation leadership  
**Goal:** Project achieves mission and security goals and is de-conflicted by Installation and OSD. |
| **Economics** | ✓ IKC valuation  
✓ Sensitivity assessment  
✓ DASA (C&E) CBA validation memo  
✓ OMB scoring test results  
✓ LCCA  
**Goal:** Finalized financial models and economic analyses of selected technology supporting value of project. |
| **Real Estate** | ✓ Fair market value for in-kind consideration discussions  
✓ Approved concept ROA and real estate documentation  
✓ All information documented in PVR  
✓ Completed draft real estate documents  
**Goal:** Site location with completed outgrant documentation. |
| **Regulatory and Legal** | ✓ RFP structure  
**Goal:** Regulatory risks to the project addressed, and path forward for permits or approvals determined. |
| **Market/Off-take** | ✓ Defined off-take potential  
**Goal:** Verified project size (MW) and business structure (Lease or energy purchase) |

### Assessment Criteria

- Identify and define the technical requirements to achieve energy security strategy.
- Define financial impact of security requirements.
- Submit real estate and technology for formal OSD Clearinghouse review.
- Secure letter from Installation leadership confirming siting is not in conflict with Installation mission and master planning.
- Review of cyber/intel threat potential.

**Stakeholders:** Mission and Installation Commanders, Airfield Manager and Aviation Trainers, G3/5/7, OSD Clearinghouse

- Value IKC benefits for incorporation into conceptual ROA.
- Perform sensitivity cost analysis, and define not-to-exceed parameters.
- Perform detailed CBA, and provide to DASA(CE) lead analyst for independent validation by OASA(FM&C).
- Perform OMB scoring analysis using OMB Circular A-11, Appendix B scoring criteria.
- Perform LCCA of three options: (1) proposed renewable energy project through private financing; (2) funding with MILCON, with Army ops; and (3) status quo (doing nothing).

**Stakeholders:** DASA(FM&C)

- Complete detailed map of parcels with supporting data and site justification.
- Validate ownership/control including jurisdiction and annexation issues.
- Describe all relevant land-use issues in ROA, and obtain DASA(IH&P) approval.
- Integrate site use into Installation master plan.
- Define lease or real estate instrument requirements and documentation.
- Conduct preliminary appraisal or estimate of value to determine FMV of the proposed lease interest.
- Prepare outgrant terms and conditions for RFP, including non-excess justification.

**Stakeholders:** Installation master planning and real estate, USACE regions, DASA(IH&P)

- Quantify RPS incentives, and coordinate with modeling and LCCA exercises.
- Build state emissions (where appropriate) and permitting requirements into PVR and RFP.

**Stakeholders:** REEOs, OGC

- If Army is not off-taker, or one of multiple off-takers, quantity and qualify all offsite off-taker requirements and agreements.
- Review multiple off-taker and offsite off-taker issues with OGC and OSD.

**Stakeholders:** Relevant utility or balancing authority, regulators
## Technical/Integration
- Perform detailed evaluation of utilities privatization (UP) contract. Define potential infrastructure upgrades.
- Define any requirements for smart grid and energy storage.
- Determine what studies/permits are needed, consider cost and timing.
- Perform installation systems analysis of possible courses of action associated with the technical details.
- Develop technical performance document, the basis for Section C of the RFP.

**Stakeholders:** Relevant utility and/or balancing authority, utility, UP contractor, installations

**Goal:** Complete technical assessment of system integration requirements.

### Environmental
- Complete Environmental Condition of Property (ECP) report.
- Identify NEPA contracting, scheduling and cost issues.
- Execute formal NEPA process in coordination with AEC.
- Prepare documents for review, EA/FONSI or EIS, and send to AEC for review for significant impacts.
- Provide status of NEPA documentation for RGB and prior to release of RFP.

**Stakeholders:** Installation environmental, AEC, USAGC, general public

**Goal:** Complete NEPA prior to developer negotiations, where possible.

### Procurement
- Confirm procurement authority and planned business model.
- Select contracting organization to support procurement activities.
- Document in PVR and RGB\(^{27}\) brief.
- Perform required briefs and obtain RGB approval memo.
- Perform OSD concept briefing for U.S.C. § 2922a project.
- Draft long term Contract Administration Plan for inclusion in RFP.
- Draft RFP in preparation for approvals and release.
- Work with procurement partner to develop draft PWS, QASP, evaluation criteria, M&V plan; USACE-conducts/develops SAW, SCAR, as applicable.

**Stakeholders:** DLA – Energy or USACE, Huntsville Center

### Table 4. Phase 2 Project Assessment Matrix

| Technical/Integration | Performing detailed evaluation of utilities privatization (UP) contract. Define potential infrastructure upgrades. Define any requirements for smart grid and energy storage. Determine what studies/permits are needed, consider cost and timing. Perform installation systems analysis of possible courses of action associated with the technical details. Develop technical performance document, the basis for Section C of the RFP. | ✔ Identified issues related to UP contract, ✔ A completed installation systems analysis ✔ Completed technical performance document |
| Environmental | Complete Environmental Condition of Property (ECP) report. Identify NEPA contracting, scheduling and cost issues. Execute formal NEPA process in coordination with AEC. Prepare documents for review, EA/FONSI or EIS, and send to AEC for review for significant impacts. Provide status of NEPA documentation for RGB and prior to release of RFP. | ✔ ECP documented in RFP attachments ✔ Signed FONSI by USAGC ✔ NEPA status documentation |

\(^{27}\) Most privately financed medium to large scale projects will involve a lease with a term longer than 5 years; therefore will require approval by the RGB.
Appendix C – Phase 3 Activity Summary

Phase 3, Contracts and Agreements, involves RFP or solicitation preparation and release, source selection and negotiations, final approvals, execution of agreements, and final development activities conducted by the developer. Details of the Phase 3 procurement activities are described below and summarized in Table 5. Note: Submittals by installations for projects they are developing require approval through the appropriate Chain of Command.

The contracting organization selected in Phase 2 is central to successfully accomplishing the required procurement activities that follow. Communication between stakeholders and identification of a critical path for completion of required documents and actions are vital to efficiently moving the project through the process and retaining its financial viability.

Solicitation

Once Army leadership has approved the project concept and any required certifications and notifications have been completed, the project team can release the appropriate solicitation, (i.e. RFP or Notice of Opportunity to Lease (NOL) 28. Many of the steps outlined below as part of the solicitation process can be completed in parallel to the final activities in Phase 2 and include the following:

- **Acquisition Strategy and Acquisition Plan (if required):** The contracting organization and project proponent should work together as early as possible in Phase 2 to develop the Acquisition Strategy (required if using a service type contract) and Acquisition Plan.

- **Sources Sought:** Part of the market analysis effort of the contracting organization may include the preparation and release of a sources sought solicitation to solicit feedback from industry on the project concept, and determine if the acquisition should be full and open competition or a small business set-aside.

- **Technical Requirements:** From the analyses performed in Phase 2, the project team can generate or finalize a set of technical specifications for the RFP or NOL, including a QASP, evaluation criteria, and a M&V plan. These are typically included in Section C, the Performance Work Statement of the RFP.

- **Attachments:** Prior to solicitation release, all relevant and necessary attachments are compiled. These are developed from information compiled from the project development team, the installation, USACE division/district, Army Environmental Command (AEC), or other key stakeholders.

- **Appropriate Reviews:** All RFPs or NOLs should be reviewed by the project team, the procurement legal counsel, and the contracting organization’s Chain of Command. This review should include subject matter experts and be coordinated by the EITF for large-scale projects.

- **Release Solicitation:** While the above steps can be done in parallel to activities in Phase 2, the RFP cannot be released until the RGB approval letter is received officially completing Phase 2. The contracting organization may post the RFP or NOL to the Federal Business Opportunities (www.fedbizopps.gov) website for 60 to 90 days once appropriate approvals are received.

- **Industry Event:** Approximately 15 to 30 days after the release of the RFP or NOL, an industry event, or a pre-proposal event, is held to provide industry a forum to learn more about the acquisition and ask questions related to the RFP or NOL. After the industry event the contracting

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28 This assumes the contracting organization has obtained the necessary approvals within their own chain of authority as well as OGC approval.
organization consolidates and responds to all questions submitted in writing and posts the information as an amendment on the www.fedbizopps.gov website.

**SOURCE SELECTION**

Once proposals are received, and the RFP closes, a Source Selection Evaluation Board (SSEB) is convened to review the proposals per the evaluation criteria. The SSEB consists of voting members and technical experts for both technical and price evaluation. After all proposals are evaluated, a recommendation is made for selection, and should be acknowledged by both the project proponent and contracting organization.

The contracting organization then sends notice of intent to award and extended negotiations begin on the outgrant and/or energy contract. Input to these negotiations and the final real estate action and/or the energy contract should be provided by the project proponent team, real estate, procurement, and environmental partners, as applicable. The selected developer complies with contract or lease performance deliverables as necessary. The NEPA requirements, appraisal, metes and bounds survey, ROA, and ECP are completed prior to signing of the contract or lease. The actions to complete approvals and notifications following finalization of the main energy contract and/or outgrant depend on the size of the project and the business model and authority being used, and are described below.

**OSD APPROVAL**

Energy projects utilizing 10 U.S.C. § 2922a require OSD approval in advance of award (and prior to congressional notification for terms greater than 20 years). If the contract also includes a lease under 10 U.S.C. § 2667, OSD certification is also required. To obtain OSD approval, a concept briefing of OSD is required prior to solicitation, then project proponents must submit an approval package through ASA(IE&E) to OSD after the contract has been agreed to by the contractor, but before it is awarded, as specified by “The Department of Defense Guidance on Financing of Energy Projects”.

**CONGRESSIONAL NOTIFICATION**

For energy projects that include leases under the authority of 10 U.S.C. § 2667, with an annual FMV rental greater than $750,000, or projects under the authority of 10 U.S.C. § 2922a, with terms exceeding 20 years, 10 U.S.C. § 2662 requires congressional notification before entering into the actual lease or license, or awarding the contract.

The approval and notification process can take up to 60 days. Upon completion of the final congressional notification period, the acquisition team awards the energy contract, and USACE awards the outgrant simultaneously. This finalizes the agreements. The project from this stage is led by the developer awarded the contract or lease.

**DESIGN, PERMITTING, AND FINANCIAL CLOSE**

The developer’s activities include but are not limited to developing a construction plan and specifications, obtaining all federal, state, and local permits, obtaining permanent access to the site, designing the project, and obtaining financing for completion of the project. These activities can take a year or more to complete, depending on the size and complexity of the project. Phase 3 ends when financial close is accomplished and the project is ready for groundbreaking.
### APPENDIX C – PHASE 3 ACTIVITY SUMMARY

<table>
<thead>
<tr>
<th>Activity or Event</th>
<th>Summary of Phase 3 Project Activities</th>
<th>Products</th>
</tr>
</thead>
</table>
| **OSD certification** | - Required for energy projects with leases under 10 U.S.C. § 2667 and an annual FMV rental greater than $750,000.  
- Submit package to OSD for certification prior to congressional notification for release of contract solicitation or lease offering.  
**Stakeholders:** ASA, OSD | ✓ Submittal package per OSD Guidance.  
✓ OSD Certification of project  
**Goal:** Complete required certification. |
| **Congressional notification** | - Required for 10 U.S.C. § 2922a projects with terms > 20 years.  
- Required for energy projects including leases under 10 U.S.C. § 2667 and an annual FMV rental > $750,000.  
- Project package to contracting organization, which submits draft Title 10 electronically on the 1st day of the month for 14 day waiting period.  
**Stakeholders:** Contracting organization, Congress | ✓ Project package and Title 10 per 10 U.S.C. § 2662  
✓ 14 day wait  
**Goal:** Complete required notification. |
| **Pre-proposal event** | - Host pre-proposal event to clarify solicitation.  
- Respond to industry questions and issue required amendments.  
**Stakeholders:** Contracting organization, industry | ✓ Pre-proposal event  
✓ RFP/NOL amendment(s)  
**Goal:** Enhance industry’s interest in the project and address questions and concerns. |
| **For lease:** Requirements development, solicitation evaluation, award and administration | - Finalize NOL for approval and release to industry.  
- Release any necessary amendments.  
- Convene SSEB to review proposals and establish competitive range.  
- Conduct negotiations with developers in competitive range, and select HRO.  
- Update or complete formal appraisal of the value of the lease interest to determine FMV.  
- Conduct metes and bounds and other required surveys; amend ROA as necessary.  
- Finalize any outstanding NEPA actions.  
- IH&P to sign determination of availability (DOA).  
- Provide DOA to IMCOM, Region, HQDA and ACSIM.  
- Negotiate and finalize draft bid terms agreement.  
- Utilize standard USACE lease template and augment as needed.  
- Negotiate terms of lease (if required).  
- Finalize lease, and seek Army leadership and OSD approval.  
- Notify Congress.  
- Sign lease.  
**Stakeholders:** DASA (IH&P), contracting organization, Command, USACE, DASA(E&S), OSD, Congress | ✓ Final NOL published and issued to offerors  
✓ Highest ranking offeror (HRO) selected  
✓ Post-award MOU signed, and bid terms agreement developed  
✓ Appraisal secured from USACE  
✓ Obtain, review and provide comments on bid terms agreement  
✓ NEPA complete, FONSI secured and signed by AEC  
✓ Complete final DOA  
✓ Signed lease and supporting documentation  
**Goal:** Complete a signed lease. |
## For energy procurement contract: Solicitation and selection

- DLA/HNC prepares RFP for an energy contract with input from installation and EITF (Section C).
- SSEB members and advisors all sign NDAs in preparation for reviewing responses to the RFP.
- Proposals received from industry and distributed to SSEB members and consultants.
- SSEB and contracting officer conduct negotiations with bidders or conduct oral presentations prior to identification of highest ranking offeror (HRO).
- SSEB chair prepares source selection decision document and brief.
- Developer given time to make the interconnection application, which requires engineering and site due diligence.
- EITF or Installation coordinates completion of energy contract (using RESA template) for OSD approval and Congressional notification.
- Sign energy procurement contract.

**Stakeholders:** OSD, Congress, contracting organization, Army Leadership

## Developer activities

- Contractor completes final project design, develops construction plan; gains Army concurrence on design and construction plan; obtains all federal, state, and local permits, and access to the site; obtains financing.

**Stakeholders:** Installation, developer, USACE, contracting organization, AEC, financier, construction contractors, regulators

## Contracting officer issues the RFP for an energy contract
- SSEB members and consultants signed NDAs.
- Bidders selected for negotiations or shortlisted for oral presentations.
- Bidders submit best and final offers or identify HRO.
- EITF or Installation makes a go/no go decision, with OSD’s review. SSA issues notice of intent to award contract.
- Interconnection study and minor changes to Developer proposal completed.
- Energy contract approved by OSD and signed by all parties.

**Goal:** Complete signed energy procurement contract.

### Table 5. Phase 3 Project Activity Matrix

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<thead>
<tr>
<th>For energy procurement contract: Solicitation and selection</th>
<th>Developer activities</th>
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<td>Contractor completes final project design, develops construction plan; gains Army concurrence on design and construction plan; obtains all federal, state, and local permits, and access to the site; obtains financing.</td>
</tr>
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<td>SSEB members and advisors all sign NDAs in preparation for reviewing responses to the RFP.</td>
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</table>

**Goal:** Complete signed energy procurement contract.
Appendix D – Review and Approval Requirements for Renewable Energy Generation Projects

This appendix details Army review and approval requirements for renewable energy generation projects, as well as external OSD and congressional requirements that may be applicable. The review and approval process is to ensure energy project planning and execution is consistent with current Army energy policy as described by DA memorandum Department of the Army Guidance for Energy Related Projects and Services. A summary of the requirements is provided in Table 6 and Figure 9.

A. General Reporting and Approval Requirements

(1) Renewable energy generation projects will be reported and approved per the applicable policy, and entered into the Army Energy and Water Reporting System (AEWRS) in the Energy Project Approval and Tracking module per the AEWRS User/Reporter Manual.

(2) The following reporting and approval requirements apply to ESPCs or UESC s that include a renewable energy generation component.

(3) All projects requiring OSD final approval will be reviewed by the DASA(E&S) prior to submission to the OSD.

(4) DOD Siting Clearinghouse. All projects will be evaluated for potential impact to military operations involving aviation, testing, or training per 32 C.F.R. § 211 Mission Compatibility Evaluation Process. Impacts may include heights greater than 200 feet or solar panel glare that might affect visibility for aircraft. Clearinghouse review will be coordinated through the DOD Siting Clearinghouse Army Representative.

(5) Sites for solar projects should be analyzed for acceptability per OSD Memo, Subject: Glint/Glare impacts on DOD Aviation Operations.

(6) Project proponents are responsible for obtaining all required approvals, including briefing the DASA(E&S) or the RGB for DASA(E&S) and DASA(IH&P) approvals, and briefing and submitting required packages for OSD approvals and certifications, and congressional notifications.

i. Installations are the project proponents for renewable energy generation projects less than 10 MW, and may, on a case by case basis, be assisted by the EITF on medium-scale projects larger than 1 MW, but less than 10 MW. The installation will submit project concept notifications through their applicable Land Holding Command/DRU and OACSIM prior to submission to the DASA(E&S).

ii. The Army centralized capability for development of large-scale renewable energy projects (currently the EITF) is the proponent for renewable or alternative energy generation projects greater than or equal to 10 MW, and for project less than 10 MW on a case by case basis. The EITF will coordinate with the installation command to ensure support for projects.

B. Small-Scale Project Reporting

Energy projects with an estimated cumulative business value less than or equal to $750,000 and requiring the use of Army real property for a term not to exceed 5 years will:

(1) Be reviewed and approved through the appropriate chain of command;

(2) Be reported in AEWRS 30 days before project award, for privately financed energy generation projects containing a Renewable Energy Service Agreement (RESA) or other agreement with a term less than or equal to 10 years (except agreements under the authority of 10 U.S.C. § 2922a).
C. **DASA(E&S) Review and Approval**

DASA (E&S) approval is required for all energy projects having an estimated cumulative business value greater than $750,000, or any agreement under the authority of 10 U.S.C. § 2922a. Energy procurement contracts with a total term exceeding 10 years (including option years and consecutive renewals) also require DASA(E&S) approval, even if they have an estimated cumulative business value less than $750,000. All projects must be reported separately to DASA(E&S). A briefing to DASA(E&S) may be requested.

1. The project proponent will provide a submittal package for review per the PVR template in Appendix B of this Guide, and brief the DASA(E&S), if requested, prior to notification of release of contract solicitation or lease offering.
2. The project concept will be reviewed, and written recommendations will be provided to the proponent no more than 10 working days after the briefing or receipt of additional clarifying information requested.
3. If the final agreed upon parameters resulting from negotiations occurring after selection but before award fall outside those already approved, a second DASA(E&S) approval is required prior to contract award or lease signing. The proponent will submit a revised submittal package to the DASA(E&S) for approval, and a written decision documenting the final approval of the project will be provided to the proponent no more than 10 working days after receipt of the revised submittal.

D. **Realty Governance Board (RGB) Review**

RGB review with DASA(E&S) approval of the energy project, and DASA(IH&P) approval of outgrant components is required for energy projects requiring use of Army real property for a term exceeding 5 years, as described in the DASA(IH&P) memorandum, *Real Estate Business Clearance Process*:

1. The project proponent will provide a submittal package for review per the PVR template in Appendix B of this Guide, and brief the RGB prior to project solicitation or notice of lease offering. Best practice is to brief action officers and address concerns ahead of the RGB brief.
2. The RGB will provide recommendations to the DASA(E&S) and DASA(IH&P) to approve, modify, defer, or disapprove proposals within 5 working days of the RGB briefing or receipt of additional clarifying information requested at the briefing. The DASA(E&S) and the DASA(IH&P) will provide a written decision to the project proponent no more than 5 working days after the receipt of recommendation.
3. If the final agreed upon parameters resulting from negotiations occurring after selection but before award fall outside those approved in the project concept, a second DASA(E&S) and DASA(IH&P) approval is required prior to contract award or lease signing. The proponent will submit a revised package to the DASA(E&S) and the DASA(IH&P) for approval, and a written decision documenting the final approval of the project will be provided to the proponent no more than 10 working days after receipt of the revised submittal.

E. **External Reporting and Approvals**

Renewable energy projects that require approval by the DASA(E&S) and DASA(IH&P), as applicable, may have additional review and approval requirements to the OSD and to Congress. OSD requirements are specified in the *Department of Defense Guidance on Financing of Energy Projects*. These requirements do not apply to ESPCs and UESCs. Requirements for Congressional notification are described in 10 U.S.C. § 2662, *Real Property Transactions: Reports to Congressional Committees* and NDAA 2012 Sec 2822, *Considerations of Energy Security in Developing Energy Projects on Military Installations Using Renewable Energy Sources*.
## Table 6. Project Approval Requirements

<table>
<thead>
<tr>
<th>Approval Thresholds (1)</th>
<th>AC SIM Approval (and documentation in AEWRS 30 days before project start or award)</th>
<th>DASA(E&amp;S) Approval (2)(3)</th>
<th>RGB Review (3) – DASA(E&amp;S) &amp; DASA(H&amp;P) Approvals (Prior to solicitation)</th>
<th>OSD Certification (Prior to solicitation)</th>
<th>OSD Concept-brief and Approval (Prior to contract award)</th>
<th>10 U.S.C. § 2662 Congressional Notification</th>
<th>NDAA 2012 Sec. 2822 Congressional Notification (4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project size (estimated cumulative business value)</td>
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<td></td>
<td></td>
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<tr>
<td>≤ $750,000</td>
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<td>X</td>
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<tr>
<td>&gt; $750,000</td>
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<tr>
<td>Project term</td>
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<tr>
<td>ESA ≤ 10 years</td>
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<td></td>
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<tr>
<td>ESA &gt; 10 years</td>
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<td></td>
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<td></td>
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<tr>
<td>10 U.S.C. § 2922a ≤ 20 years</td>
<td>X</td>
<td></td>
<td>X</td>
<td></td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>10 U.S.C. § 2922a &gt; 20 years</td>
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<td></td>
<td>X</td>
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<td>X</td>
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<td>Use of Army land</td>
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<td>≤ 5 year term</td>
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</tr>
<tr>
<td>&gt; 5 year term</td>
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<td></td>
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<tr>
<td>&gt; $750,000 annual FMV rental</td>
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<td></td>
<td>X</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>

(1) All projects shall be reviewed and approved through the chain of command regardless of the approval level indicated by the ‘X’.  
(2) If RGB review is required, a separate DASA(E&S) review and approval is not necessary.  
(3) A second DASA approval is required prior to contract award or lease signing, if final project parameters fall outside the approved concept.  
(4) Within 30 days after contract signing, for renewable energy projects that do not pursue energy security (or provide energy to the installation) due to cost, per NDAA 2012 Sec. 2822.
(1) **Energy projects involving outrants of Army real property.** Privately financed energy projects containing a lease pursuant to 10 U.S.C. § 2667 with an annual rental fair market value (FMV) rental greater than $750,000 require OSD certification, and congressional notification in accordance with 10 U.S.C. § 2662.

i. **OSD certification process.**
   - Project proponents will submit a package to the Office of the Secretary of Defense (OSD) for certification prior to the release of solicitation or lease offering.
   - The certification package to be submitted shall be as outlined in the Department of Defense Guidance on Financing of Energy Projects III.E.2.

ii. **Congressional notification process.**
   - Two Congressional notifications are required: the first before issuing a lease offering, and the second before entering into the actual lease.
   - For each notification, a Title 10 report is prepared for DASA(IH&P) review in accordance with AR 405-80 Management of Title and Granting Use of Real Property, and provided for Congressional notification. Documentation for the notification will be in accordance with 10 U.S.C. § 2662.
   - A 14-day wait time is required, beginning on the first day of the month after electronic notification.


i. **OSD concept briefing**
   - Project proponents will provide a concept briefing to OSD before solicitation. This may be performed at the same time as DASA(E&S) or RGB review to allow OSD to provide input to the project concept before Army approval.

ii. **OSD approval process.**
   - Project proponents will provide an approval package to OSD after the contract has been agreed to by the contractor but before it is awarded. A second briefing is not required unless a significant change in project parameters required a second DASA approval.

iii. **Congressional notification process.**
   - After OSD approval, but before entering into the actual agreement, a Title 10 report will be prepared and provided for Congressional notification in accordance with 10 U.S.C. § 2662.
   - A 14-day wait time is required beginning on the first day of the month after electronic notification.

(3) **10 U.S.C. § 2922a agreement with an outgrant.**

Energy projects utilizing 10 U.S.C. § 2922a that contain a lease or license with an annual FMV rental greater than $750,000 require OSD certification and Congressional notification as described in paragraph E.(1) as well as OSD approval. Because OSD certification is made before issuing a lease offering or solicitation, and OSD approval of the 10 U.S.C. § 2922a agreement is made just before final signing of the contract, the packages cannot be submitted concurrently.
APPENDIX D – REVIEW AND APPROVAL REQUIREMENTS FOR RENEWABLE ENERGY GENERATION PROJECTS

**Figure 9. Army Renewable Energy Project Approvals**

**ACSIM Approval**

**PROJECT THRESHOLDS:**
- ≤ $750K estimated cumulative business value AND
- Use of Army land with a term ≤ 5 years, or
- An ESA with a term ≤ 10 years (Except any use of 10 USC 2922a)

**Approval through Chain of command to ACSIM**

**Documented in AEWRS**

- 30 days before project start or award

**DASA (E&S) Approval**

**PROJECT THRESHOLDS:**
- > $750K estimated cumulative business value
- Any use of 10 USC 2922a
- Any ESA with a term > 10 years

**RGB Review**

**PROJECT THRESHOLDS:**
- Use of Army land with
- > 5 year term, or
- > $750K annual FMV rental

**NOTES:**
- Submittals by installations to be reviewed and approved by Senior Commander, Command Headquarters, and OACSIM prior to submission to HQDA.
- For projects involving an ESA and use of Army land, requirements for both must be met. DASA(E&S) approval will be part of RGB review.
- Approvals provided within 10 working days.
- Required if final project parameters fall outside approved concept.
- For contract terms > 20 years.
- Requires 14-day wait beginning on the first day of the month following electronic notification.
- For projects that exclude energy security based on cost (or do not provide energy to an installation).

**References:**

1. Department of the Army Guidance for Energy Related Projects
2. DASA(H&P) Memorandum: Real Estate Business Clearance Process
3. DOD Guidance on Financing of Energy Projects
4. 10 USC 2662, Real Property Transactions: Reports to Congressional Committees

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For more information, or to contact the EITF, visit the website:

http://www.armyeitf.com/

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