ARMY GUIDE:

Developing Renewable and Alternative Energy Projects by Leveraging the Private Sector

06 November 2014

SECURING ARMY INSTALLATIONS WITH ENERGY
THAT IS CLEAN, RELIABLE AND AFFORDABLE

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MESSAGE FROM HONORABLE KATHERINE HAMMACK

Our Army installations require secure and reliable energy to resiliently accomplish their missions. Resilience—the ability to perform and succeed under a variety of adverse conditions—means helping people, communities, and our Army prepare for, withstand and emerge stronger from acute shocks and chronic stresses. Increasing installation resiliency is a priority the Army is addressing through technologies, policies, and programs. Key to this effort is renewable energy.

For the past three years, the Energy Initiatives Task Force (EITF) implemented processes and developed renewable energy projects to improve energy security on Army installations. These processes include leveraging private financing to avoid any expenditure of congressionally appropriated (taxpayer) dollars. The work of the Task Force was tremendously successful. We now have a substantial pipeline of economically feasible, large-scale, renewable and alternative energy projects at US Army, Army Reserve, and Army National Guard installations. Because of this success, the Secretary of the Army directed that the EITF become a permanent office called the Office of Energy Initiatives (OEI).

The OEI is charged with leading the Army's efforts to develop renewable energy projects. Its initial goal is to meet the Army's commitment to the President of deploying 1 gigawatt (GW) of clean, dependable, and affordable renewable energy on our installations by 2025.

This guide is intended to assist our installations and landholding commands with development of renewable energy projects. The OEI has broad experience with a variety of stakeholders. OEI team members work with industry to assess economic viability and with the US Army Corps of Engineers (USACE) and Department of the Interior on land use agreements. The team works with USACE, the General Services Administration, and the Defense Logistics Agency for contracting support, and the Department of Energy for technology and resource studies. Most importantly, the OEI works with numerous commands to ensure renewable energy projects enhance mission capabilities. This guide includes best practices and lessons learned for renewable energy projects ranging from less than 1 megawatt (MW) to over 10 MW in size. It includes principles, tools, and processes to develop competitive renewable energy projects that leverage the Army's stable demand and available land to attract private capital investment.

Our vision is to create a resilient, sustainable, and energy-secure Army, able to effectively and predictably respond to changing mission requirements. The processes in this guide empower installation leaders to meet this vision, while providing economic benefit to the Army. We will continue to face security and budget challenges in the coming years. Our investment in renewable energy today ensures energy security and resiliency for our Army installations in the future.

Army Strong!

Honorable Katherine Hammack

Assistant Secretary of the Army

(Installations, Energy & Environment)

Washington, DC

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, we recommend the following:

Renewable Energy Technology Basics:

- http://www.nrel.gov/analysis/re_futures/
- http://www.nrel.gov/learning/re_basics.html

Renewable Resource and Technical Potential:

- http://maps.nrel.gov/
- http://www.nrel.gov/docs/fy12osti/51946.pdf

Market Reports:

- Solar technologies market report: http://www.nrel.gov/docs/fy12osti/51847.pdf
- Wind market report: http://emp.lbl.gov/publications/2012-wind-technologies-market-report
- Geothermal technologies market report: http://www1.eere.energy.gov/geothermal/pdfs/geothermalannualreport2012.pdf
- Biomass technologies market report: http://www.nrel.gov/analysis/tech_bio_analysis.html

Department of Energy (DOE) Resources:

- Office of Energy Efficiency & Renewable Energy: http://energy.gov/eere/office-energy-efficiency-renewable-energy
- Federal Energy Management Program (FEMP): http://www1.eere.energy.gov/femp/
- Renewable Energy Technologies: http://www1.eere.energy.gov/femp/technologies/renewable_energy.html

The FEMP Guide

The DOE 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 developing energy projects on Federal facilities, developing a common language, and addressing project development risk. The FEMP Guide is available at http://www1.eere.energy.gov/femp/pdfs/large-scalereguide.pdf.

Table of Contents

List of Tables

List of Figures

Focus of This Guide

This Guide outlines practices, processes, and relevant Army regulations, approvals, and notifications necessary to advance a privately-financed energy generation project from concept to execution. When initiating privately-financed projects, the Army forms relationships with project developers, utilities, and the renewable energy industry. Leveraging these relationships leads to the identification, development, financing, construction, and operation of renewable energy projects that serve Army energy demand as well as local energy markets.

Developing privately-financed energy generation projects differs from developing projects using appropriated funding sources such as Military Construction. It also differs from other third party finance models such as energy savings performance contracts and utility energy savings contracts. The project development model unique to the Office of Energy Initiatives (OEI):

(1) Leverages private financing for energy generation (vs. efficiency) projects
(2) Conducts early stage due diligence to minimize project development risk for both the Army and the developer
(3) Obtains approvals and providing notifications specific to long-term contract authorities used for energy projects.

This document is based on the experiences gained by the Energy Initiatives Task Force (EITF) and adopted by the OEI, and is meant to inform and educate both internal and external stakeholders developing renewable energy generation projects on Army lands or serving Army energy demand.

Use and Scope

The Guide is organized in three parts:

- **Part 1**: Challenges, Strategy, and Tactics
- **Part 2**: Portfolio Development: Opportunity Identification and Selection
- **Part 3**: Project Execution and Risk Assessment

This document is not a manual, is not intended to provide a step-by-step process, and does not guarantee the successful completion of a project with the Army. Instead, this document represents an evolving body of knowledge on a consistent, transparent approach to developing privately-financed energy projects. As processes, policies, and tools evolve, this document will be updated and expanded.

This Guide is developed for use by Headquarters Department of the Army, landholding commands (Installation Management Command, Army National Guard, U.S. Army Reserve, Army Materiel Command, and others hereinafter referred to as Commands), as well as installation leadership, management staff, and action officers. Installations, in cooperation with Commands, are responsible for developing projects less than 10 megawatts (MW) in size, while the OEI augments staff for the development of larger projects.

Installation Directorate of Public Works staff and energy managers can use this document to augment existing knowledge and expertise when pursuing these projects. Installations and Commands will benefit from using these tools and processes to manage development risk, allocate resources, and gain project approvals.

Other stakeholders, both internal and external to the Army, will benefit from understanding the language, process framework, risk management techniques, and roles and responsibilities implemented across the Army to develop privately-financed renewable energy generation projects. Early stakeholder engagement is critical 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 affect stakeholders may have excessive risks that limit development feasibility.

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, through both small- and large-scale projects, 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. Processes outlined in this Guide would also apply to the development of other, more traditional forms of power generation when conditions warrant.

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

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Part 1 – Challenges, Strategy, and Tactics

This section provides an overview of the overall Army development strategy, including an introduction to tools and processes developed from the experience of the Energy Initiatives Task Force (EITF) and adopted by the Office of Energy Initiatives (OEI).

1.1 The Renewable Energy Challenge: Balancing Army Objectives

Securing reliable energy supplies to support the Army's mission at a predictable cost over the long term is the primary goal of the Army's energy strategy. This strategy encompasses two major initiatives: (1) implement energy efficiency and conservation programs, because the benefits of renewable energy are maximized when implemented in coordination with investments that first minimize energy demand; and (2) secure installations with energy that is clean, reliable, and affordable by committing to an Army-wide goal of developing 1 gigawatt (GW) of renewable energy. This overarching strategy aligns with and supports Executive and Legislative energy-related mandates.

Three underlying objectives must be considered when assessing any renewable energy project for the Army: (1) energy security, (2) economic benefits, and (3) renewable energy mandates (Figure 1). The challenge is balancing the three objectives. These objectives are not mutually exclusive, and may, at times, be in competition, and therefore require a project-by-project assessment. It is our goal to meet as many of these objectives as possible. At a minimum, at least one of the objectives must be met by every project. Projects that meet multiple objectives generally have a higher likelihood of success. Project proponents must identify projects that ensure a balanced portfolio is achieved to meet both installation and Army enterprise goals.

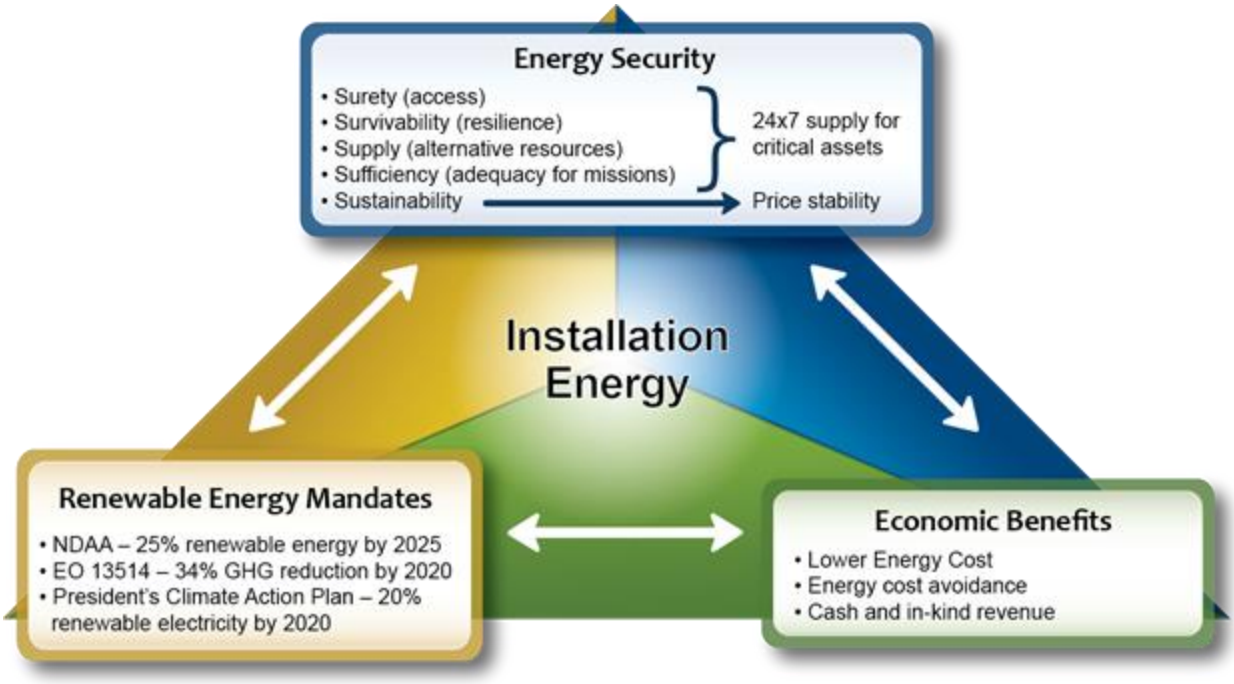


Figure 1. Balancing Energy Security, Economics, and Mandates[1]

[1] See Appendix A for a list of acronyms

While it is possible to increase installation energy security from renewable energy generated on Army lands, it may not always be affordable. Adding infrastructure such as control systems, energy storage, or microgrids will increase energy security benefits, but may reduce economic benefits.

By managing across these three areas, we can build a resilient, adaptable Army. A flexible and adaptable Army can perform its mission better, without degradation, in a resource-constrained environment. The Army's focus and investment in renewable energy supports Army installations becoming platforms of stability, resiliency, and endurance.

Energy Security

Energy security is about forging resilience in the Army's energy supply and sustaining mission critical operations. Overreliance on a vulnerable commercial power grid jeopardizes both the Army mission capabilities and installation security. Renewable energy projects located on Army installations provide immediate energy security benefits when combined with a microgrid or energy storage or similar infrastructure that delivers an uninterrupted supply of electricity to critical assets during a service disruption from the grid. If the required infrastructure is not present at the completion of project construction, renewable energy generation projects may be a first step toward resilience and sustainability because the capability may be available if the appropriate energy infrastructure is added in the future.

Energy Security

10 U.S.C. § 2924 defines Energy Security as "having assured access to reliable supplies of energy and the ability to protect and deliver sufficient energy to meet mission essential requirements."

Economic Benefits

Each renewable energy project must be economically viable from either an installation or Army-wide perspective. The Army realizes economic viability through cost avoidance associated with renewable energy generation projects, revenue from land leases, or in-kind consideration. Cost avoidance comes from locking in a low energy rate for 20 or 30 years through long-term contracts that are not subject to the market-driven variability and rate increases typical of traditional energy generation sources. Long-term contracts help attract private sector investment in projects with large capital budgets by providing enough time for developers to recover their investment and earn financial returns. The Army and the Department of Defense (DOD) have unique authorities that allow 30-year energy contracts and long-term real estate outgrants. The long-term contracts lower and stabilize the cost of renewable energy to the Army.

In an environment of declining budgets, it is the Army's responsibility to stabilize and/or reduce its facility energy costs, which were $1.3 billion in fiscal year (FY) 2013.[2] Therefore, every project must have a positive economic benefit over its life cycle and must not increase the installation's overall annual energy costs. Aggregated annual energy costs for an installation must stay at or below existing costs after the project is implemented, with the potential for future cost avoidance.

Economic Benefit for Installations

The long-term price stability of typical purchase agreements for renewable energy power avoids volatility and can lower overall energy costs for an installation. Lower utility bills and/or lease revenue means more dollars for sustainment, restoration, and modernization projects on the installation.

[2] Army Annual GHG Sustainability Data Report, FY2013

Another economic benefit of a renewable energy project may be the generation of cash revenue or in-kind consideration when Army lands are used to produce energy from renewable sources that is sold to the market. Revenue is received for the fair market value (FMV) of the property interest conveyed. The Army can use this revenue to offset energy costs or support energy security projects, subject to certain restrictions.

Renewable Energy Mandates

Renewable energy mandates are part of the President's energy security, economic, and climate change goals. Meeting these goals reduces the Army's dependence on energy sources outside of the United States, decreases the Army's annual expenditures on utility bills, creates civilian jobs, advances our nation's leadership role in reducing harmful emissions, and supports the Army's mission. These goals are supported through bi-partisan legislation and Executive Orders. The "clean" energy element of the Army's energy strategy is quantified through multiple renewable energy mandates:

- The National Defense Authorization Act (NDAA)[3] of FY07 establishes the Congressional goal for the DOD to produce or procure at least 25% of its facility energy from renewable sources by FY25.
- The Army committed to the President to deploy 1 GW of renewable energy by 2025.
- The President's Climate Action Plan of 2013[4] established a new goal for the federal government to consume 20% of its electricity from renewable sources by 2020.

Project Development Life Cycle

Balancing the three objectives of energy security, economics, and renewable energy mandates to complete large-scale renewable projects requires a disciplined process. OEI uses a five-phase life-cycle development approach to implement and manage projects from cradle to grave. The phases provide a common language to facilitate communication within the Army and with developers, utilities, external project stakeholders, and other federal agencies. Projects begin with portfolio development to identify, screen, and select opportunities. Projects then pass through the five phases of a typical life cycle: (1) Project Assessment, (2) Project Validation, (3) Contracts and Agreements, (4) Construction, and (5) Operations and Support (Figure 2).

[3] Public Law 109-364 § 2852, *National Defense Authorization Act for Fiscal Year 2007*, 17 Oct 2006, http://www.gpo.gov/fdsys/pkg/PLAW-109publ364/pdf/PLAW-109publ364.pdf.
[4] *The President's Climate Action Plan*, June 2013, http://www.whitehouse.gov/sites/default/files/image/president27sclimateactionplan.pdf.

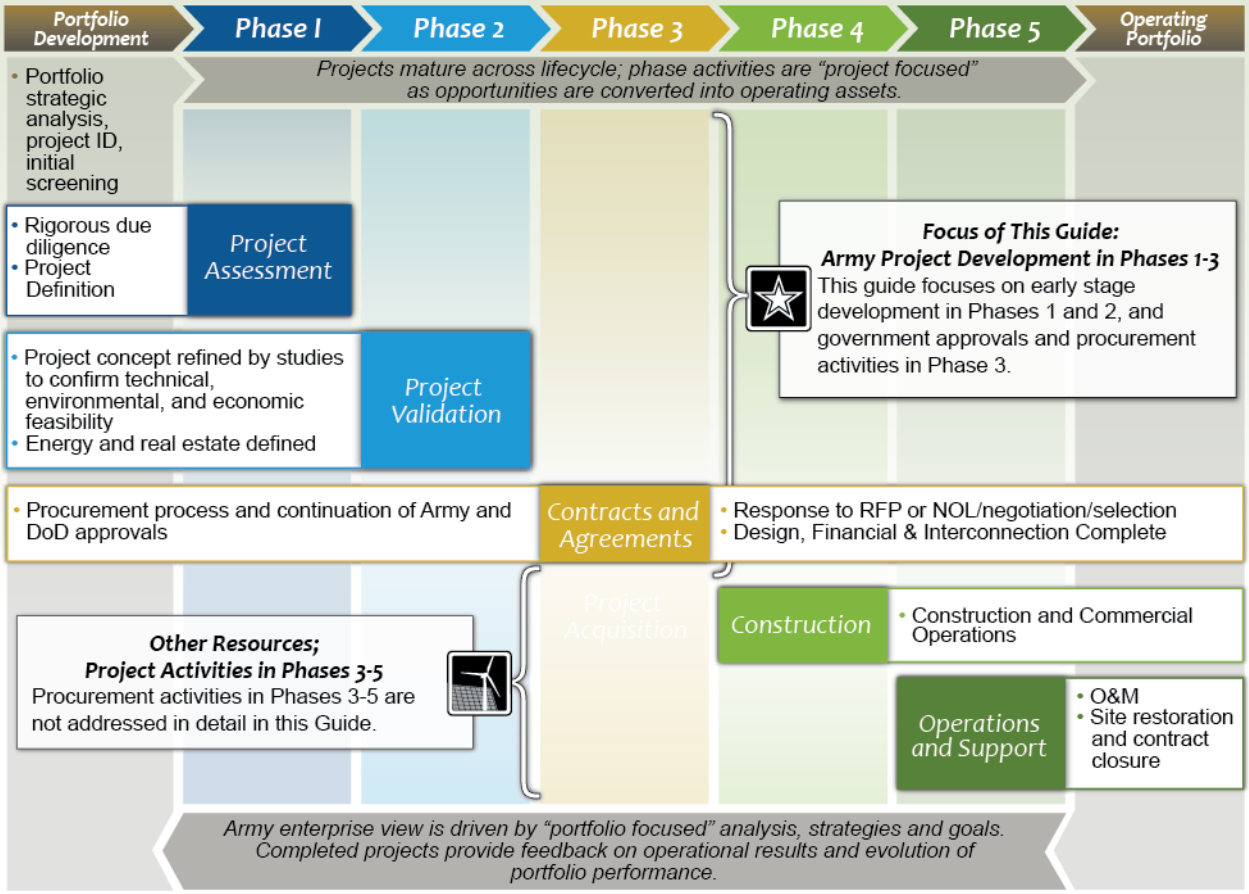


FIGURE 2. SUMMARY OF THE ARMY RENEWABLE ENERGY PROJECT LIFE CYCLE

Each phase of the project life cycle follows an iterative due diligence and development process to manage the risk of project (also known as development risk), support resource allocation decisions, and inform prioritization decisions across the portfolio (see Appendix B). Rigor is embedded within this iterative process using an assessment framework consisting of eight risk criteria to inform and help prioritize where development resources should be directed to mitigate risk and materially advance a project toward completion.

1.2 ARMY RENEWABLE ENERGY DEVELOPMENT STRATEGY

Within the context of the three objectives of energy security, economic benefits, and renewable energy mandates, the Army has created a renewable energy development strategy. This strategy includes the following key elements:

- Developing projects to scale;
- Selecting the appropriate funding source; and
- Conducting early stage evaluation to mitigate project risks and attract private sector developers.

1.2.1 SCALE OF PROJECTS

The Army's renewable energy strategy is to meet our goals through a wide range of projects. This will include a number of small-scale projects on rooftops or parking garages as well as large utility-scale systems. Large-scale renewable energy projects are complex in terms of both the requirement for highly

specialized technical expertise and the need for long-term experience working with renewable energy developers in the private sector. As a result, a comprehensive approach to developing all sizes is necessary.

While OEI focuses specifically on projects 10 MW in size or greater, installations, in cooperation with Commands, are responsible for leading the development of small- and medium-scale projects. Small and medium-scale projects are most often developed to directly connect to a few critical assets. Small-scale projects are those that are less than 1 MW; medium-scale projects are greater than 1 MW and less than 10 MW. These projects have a material, cumulative effect on progress toward the Army's 1 GW goal.

The scale of a project also has economic benefits. As seen in the manufacturing arena, producing large quantities of a given product reduces the cost of an individual unit, making the product more affordable for customers. The same is true when discussing renewable energy projects. The cost per kilowatt can be dramatically less for a 10 MW solar project than for a 100 kilowatt system. Economies of scale are also found in large projects, for example, when unit costs for power produced are much lower for a 100 MW than a 1 MW wind project due to reduced average costs for the purchase and installation of multiple wind turbines. Many small-scale projects are needed to equal the output of a large-scale system, but the per unit capital cost for the small-scale projects is usually higher.

1.2.2 PROJECT FUNDING SOURCE PARAMETERS

Projects that use private financing must generate competitive returns for developers and investors in addition to being price-competitive for the Army. In addition, the nature of long-term agreements effectively removes project sites for mission-related use for the term of the agreement and creates a commodity purchasing commitment over an extended period. These two principles are key differentiators to consider when determining when to use private financing vs. appropriated funds. Unless both of these key differentiators are met, using federally appropriated funds may be a better choice.

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. The process for selecting a financing mechanism is thoroughly explained in Appendix C.

Leveraging the ability of project developers, utilities, and financial firms to access up-front capital investment in return for a long-term utility contract is known as a Renewable Energy Service Agreement (RESA).[5] A RESA allows the developer, utility, or financial firm to be made whole through the amortization of the up-front capital investment.[6] The three typical types of deal structures currently used with the private sector are: (1) power contractually purchased by the Army but generated on private land; (2) power contractually purchased by the Army and generated on Army land, requiring the lease of Army land; and (3) an outgrant of Army land for project construction, with energy sold to the Army under a rate-based tariff or on the open market and not to the Army. The three major contracting models used are the RESA, a 10 U.S.C. § 2667 lease, and a General Services Administration (GSA) Area-Wide Contract (GAWC). See Section 3.1.8 and Appendix D, Table D.1.

[5] 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.

[6] The initial capital investment of a renewable energy asset is financed by the developer or an outside lender. Similar to a typical home mortgage, the RESA payments from the Army to the developer will allow the developer to pay back the upfront investment through a combination of both principal and interest (amortization) over the useful life of the renewable energy asset.

1.2.3 PROJECT TACTICS: MANAGING DEVELOPMENT RISK

Once private financing is determined to be the funding source, the Army uses the following tactics to manage development risk and create projects that simultaneously meet Army and private capital requirements:

- *Project Value*: Focus on meeting Army objectives and a competitive financial return for industry
- *Timing*: Deploy resources with the speed and agility necessary to best align with market conditions to mitigate project risk and attract private capital
- *Discipline*: Prioritize development efforts to minimize risk and maximize value

Early-stage development efforts are inherently risky because project outcomes are uncertain. Risks can arise from shifting market conditions, technical requirements, or unanticipated costs. Any of these risks can make private financing unviable. The Army's efforts and expenditures in early stage development are subject to this risk.

Project Value: Financial Returns and Project IRR

To attract private capital investment, projects must create value for industry by providing competitive financial returns while minimizing risk. Value to the project developer is created by a cost-competitive project and measured in terms of financial returns available to the developer and investors. The metric commonly used to measure project financial returns is the internal rate of return (IRR). See Appendix E.

For most projects, electricity price and financial returns are closely related. For capital investments and operating costs, the higher the electricity price paid by the installation, the higher the project IRR. Nevertheless, while developers, investors, and utilities want a higher IRR, the Army seeks a lower electricity price. The key to managing risk and delivering projects is to identify and develop projects that produce enough value to satisfy the Army, developers, investors, and utilities.

The financial returns to developers may be measured by a variety of financial metrics. 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 extrapolate the energy or electricity price and project yield for a particular project configuration, location, or design. To obtain private financing, any project meeting Army objectives must have these fundamental metrics present to work financially.

Timing: Aligning Army Processes and Market Conditions

Project financial returns depend in part on market conditions, local policies, and incentives. These are all very time-sensitive. The time and resources required to prepare projects for solicitation must be adequately budgeted. The timing of project execution must be managed to align market conditions and Army processes, making speed of execution a key factor in project success.

For example, in late September 2014 the Army awarded a $289 million, 20-year contract to ReEnergy Black River, LLC, for an average purchase of 147,000,000 kilowatt-hours per year of energy generated from a biomass facility on Fort Drum. This contract will provide the Fort with renewable energy to supply all its electricity needs with the ability to isolate the installation to sustain critical operations during periods of grid outage. A condition of the award required ReEnergy to obtain an interconnection agreement anticipated to be completed in December 2014. In the spring of 2014, ReEnergy notified the Army that unless a contract was awarded by 30 September 2014, its financing would expire and all terms would no longer be valid. Implications were that the costs and features agreed upon would increase beyond the terms the Army would be willing to accept, resulting in a potential loss of over 2 1/2 years of effort. An

intensive effort was required by multiple agencies to garner the necessary agreements and approvals to execute the contract by the developer's financial deadline.

Discipline: Development Process

Process discipline refers to resource allocation decisions that prioritize investment in markets and projects with high value for the Army and developers using achievable schedules and available development resources (man-hours and budget). Scheduling of scarce development resources is a constraint that requires allocating resources toward projects with minimal development risk and maximum value and away from higher risk or lower value projects.

Evaluation Approach for Installations

It is recommended that installations leading these projects use the tools and processes presented in this Guide to support resource allocation decisions, manage development risk, and satisfy approval requirements for privately-financed energy projects. Small- and medium-scale projects will have many, if not all, of the same risks and requirements as large-scale projects.

To manage exposure to project development risk while still balancing the three objectives of energy security, economic benefits, and meeting renewable energy mandates, opportunities are selected based on market conditions. The differences in risks and objectives can create misunderstanding and conflict that only a disciplined development process can address. The OEI life-cycle approach based on five phases of development is used to mitigate this situation.

1.3 SUMMARY

All renewable energy projects must answer two basic questions:

(1) Does the project help meet the three fundamental Army objectives?
(2) Is the project economically viable for the developer?

The objectives are constantly evaluated and assessed based on a rigorous and iterative process using the eight assessment criteria. Value, timing, and discipline are tactics used to manage project development risk regardless of project size, and every project must be evaluated in terms of use of the appropriate funding source.

Part 2 – Portfolio Development: Opportunity Identification and Selection

Prior to pursuing individual projects, a portfolio of potential opportunities is developed and prioritized. The portfolio is based on assessments of energy security requirements, the characteristics of the Army's energy demand and land assets, the existing portfolio of energy sources, the ability to meet renewable energy mandates, and current and forecasted market conditions that support the financial returns necessary to attract private investment.

2.1 OPPORTUNITY IDENTIFICATION

Installations identify small- to medium-sized projects from the perspective of achieving the installation's energy strategy as part of a master plan. The focus is on the specifics of the local energy market in terms of energy demand and cost considerations to the installation. This can be referred to as a "bottom-up" approach, and is effective in identifying and developing projects based on local needs, conditions, and staff expertise.

Across the Army, large-scale project opportunities are identified based on market conditions that support viable renewable energy projects. In some instances, the project scope may meet the energy load requirements of an installation, but in others it may serve private sector customers. OEI is responsible for managing the Army portfolio as a whole, but may also balance energy requirements, land holdings, and regulatory and market conditions to prioritize projects. This can be referred to as a "top-down" approach.

2.1.1 ENERGY STRATEGY, MARKET CONDITIONS, AND ENERGY BASELINE

Regardless of perspective, energy planning needs to occur at both the installation and Army-wide levels. The installation and OEI need to assess and document the market characteristics and installation energy baseline information that support the value of renewable energy projects to both the Army and potential developers.

Comprehensive Installation Energy Strategy: The Importance of Master Planning

Installation Energy Strategy

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

An installation's energy strategy will depend on the existing and future energy baseline and market conditions. Before investing in renewable energy, installations should consider investing in energy efficiency, either through appropriated funds or through private financing approaches such as energy savings performance contracts. The overall energy strategy can also include a combination of the ongoing purchase of electricity and/or thermal energy from a 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 the energy supply while keeping current and projected costs affordable.

Assessing Market Conditions

To leverage private capital financing, a project must create value for the investor, developer, or utility that supports long-term cash flows and financial returns. Financial value is created through local market conditions with some combination of the following:

- 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).[7] RECs can be important because they have a specific monetary value that can contribute to a project's economic viability based on the amount of energy being produced. The credits also count toward meeting renewable energy mandates and can be used by the developer or utility if not used by the Army.
- Other non-energy-based revenue streams, including state tax benefits, utility rebates, and grants that provide an economic benefit to the developer

These conditions can foster good candidates for development of privately financed projects. Without these conditions, a project may support the Army mission but simply not be a good candidate for private sector development. If one element is weak in a local area, there has to be another that compensates for the loss. For example, an area low in renewable resources can be balanced with 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 marginal solar resource quality compared to other areas of the United States.

Developing an Energy Baseline for Installations

Baseline information should be developed prior to investing significant resources in project opportunities. Multiple years of energy use history are required to forecast future needs. These future needs are combined with planned expansion requirements and energy efficiency opportunities.

At a minimum, baseline information should consist of:

- The installation's historical demand profile
- Historical energy bills, both monthly and annual
- Installation growth and energy demand projections
- Energy supply sources, utilities, privatized utilities, co-operatives, and any self-generation
- Projected energy prices and market trends
- An overview of existing and planned infrastructure or other energy generation projects
- A resource assessment of the commercial viability of renewable resources.

This baseline is used to help define the energy goals and strategy for an installation, identify potential gaps, and then determine whether renewable energy projects can help fill those gaps.

[7] Renewable energy credits (or certificates) are documents (electronic or hard copy) that represent and are used to account for the technological (renewable energy) and environmental (non-energy) attributes of energy generated from renewable sources, and are measured in 1 megawatt-hour (MWh) units.

2.2 OPPORTUNITY SELECTION

Once an opportunity is shown to have both Army and industry value (by assessing energy strategy, market conditions, and an installation's energy baseline), an opportunity location is selected based on siting, resource availability, and potential offtake. Economics are then evaluated to determine future project viability. This analysis leads to a decision on whether to advance to Phase 1, Project Assessment. Not every project will advance to Phase 1. Allocation of additional resources to support the next level of effort depends on the project's potential value to an installation's energy strategy or the Army portfolio.

2.2.1 CONFIRMING OPPORTUNITY VALUE AND SITING

The fundamental building blocks of a viable opportunity are the existence of:

- A suitable site(s)
- A renewable resource
- An identified off-taker
- Economic conditions that create value, including energy security and meeting mandates, for the Army and the developer.

Site

Availability of real estate and the implications of site conditions on site-specific development costs are a key priority. Project siting also relates to 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 for the long term without conflicts with mission, master planning, environmental concerns, or real estate encumbrances.

The goal is to identify a site that is:

- The right size to support a project size (megawatts) that meets the objective
- Available for the required time period
- Legally transferrable using available authorities and industry standards
- Buildable with minimal constructability issues for the chosen technology type
- Based on minimal site-specific development costs such as geotechnical or infrastructure requirements
- Clear of environmental concerns, or environmental that issues can be mitigated
- Able to maintain required financial returns due to limited interconnection costs.

Multiple iterations of the project due diligence and development process (Appendix B, Figure B.2) will likely be required to assess different site options and technical configurations.

Resource

The opportunity requires a renewable resource that is commercially viable, given the market conditions, regulations, and other economic support mechanisms that affect project economics. Understanding the quality of the resource is a priority because it is the source energy that defines the operating parameters of the project. The requirements, cost, and time it takes to evaluate the resource will depend on the technology used.

In general, publicly available data sets or resource mapping can be used to assess solar resources with reasonable accuracy to evaluate development potential. Wind resources also have mapping and data available for initial feasibility assessment, but are subject to greater micro-siting issues and may require site-specific data collection and verification to evaluate financial returns. Wind resource data collection requires access to data collection equipment and 1 to 2 years of verified data. Geothermal projects require subsurface investigations. Biomass projects depend on the existence of a long-term feedstock that must be evaluated for heat content, moisture, and other specifications to evaluate the energy production potential of a given technology.

Off-Take and Interconnection

If the project is anticipated to produce more energy than the Army requires, a buyer, or off-taker, of the excess energy from a project must be identified. The off-taker must be willing and able to buy at a price that allows the project to produce attractive financial returns for developers. In addition, the project must have utility interconnection and transmission pathways available to deliver the energy to the sole off-taker. When the installation is the off-taker, the energy pricing must be acceptable to the Army, subject to restrictions on effect on overall energy costs. This topic is discussed further in Appendix C.

Small-Scale Projects: Army as Off-Taker

Most small- and medium-scale projects will be built to serve the energy demand of the installation. In these cases, the Army is the sole off-taker. Competitive off-take pricing can be determined internally through a utility rate analysis in conjunction with a project *pro forma* to determine financial viability.

Economics

Once information is collected regarding the site, resource, and off-take elements of a potential project, a more detailed analysis of the economic potential can be performed. Any future project will not be privately financed or built unless economic potential in the form of financial value is confirmed. Pursuing a project without financial value would consume the Army's development resources without the benefit of an operational project.

Existing utility tariffs are reviewed, along with the estimated site-specific capital investment. IRRs are calculated to help provide a detailed understanding of financial viability, offer a consistent evaluation tool, and show the influence of key project constraints. Project constraints are elements in the project environment, such as site limitations, regulatory limitations, tariff structures, and Army energy demands that define limits to the size or performance of the project. Constraints exist for all projects and result in a more precise project definition of what is feasible as the project advances. When constraints are identified, they should be applied to the project and impacts should be considered to ensure financial metrics remain strong and stakeholder impacts are minimized.

Decision Making

Once economics and off-take for a given opportunity have been confirmed, a decision can be made based on whether the opportunity is the best value proposition for the Army or the installation compared to the other opportunities in the respective portfolio. From a portfolio perspective, selection should then be evaluated based on meeting the three Army objectives: providing energy security, creating economic benefits, and complying with renewable energy mandates.

2.3 SUMMARY

During project development, project value necessary for private financing is identified by the existence of an economically feasible project with a cost-effective and available site, access to a viable renewable resource, and an off-taker willing and able to buy the energy output of the project at a price that supports the required IRR. Renewable energy projects often rely on local and regional energy incentives, regulatory policies, tax incentives, and grants to generate sufficient IRR for investment. Mitigating excessive risk is critical to long-term project success. 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.

Part 3 – Project Execution and Risk Assessment

The fundamental building blocks described in Parts 1 and 2 of this Guide are the first indicator of value and are used for early opportunity screening to investigate and mitigate the highest risk areas. If risks cannot be economically mitigated, the project is abandoned.

Once it is decided to move forward with a project, the eight assessment criteria (Figure 3) are used to gather and assess data to identify major project constraints and determine mitigation strategies in concert with project value and economics. These criteria are consistent with those used by the private sector and can be adapted for evaluation of renewable or traditional power generation projects. This section defines the criteria within a given phase and explains the significance of each to project evaluation.

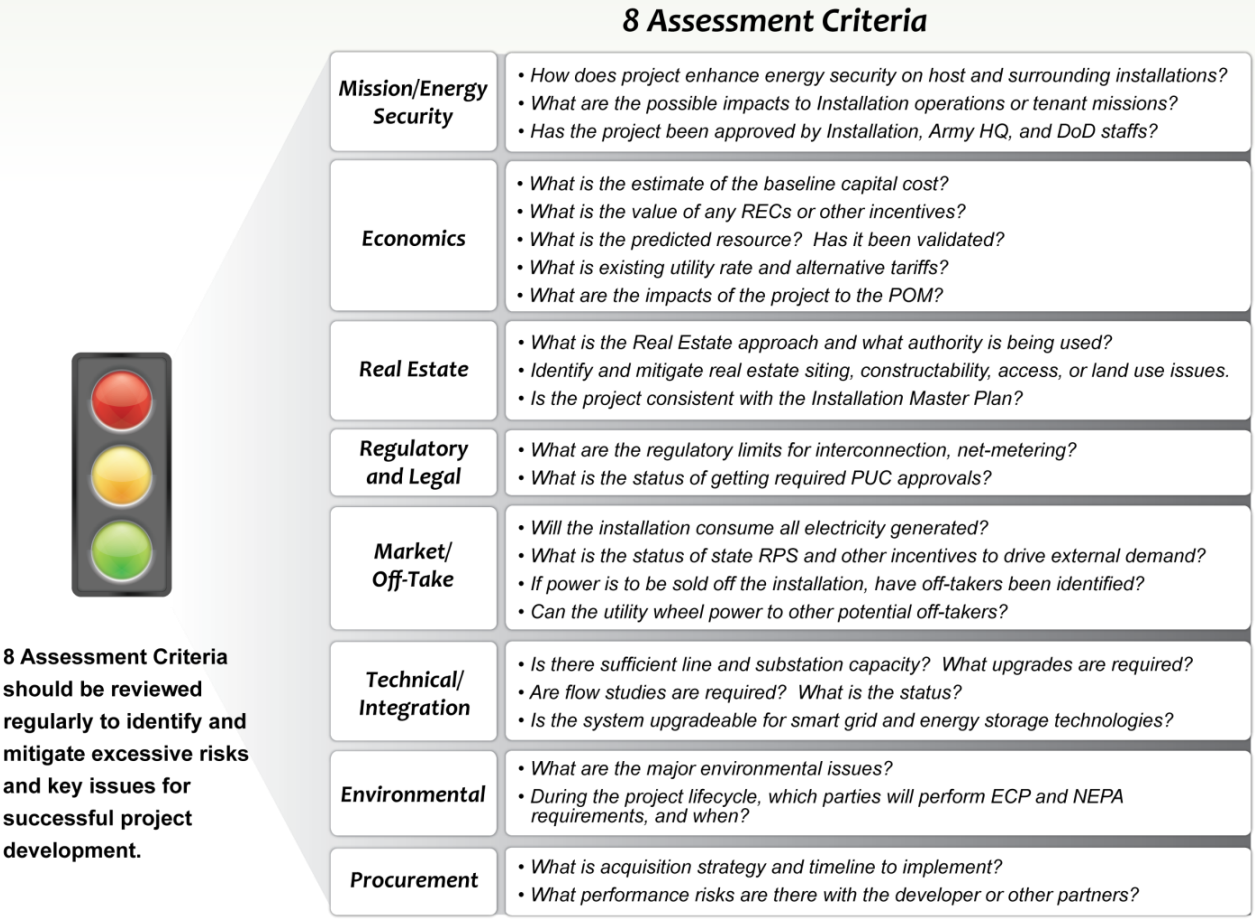


FIGURE 3. EIGHT CRITERIA USED TO ASSESS PROJECT RISKS

In conjunction with the eight assessment criteria, an iterative due diligence and development process is used to minimize development risk and support resource allocation decisions. Incremental investment of resources and frequent evaluation of project feasibility, including financial return (i.e., IRR) characteristics, provides insight into project development risk at any point and informs prioritization between projects.

3.1 PHASE 1 - PROJECT ASSESSMENT

This section includes a summary of the typical data, analysis, and work products used in assessing project opportunities of all sizes during Phase 1 of the project life cycle. The information gathered during Phase 1 is used to determine what studies are needed in Phase 2 to meet project requirements and optimize the project scope and design. Information is also presented in abbreviated form in Appendix F, Table F.1.

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 be the basis for the Project Validation Report (PVR), which is the Army's business case for the project. The PVR is required for Headquarters Department of the Army (HQDA) approval in Phase 2. (See Appendix G for a PVR outline template.) Some small- and medium-scale projects may not be required to develop and submit a formal PVR (see Appendix H for Army approval threshold requirements), but should still maintain a project workbook to track information as a best practice.

3.1.1 MISSION/ENERGY SECURITY

Description: Project goals and objectives are established and then constantly reevaluated, along with any effects of the project on installation mission and energy security as part of this risk criterion.

Significance: Privately financed projects should, at a minimum, be designed to enhance installation resilience and accommodate energy security attributes at a later date, and also be analyzed relative to cyber/intel threats. An excessive risk can exist if a project adversely affects the Army or installation mission, or fails to meet its goals and objectives.

3.1.2 ECONOMICS

Description: The OEI or installation collects and analyzes data 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 eight criteria that affects project cost or potential revenue, and confirming the project creates financial value. Economic evaluations should include market information as well as existing and forecasted electricity rates paid by the installation. A business case analysis should be developed and will be required for projects that meet the approval thresholds and require HQDA approvals. See Appendix E.

Significance: 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. The renewable energy cost must be at or below grid parity. A utility rate analysis, utility rate impact assessment, and economic alternatives analyses are essential to evaluating whether the renewable energy cost will be at or below grid parity accurately, along with a project *pro forma* that predicts the expected cost of energy from a proposed project.

3.1.3 REAL ESTATE

Description: Site selection affects installation real estate and must be coordinated with mission requirements, master planning, and public works as well as electrical, transportation, and other infrastructure. OEI works with the installation and Army Environmental Command (AEC) to de-conflict available land. Once a site is identified, potential aviation impacts should be analyzed by the DOD Siting

Clearinghouse[8] for height regulations, as well as glint and glare potential for solar considerations.[9] In addition, every project must have a viable, constructible site that can be conveyed to a private developer in a form that is acceptable to the Army and to project lenders or investors. Title due diligence should be performed to support the Concept Report of Availability (ROA) submittal and to confirm land ownership and encumbrances (i.e., easements, licenses, etc.), verify control of the land, and ensure the site qualifies for use with applicable acquisition authorities. This information will be included in the PVR and submitted in Phase 2 for HQDA approvals.

Significance: 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 effects on project financial returns, limiting feasibility of using private sector financing. Available clear parcels should be analyzed using Army mapping tools such as Army Mapper. Clear parcels are identified in Army Mapper to indicate land availability and land use status on installations. Other mapping software will not have the same geospatial layer information specific to installations that is needed. OEI or the installation should conduct a site visit of the potential project location, including a visual inspection of sites being evaluated to confirm actual site conditions. This is important because conditions on the ground are frequently different from those found on maps.

3.1.4 REGULATORY AND LEGAL

Description: 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.

Significance: 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 renewable portfolio standards (RPS) or local grant programs. These considerations should be revisited as the project is developed to ensure the project concept (i.e., size, location, and business approach) accounts for regulations that represent technical or economic constraints. By the end of Phase 1, all regulatory hurdles that would prevent development should be identified and cleared or have mitigation strategies in place. If that is not the case, the project should not move forward.

3.1.5 MARKET/OFF-TAKE

Description: The energy off-take is a key to the success of a privately financed transaction because the off-take contract, a RESA, provides revenue against which investors will provide project financing.

Significance: The credit and character of the off-taker can be a defining factor in determining the viability of a project and can strongly influence investors and developers. If the installation is expected to use all or some of the power generated, the installation's needs 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 an opportunity to sell power to other consumers in the local energy 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

[8] Part 211 of Title 32, Code of Federal Regulations "Mission Compatibility Evaluation Process" establishes procedures for review by DOD of applications submitted to the FAA relating to potential air obstructions.
[9] OSD Memo, Subject: Glint/Glare Impacts on DOD Aviation Operations.

non-excess Army land. The Army will then seek fair market value (FMV) for the land in rental revenue or in-kind consideration from the developer. The market research performed during project development and in Phase 1 to define off-take can also be used in the procurement process to support the selection of the type of contract agreement.

3.1.6 TECHNICAL/INTEGRATION

Description: All the technical requirements to connect to the grid or distribution system should be identified. This may include limitations on available transmission and distribution capacity, substation capacities, potential infrastructure upgrades, metering provisions, and other interconnection requirements mandated by either state and local authorities or the public utility. A system impact study may be necessary or required later in the process. Technical considerations necessary to achieve energy security goals should be defined. Coordination with and by installation staff and OEI staff through communication and site visits is recommended, as well as communication with privatized utility providers and local serving utilities.

Significance: 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 areas of excessive risks identified in this criterion and can often lead to project deactivation.

3.1.7 ENVIRONMENTAL

Description: The goal of Phase 1 environmental work is to begin development of the Environmental Condition of Property (ECP) required for real estate purposes. In addition, identification of the requirements toward issuing a National Environmental Policy Act (NEPA) Finding of No Significant Impact (FONSI)[10] and/or Record of Decision (ROD)[11] also begins during this phase. Environmental considerations can be anything from an endangered species to a cultural heritage site, to the remnants of a toxic waste site or explosives testing ground. Other considerations can include sites located in flood zones, geologic hazards or seismic zones, potential U.S. Fish and Wildlife Service issues, fire protection, biological assessments, wetland determinations, 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 AEC or U.S. Army Corps of Engineers (USACE) Mobile District should also be brought in early to provide guidance, and later to direct any required studies in Phase 2.

Significance: Consulting environmental partners too late in the process can cause excessive delays to the project schedule due to unforeseen environmental work and issues. This can significantly increase cost and result in project deactivation. Contracting, scheduling, and cost issues should be identified, as the timing of permits and authorizations can significantly affect project schedules.

3.1.8 PROCUREMENT

Description: The selection of a procurement strategy and business model is often driven by the long-term energy purchase and real estate authorities used. The assessment of procurement strategies and the

[10] A FONSI is a NEPA document that briefly states why an action will not significantly affect the environment, thus voiding the requirement for an Environmental Impact Statement.
[11] The ROD is a document that states what the decision is after a NEPA analysis is conducted; identifies the alternatives considered, including the environmentally preferred alternative; and discusses mitigation plans, including enforcement and monitoring.

selection of applicable authorities also relies on information gathered in each of the other criteria, namely, the project objectives, mission constraints, energy security requirements, installation energy demand and load profile, installation energy costs and local energy prices, 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 the Army). One or more procurement strategies should be identified at this phase of development. These strategies should account for the proposed business models and counterparties to the Army in current power purchase and real estate contracts or agreements. Table 1 provides an overview of the most commonly used business models for large-scale renewable energy projects.

Areas of Consideration	Conditions supporting a power purchase agreement such as a 10 U.S.C. § 2922a RESA	Conditions supporting a long term lease agreement such as a 10 U.S.C. § 2667 EUL	GSA Area-wide Contract, easement
Site	Private land off the installation or non-excess land on the installation available	Non-excess land on the installation available	Non-excess land on the installation available
Energy Price	High installation energy price	High regional wholesale energy price	Low utility energy price
Regulatory	Use of a power purchase agreement is legal under local regulation	Sale of power off the installation is authorized in the location	Purchase of power using FAR Part 41 (up to 10 years) with regulated utilities
Transmission	Economical local distribution available	Economical transmission capacity to off-takers available	Economical local distribution available
Off-Take	Installation demand sufficient to use the energy produced by the facility	Off-takers other than the installation available to buy power from the facility	Installation demand sufficient to use the energy produced by the facility

TABLE 1. CONDITIONS INFLUENCING THE CHOICE OF BUSINESS MODEL

Competitive solicitations are required for a long-term purchase agreement using 10 U.S.C. § 2922a, or a long-term outgrant using 10 U.S.C. § 2667, unless specifically approved for all projects. The process for pursuing a competitive solicitation may be streamlined using the Army's Multiple Award Task Order Contract (MATOC).[12]

The MATOC was established by USACE, working closely with OEI, and provides a task order procurement vehicle with an established pool of pre-qualified developers for four renewable energy technologies: solar, wind, biomass, and geothermal. In all of the projects procured under the MATOC, the Army will only buy power from the selected developer, and does not own, operate, or maintain the generating assets that are built on federal land. As renewable energy opportunities at Army installations are assessed and validated, the USACE Huntsville Center (HNC) will issue a competitive task order Request for Proposal (RFP) to the pre-qualified bidders for the specific technologies.

If the project does not fit the MATOC contract structure, the project solicitation may be done through an RFP. This approach may require additional acquisition planning efforts. The RFP should leverage the RESA template developed by OEI. The RESA template has been developed through discussion with

[12] http://www.asaie.army.mil/Public/ES/eitf/docs/FactSheet_MATOCAwardees.pdf

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. Other alternative business models can be found in Appendix C.

Significance: The installation or OEI should identify the contracting organization that will be used to solicit, evaluate, award, and administer the renewable energy project as early as possible in the process to identify specific requirements and risks related to the procurement strategies under consideration. Federal acquisition specialists, regulatory experts, electricity and energy market analysts, and project finance advisors may be necessary to evaluate a project and interpret the authorities, regulatory and contract options, market and financial considerations, and integration issues.

In the case of a power purchase approach, USACE HNC, the Defense Logistics Agency - Energy (DLA-E), and the Mission and Installation Contracting Command (MICC) have significant experience working with project energy contracts and with OEI. For business models that provide a lease or other real estate instrument only, installations should work with USACE HQ Real Estate. Excessive risks related to using contract authorities should be resolved in this phase, as this is crucial to project feasibility.

3.2 PHASE 2 – PROJECT VALIDATION

Phase 2 consists of two steps: (1) performing the due diligence to validate the project, and (2) preparing for and obtaining HQDA approval of the project. An Office of the Secretary of Defense (OSD) concept briefing is required for projects using the 10 U.S.C. § 2922a authority. A conceptual business case and ROA must be prepared to receive Army and OSD approval.

The activities and work products of Phase 2 are also summarized in Appendix F, Table F.2. These can apply to small, medium, and large projects.

3.2.1 MISSION AND ENERGY SECURITY

Description: 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. Any impact on the mission and other installation requirements like physical and cyber security should also be carefully assessed. As a best practice, once a site is selected, a submittal is required to HQDA G2, G3, CIO/G-6, and OSD Clearinghouse to ensure the project is de-conflicted with Army and DOD requirements. For solar projects, an aviation glint/glare analysis is required. Written confirmation that the project imposes no conflict should be obtained from the installation and from the OSD Clearinghouse.

Significance: An energy project will not have Command support if identified mission conflict cannot be mitigated; without Command support, the project cannot move forward. If the project does not include energy security because the cost is too high, a Cost Benefit Analysis (CBA) must be prepared per NDAA 2012 Sec 2282 for a report to Congress after award. Failure to follow these steps and receive the required approvals can seriously delay or stop progress on a project.

3.2.2 ECONOMICS

Description: Detailed financial analyses are required in the documentation for HQDA approval. The value of cash or in-kind consideration benefits should be calculated, and a 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 *Standard Operating Procedure (SOP) for Large-scale Renewable Energy Projects, Business Case Analysis Review and Validation,* resulting in a CBA validation memorandum.

Significance: Cost-sensitivity should be assessed 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 project's effect on the installation's energy bill. In Phase 2, financial models and economic analyses should be finalized and should support the project's value to both the Army and the developer.

3.2.3 REAL ESTATE

Description: 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 OEI, 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(s) should be performed to verify the condition, boundaries, geographic characteristics, current land use, and ownership/control of the site.

Significance: All relevant land-use issues, including environmental concerns and other potential constraints, must be described in the required Concept ROA for the PVR. A project cannot move forward through the approval process without an ROA and PVR. If utilizing 10 USC § 2667, a preliminary appraisal or estimate of value should be conducted to determine the potential lease consideration in terms of the 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.

3.2.4 REGULATORY AND LEGAL

Description: The project team must engage the Office of the Army General Counsel (OGC) and local Regional Energy and Environmental Office (REEO)[13] to ensure the regulatory environment is well understood. Benefits of RPS and other incentives to the project should be quantified and coordinated with the financial model. The OGC provides legal advice and support throughout the project life cycle while the REEOs are a valuable regional asset to the project teams. Regulatory risks to the project should be addressed and the path forward for permits or other approvals should be determined.

Significance: A comprehensive review of utility-related, local, state, and federal regulations, applicable incentives, and associated risks to the project should be made and summarized in the PVR to validate the regulatory assessment.

3.2.5 MARKET/OFF-TAKE

Description: 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 or industry open house, or

[13] 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/.

release a Request for Information to assess the market conditions and determine industry interest and best timing for the project release.

Significance: In this phase, project size (megawatts) and business structure (lease or energy purchase) are validated by verifying off-take potential. Best practice is to ensure complete vetting with OGC and OSD on any multiple off-taker or offsite off-taker concerns. Addressing these concerns in this phase can prevent major delays in Phase 3.

3.2.6 TECHNICAL/INTEGRATION

Description: 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. Any requirements for smart grid and energy storage, as well as issues identified related to the utility privatization contract, should also be addressed.

Significance: This installation systems analysis feeds into the utility analysis, the economic analysis, real estate siting, and the environmental analysis, creating a cascade effect in terms of project impact. The PVR should include a summary of the technical assessment of system integration requirements and cost. Technical requirements should ultimately be included in the RFP.

3.2.7 ENVIRONMENTAL

Description: The project proponent, in conjunction with installation master planning and the AEC or USACE Mobile District, 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 Realty Governance Board (RGB), as described in Appendix C), but, as with NEPA, completion is specifically required before the lease or other real estate instrument is signed.

Significance: Prior to release of any solicitation for the project, the status of the NEPA documentation must be provided for HQDA approval. The ECP can often be done by the installation with existing staff and expertise in 1 to 2 months. Alternatively, the ECP can often be performed by the NEPA contractor through a contract modification. The project cannot move forward without the timely completion of all environmental work.

3.2.8 PROCUREMENT

Description: To accomplish the required transactions using the Army's long-term authorities, engaging contracting agents with experience acquiring energy and energy services is recommended. The choice of contracting agent should be 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. Many sources within the Army provide this expertise. For large-scale projects, the USACE HNC, DLA-E, and MICC-Energy provide this expertise. If the contract is purely a lease, the contracting partner will be USACE.

The project proponent should identify the contracting organization early 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 performed 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, material sourcing requirements, Quality Assurance Surveillance Plan (QASP), evaluation criteria, and Measurement & Verification (M&V) Plan. USACE conducts a Service Acquisition Workshop and develops a Service Contract Acquisition Request, 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.

Significance: Many of these steps are presented in Section 3.3 as part of the solicitation process and include final market analysis as well as development of technical specifications and attachments. These steps also represent part of the layering process of document preparation, review, and approvals that can often be completed in parallel to the final activities outlined in Phase 2 to accelerate the timeline for procurement activities.

3.2.9 PROJECT STAKEHOLDERS AND APPROVAL

In terms of the project life cycle, the approval process is initiated in Phase 2. Depending on project characteristics, privately financed renewable energy projects will require congressional notifications and approvals from Commands, HQDA, and DOD. Appendix H, Project Review and Approval Requirements, details Army review and approval requirements for renewable energy generation projects, as well as external OSD and congressional requirements that may apply.

Stakeholders

Once a project has the support of installation leadership, the appropriate Command (i.e., Installation Management Command, Army National Guard, U.S. Army Reserve, or Army Materiel Command) should be consulted to ensure the project supports overall energy program priorities and that Army investment is appropriately managed. Each Command represents a different stakeholder in the process and requires separate concurrence.

HQDA Approval

HQDA approval is required 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 OSD and Congress, as applicable. HQDA approval is required prior to any solicitation, contract negotiations, public announcement, or congressional notification.

During Phase 2, a PVR and briefing materials must be developed. Appendix G provides a detailed outline template for the PVR to be filled in by the activities listed in Appendix F, Table F.2.

When these documents have been coordinated, and the analyses completed, the project proponent summarizes the findings in the PVR. The PVR is then presented to the RGB or the Deputy Assistant Secretary of the Army for Energy & Sustainability DASA(E&S) in written form and through informal and formal briefings to obtain HQDA approval. A written decision to approve, modify, defer, or disapprove the proposal will be provided within 10 working days of receipt of the submittal, briefing, or receipt of additional clarifying information requested.

OSD and Congressional Requirements

An OSD concept briefing (required for all projects using 10 U.S.C. § 2922(a) authority) or a courtesy briefing should be made at this time to allow the team to receive input from OSD before final submittal for HQDA approval. Detailed information regarding OSD and congressional requirements is found in Appendix H.

Once Army approvals and OSD and congressional requirements are complete, private industry can be engaged in discussions regarding a particular project, and solicitations can be released to the private sector. Gaining necessary pre-solicitation approvals are milestone events, after which the project transitions from due diligence in Phases 1 and 2 to a procurement effort in Phase 3.

3.3 PHASE 3 – CONTRACTS AND AGREEMENTS

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. During development of the solicitation through award, new information and questions may continue to surface, requiring the project team to revisit assumptions and conclusions derived in the previous phases. Use of the risk assessment framework in this phase is similar to that addressed previously. It is important in every iterative evaluation to ensure the underlying economics and the three fundamental Army objectives remain intact. Details of the Phase 3 procurement activities are described below and summarized in Appendix F, Table F.3. 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 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 advance the project through the process, while maintaining its financial viability.

3.3.1 PROCUREMENT – CONTRACTS AND AGREEMENTS

For projects requiring HQDA approval, the procurement effort can begin once the required approval memorandum is received from the DASA(E&S) and the Deputy Assistant Secretary of the Army for Installations, Housing & Partnerships as applicable. This is the start of Phase 3, Contracts and Agreements.

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

- Finalization of applicable RFP and/or Notice of Opportunity to Lease (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

The contracting organization selected in Phase 2 will lead these activities and is central to completing the required procurement actions. Project proponents may be required to provide technical support and should expect to facilitate and track project issues together with all project stakeholders.

Primary responsibility for development activities shifts from the Army and the contracting office to the developer during Phase 3. 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 move the project efficiently through the process. Maintaining the planned project timeline through the reviews and approvals required by the procurement process is essential if the project is to remain financially viable through award and financing.

3.3.2 SOLICITATION

Once Army leadership approval (as described above) is received, the project team can release the appropriate solicitation, (i.e., RFP or NOL).[14] 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:* The contracting organization's market analysis effort may include the preparation and release of a sources sought solicitation. This solicitation seeks feedback from industry on the project concept and determines if the acquisition should be a full and open competition or a small business set-aside.

- *Technical Requirements:* From the Phase 2 analyses, the project team can generate or finalize a set of technical specifications for the RFP or NOL, including a QASP, evaluation criteria, and an 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 received from the project development team, the installation, USACE division/district, AEC, and 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 OEI 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 will post the RFP or NOL to the Federal Business Opportunities website (www.fedbizopps.gov) for 30 to 90 days once it is approved.

- *Industry Event:* Approximately 15 to 30 days after the release of the RFP or NOL, an industry event (also known as 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 organization consolidates and responds to all questions submitted in writing and posts the information as an amendment on the www.fedbizopps.gov website.

3.3.3 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

[14] This assumes the contracting organization has obtained the necessary approvals within its own chain of authority as well as OGC approval.

technical experts for both technical and price evaluation. After all proposals are evaluated, a recommendation is made for selection.

The contracting organization then sends notice of intent to award, and 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. Described below are the actions to complete approvals and notifications following finalization of the main energy contract and/or out-grant depending on the size of the project, the business model, and the authority being used.

3.3.4 OSD Approval

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

3.3.5 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 of the contract or lease.

3.3.6 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 project completion. These activities can take a year or more to complete, depending on project size and complexity. Phase 3 ends when financial close is accomplished and the project is ready for groundbreaking.

3.4 Phase 4 – Construction

Facility construction is a well-documented process and is 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 test and commission the facility prior to operations. Unlike projects procured through appropriations, the construction and operation of privately financed projects are primarily the developer's responsibility.

3.4.1 CONSTRUCTION PROCESS

Construction of Asset/Army Oversight

The Army's role during the construction phase is to vet all contractor personnel for security access and then to monitor the construction progress, ensure the developer is conducting all activities on Army land safely, and be aware of potential schedule changes that may affect the installation's mission and ongoing activities. The Army contracting officer (CO) or the contracting officer's 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 the right to impede, postpone, delay, or stop work unless the work is conducted unsafely and jeopardizes mission or personnel, or other similar conditions are present.

Setup of a Contract Administration Plan

During construction, the Army should set up the Contract Administration Plan and the required support structure to manage the contract requirements once the facility is operational. If the Army is an off-taker, 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, if any, 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), typically the adjustments are actually executed concurrently with Phase 4, Construction, or at the beginning of Phase 5, Operations and Support.

Testing and Commissioning

The Army has a limited role in testing and commissioning, subject to contract requirements. As construction is completed, the developer will test the system to ensure it meets any construction and reliability standards established in the award document or construction contract. 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. This approach should improve project economics.

Accounting for the Asset in the Real Property Inventory

Depending on the terms and nature of the project contracts and agreements, 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 required.

3.5 PHASE 5 – OPERATIONS AND SUPPORT

The Operations and Support phase begins at the close of construction, following commissioning, 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, managing any in-kind considerations, and tracking RECs. If the Army is an off-taker, the Army will begin paying for energy flowing from the project once construction is complete and commercial operations begin. Payments will be administered according to the terms of the contract.

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.

3.5.1 OPERATION AND MAINTENANCE

Monitoring Contract Performance Commitments

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 municipality requirements; accounting for and reporting Army RECs; and warranty commitments.

Although the developer (rather than the Army) owns and is responsible for the design, construction, operation, and maintenance of all project-related equipment, if the Army is purchasing energy from the project, it has a vested interest in the developer's continued adherence to the contracted energy performance profile of the project. If power production and availability do not meet required levels, the developer should be notified and asked to address the deficiency. The RESA template provides more details on how this should be structured contractually.

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. These outline the Army's remedies and any rights of third-party lenders to cure defaults and/or step into the developer's position as a party to the transaction agreements in the case of a loan agreement default.

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).[15] 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 (i.e., electric on-grid, electric off-grid, or non-electric), type of renewable resource, ownership, purchase status,

[15] AEWRS contains data on Army installation energy consumption. 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.

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 the Assistant Chief of Staff for Installation Management (ACSIM).

Tracking Billing and Payments

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

Validation of Activities against the Operation and 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 project equipment. If the Army is purchasing energy from the project, the Army may seek to monitor and confirm that maintenance activities are being performed according to the O&M plan to protect the installation from a reduction in available power caused by poor maintenance. Doing so also protects the Army from possibly having to dispose of assets that are no longer performing and may be abandoned on Army land before the award's period of performance ends. 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 prescribed by their security requirements, as documented in the project contract documents. Army staff and representatives of the contracting organization may visit annually or more frequently. Meetings will be held either at the project site or nearby to review performance against the planned O&M schedule and overall contract parameters.

3.5.2 TRANSITION/CONTRACT CLOSE

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 5 years out from contract end date. Specific topics to address include removal of the project equipment and any required land remediation. 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 FMV.

3.6 SUMMARY

A disciplined and rigorous project life cycle begins upon the decision to move forward with a discrete project. A risk assessment framework of the eight assessment criteria is used to identify and mitigate development risk iteratively. This early stage due diligence occurs heavily in the first three phases of the project life cycle as new information becomes available or changes. The importance of every iterative evaluation is to ensure the underlying economics and the three fundamental Army objectives remain intact. Phase 3 expands to incorporate industry in the due diligence process, and external stakeholders in the approval process. As the project life cycle shifts into the last two phases, the Army shifts into an oversight role.

Part 4 – Summary

This Guide answers the two fundamental questions that apply to every renewable energy project:

(1) Does the project meet the three fundamental Army objectives?
(2) Can the project be economically viable for the developer?

As described in Part 1, all renewable energy projects must meet at least one of the three objectives: (1) provide energy security, (2) be economically viable and offer economic benefits to the Army and project developer, and (3) satisfy renewable energy mandates. A balance is constantly being sought between these three objectives. Part 1 also addressed scalability and appropriate sources for funding. Tactical elements of value, timing with market conditions, and solid energy economics are used to provide a consistent, transparent process for evaluation. Managing risk is inherent in all five phases of the project. Risks are identified and mitigated using the eight assessment criteria combined with an iterative process.

Initial portfolio development activities, described in Part 2, include project identification and selection, developing an energy strategy, understanding market conditions, and creating an installation energy baseline. Once these are completed, the project moves into Phase I, Project Assessment, and various tactical assessments are performed, including site selection and confirmation of project value.

As described in Part 3, the eight assessment criteria are used heavily during the first three phases of a project life cycle to detail what is needed to advance a project through the process.

The appendices to this Guide provide valuable, detailed information and tools that further support the analysis needed to answer the fundamental questions.

Renewable energy projects, regardless of size, can be complex and difficult. The ultimate benefit to the Army outweighs these concerns as long as the project is able to be economically viable for the developer and meet the three fundamental Army objectives: provide energy security, generate economic benefits, and help meet renewable energy mandates. Not every opportunity or project is able to meet both the needs of the Army and the private industry. The intent of this Guide is to provide the Army with a rigorous and disciplined framework to move forward with projects that have a greater chance for success, and to minimize use of limited resources on those that don't. The future of the Army in terms of energy independence, security, and resiliency depends on the Army continuing to partner with private sector developers on renewable energy projects.

Appendix A – List of Acronyms

ACSIM	Assistant Chief of Staff for Installation Management (see also OACSIM)
AEC	Army Environmental Command
AEWRS	Army Energy and Water Reporting System
ASA(IE&E)	Assistant Secretary of the Army for Installations, Energy and Environment
CO	contracting officer
COR	contracting officer's representative
DASA(CE)	Deputy Assistant Secretary of the Army for Cost and Economics
DASA(E&S)	Deputy Assistant Secretary of the Army for Energy & Sustainability
DASA(IH&P)	Deputy Assistant Secretary of the Army for Installations, Housing & Partnerships
DLA-E	Defense Logistics Agency - Energy
DOA	Determination of Availability
DOD	Department of Defense
DOE	Department of Energy
DUSD(I&E)	Deputy Undersecretary of Defense for Installations and Environment
EA	Environmental Assessment
ECP	Environmental Condition of Property
EIS	Environmental Impact Statement
ESA	Energy Services Agreement
ESPC	Energy Savings Performance Contract
EUL	Enhanced Use Lease
FAR	Federal Acquisition Regulation
FEMP	Federal Energy Management Program
FMV	fair market value
FONSI	Finding of No Significant Impact
FY	fiscal year
GAWC	General Services Administration Area-Wide Contract
GSA	General Services Administration
GW	gigawatt(s)
HQDA	Headquarters Department of the Army
HNC	Huntsville Center
HRO	highest ranking offeror
IKC	in-kind consideration
IRR	internal rate of return
ISOWPP	Initial Scope of Work Planning Package
kWh	kilowatt-hour(s)
LCCA	life cycle cost analysis
M&V	measurement and verification
MATOC	Multiple Award Task Order Contract
MICC	Mission and Installation Contracting Command
MOU	Memorandum of Understanding
MW	megawatt(s)
MWh	megawatt-hour(s)
NDAA	National Defense Authorization Act
NEPA	National Environmental Policy Act
NOL	Notice of Opportunity to Lease
NPV	net present value
O&M	operation and maintenance
OACSIM	Office of the Assistant Chief of Staff for Installation Management
OEI	Army Office of Energy Initiatives
OGC	Office of the Army General Counsel
OMB	Office of Management and Budget
OSD	Office of the Secretary of Defense

PVR	Project Validation Report
QASP	Quality Assurance Surveillance Plan
REC	renewable energy credit (or certificate)
REEO	Army Regional Environmental and Energy Offices
RESA	Renewable Energy Services Agreement (commonly referred to as a Power Purchase Agreement or PPA)
RFP	Request for Proposal
RGB	Realty Governance Board
ROA	Report of Availability
ROD	Record of Decision
RPS	renewable portfolio standards
SSEB	Source Selection Evaluation Board
UP	utility privatization (contract)
U.S.C.	United States Code
USACE	U.S. Army Corps of Engineers

Appendix B – Project Life Cycle and Iterative Process

The project life cycle is used as a frame of reference to plan and manage projects (Figure B.1). The life-cycle phases provide a common language to facilitate communication within the Army and with developers, external project stakeholders, and other federal agencies. The life cycle begins with a portfolio development phase where opportunities are identified and screened, then selected for development. Projects that successfully pass through the portfolio development phase then pass through five phases: 1) Project Assessment, 2) Project Validation, 3) Contracts and Agreements, 4) Construction, and 5) Operations and Support.

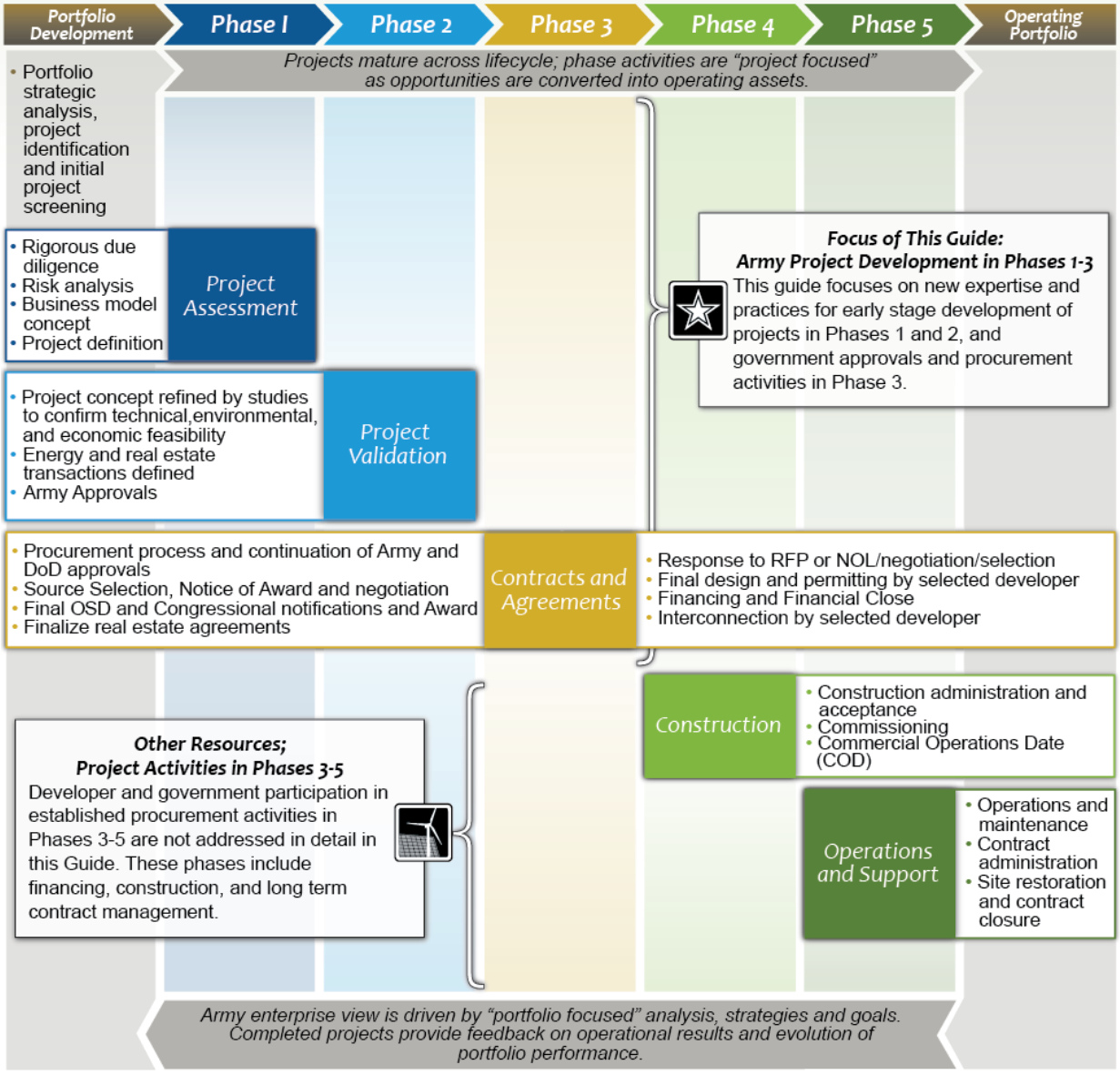


FIGURE B.1. ARMY RENEWABLE ENERGY PROJECT LIFE CYCLE

B.1 ITERATIVE EVALUATION PROCESS

Army installations, the Army Office of Energy Initiatives, and commercial project developers typically share one thing in common: scarce resources. The availability of funds, human resources, and time to identify and execute early stage project development is limited. To be successful, value and risk must be identified quickly and early in the development process so that resources can be focused on the most promising projects while avoiding projects with excessive risks.

An iterative due diligence and development process is used to manage development risk and support resource allocation decisions. Incremental investment of resources and frequent evaluation of project feasibility, including financial return (IRR) characteristics, provides insight into project development risk at any point in time and informs prioritization between projects. The process includes three core activities:

- Gathering and assessing data categorized by the 8 Assessment Criteria (Box 1 of Figure B.2);
- Applying resulting project constraints to refine the scope of the project (Box 2 of Figure B.2); and
- Measuring the impacts of the evolving project definition against both financial metrics and stakeholder concerns (Box 3 of Figure B.2).

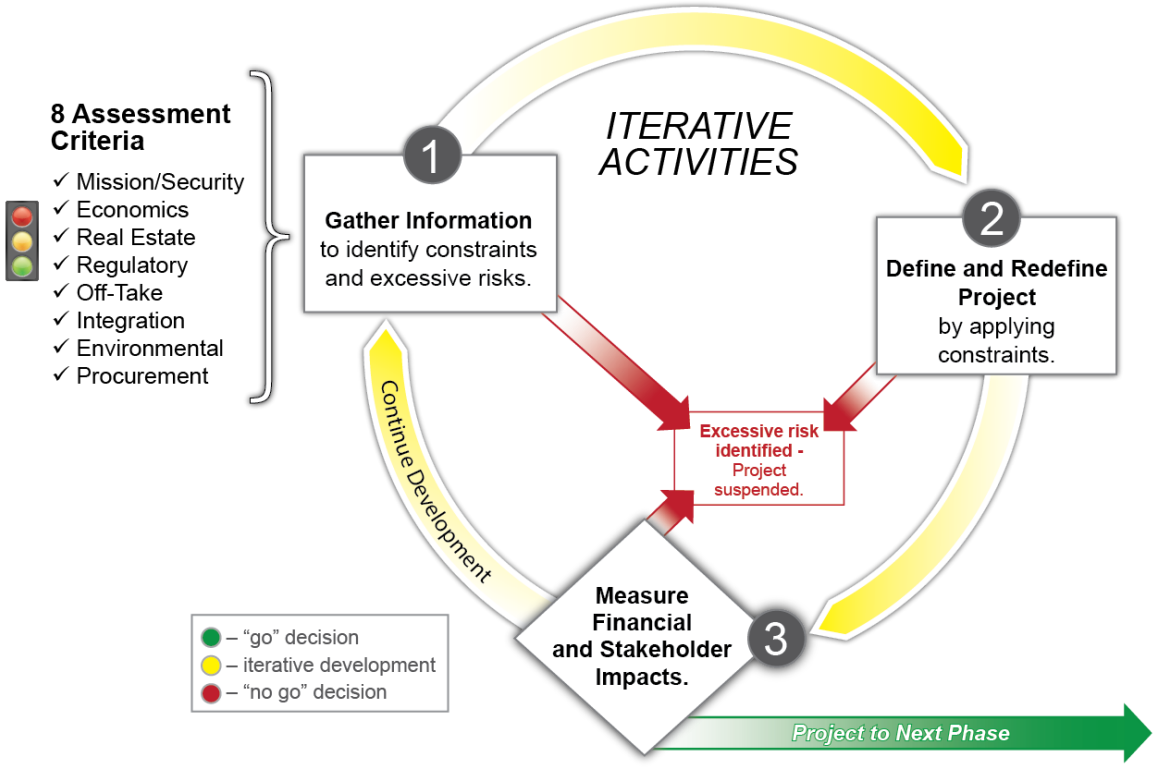


FIGURE B.2. REPEATABLE DUE DILIGENCE AND DEVELOPMENT PROCESS

As a project team conducts evaluations of development, the results of each iteration inform decisions to continue investing effort or suspending it, and, if continuing, what areas to focus on to materially advance the project at the least cost. The first series of iterations should be focused on confirming the basis of project value to the Army, financial value to developers, and technical feasibility, and identifying primary areas of risk to successful execution. Based on the results, a decision must be made to pursue or abandon the project in favor of more attractive opportunities. Comprehensive analyses are performed in

subsequent iterations, including detailed technical and financial studies, preparation of required project documentation for approvals, and stakeholder engagement.

B.2 Development across the Life Cycle

Small-Scale Project Approach

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

The iterative development process can be effective across all phases of early-stage development. This process starts with initial assessments that focus on Army objectives, market conditions, and risk, progressing to more detailed studies in later phases (Figure B.3). Phases 2 and 3 are more advanced stages of development, and projects that reach these are likely to be executed, though they 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 development risk, and the process is still useful to monitor the sources of risks and provide timely mitigation strategies or investment decisions. If risks cannot be mitigated economically, or if market conditions disable project economics, even projects in the later stages can and should be considered for suspension.

The project concept will evolve as constraints are identified and applied. As a result, a refined project definition will emerge that includes elements such as scope and size (in megawatts), performance characteristics, plant output (in megawatt-hours or British thermal units), site location boundaries, 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 present the business case for the project as necessary to obtain Army approvals.

Throughout the assessment process, project information and analysis results 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 Appendix H. A PVR outline template can be found in Appendix G.

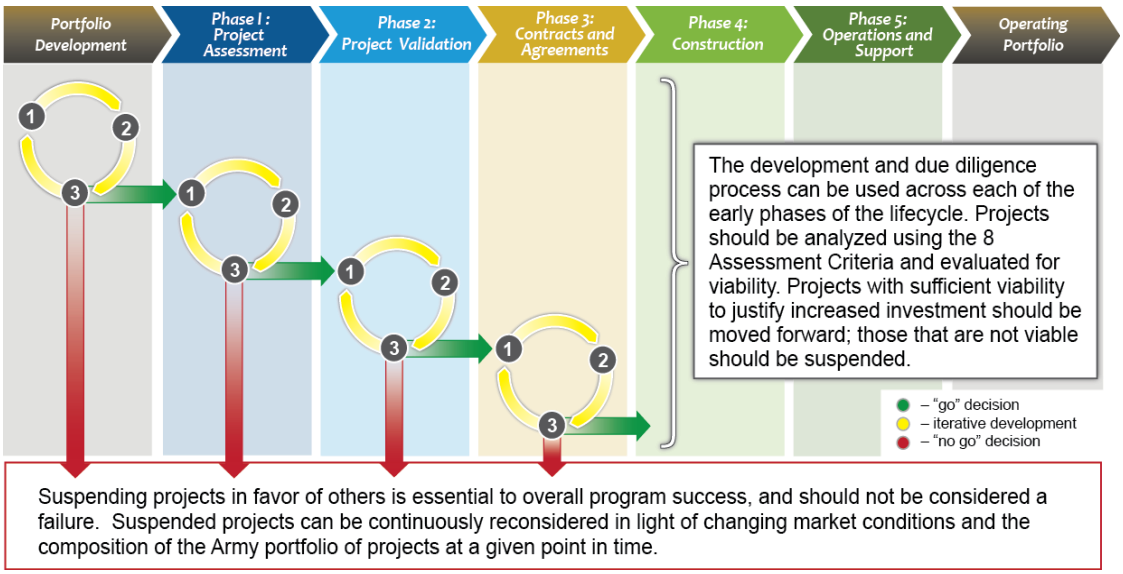


Figure B.3. Army Due Diligence and Development Across the Project Life Cycle

Appendix C – Selecting a Financing Mechanism: The Implications of Private Financing

Renewable energy generation project(s) have a role in achieving the energy strategy for an installation and for the Army overall, but not every project is a good candidate for private financing. Analyzing and assessing financing options is a key part of the portfolio development phase.

The two key considerations when using private financing instead of appropriated funds are:

(1) Projects that use private financing must generate competitive returns for developers and investors in addition to being price competitive for the Army.

(2) The nature of long-term agreements will create an obligation of land and/or purchasing commitment by the Army.

If a project cannot support either of these objectives, appropriated funds may be a better choice.

Additional implications and factors for evaluating projects using private financing include:

- 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 metrics such as internal rate of return. Therefore, when considering private financing, project feasibility must be considered using these metrics.
- Financial feasibility of renewable energy projects is subject to changing market conditions across multiple areas of a local market, 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 undercutting 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 whenever markets support project value.
- Office of Energy Initiatives or an installation can expect to invest 3% to 7% of the total project capital cost in early-stage project development. However, this investment should be returned to the Army in the form of lower, more stable energy prices and enhanced energy security.
- Depending on project scale and complexity, 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 (Appendix H). Gaining these approvals requires the submittal of a robust, documented business case and supporting documents to the appropriate authorities. The time and expertise needed to develop this documentation must be accounted for in light of available resources and the timing of market conditions.

Appendix D – Long-Term Contract Authorities and Business Models

Renewable energy projects typically require contracts longer than 10 years to return capital invested and 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"[16]
- 10 U.S.C. § 2667, "Leases: Non-excess property of military departments and defense agencies."[17]

These 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. When market conditions or financing approaches support shorter contracts, alternative authorities such as Federal Acquisition Regulation (FAR) Part 41 can be used.

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 D.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 relationships with existing utilities and privatized utility service providers.

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

**See Figure 1*

TABLE D.1. SUMMARY OF TYPICAL BUSINESS MODELS, AUTHORITIES, AND BENEFITS

[16] 10 U.S.C. § 2922a, Contracts for Energy or Fuel for Military Installations, http://www.gpo.gov/fdsys/pkg/U.S.C.ODE-2010-title10/html/U.S.C.ODE-2010-title10-subtitleA-partIV-chap173-subchapII-sec2922a.htm.

[17] 10 U.S.C. § 2667, Leases: Non-excess Property of Military Departments and Defense Agencies, http://www.gpo.gov/fdsys/pkg/U.S.C.ODE-2011-title10/pdf/U.S.C.ODE-2011-title10-subtitleA-partIV-chap159-sec2667.pdf.

Appendix E – Validating the Business Case

To gain project approvals, 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. These approvals are required prior to entering procurement in the Contracts and Agreements phase. The business case should clearly demonstrate the project's value to the Army, including energy security benefits, project economics, and contribution to mandates. The business case should also document the economic analysis that supports the reasonable expectation that the private sector can finance and deliver the project.

Requirement: A Strong Business Case

Army and federal approval requirements can be triggered by the use of Army lands and/or use of long-term contract authorities, regardless of project size. As a result, a validated and well-supported business case must be prepared as part of a PVR for most small-, medium-, and large-scale projects.

The business case is prepared and summarized in the Project Validation Report (PVR), which is required to gain Army project approvals. The validation process should build on the work performed previously, but provide more detail and mitigate remaining risks, such as renewable resource quality, technical integration requirements, or environmental issues identified through the Environmental Condition of Property (ECP)[18] and National Environmental Policy Act (NEPA) processes. Financial and technical studies should be coordinated and crosschecked continuously to agree with each other. This approach ensures any financial impacts are represented in the financial analysis to verify the project is maintaining viable financial return metrics.

E.1 Optimizing the Technical Project Concept

The detailed characteristics of a project can depend on numerous overlapping requirements and constraints categorized by the eight assessment criteria. Optimizing a project requires a detailed study of the entire system of influences that define the best location, configuration, size, technology, required infrastructure, and system performance characteristics. Once optimized, the project scope will balance the project's legal, regulatory, technical, and financial aspects.

The types of constraints that drive optimal project design can include, but are not limited, to:

- Technical factors such as resource availability, 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

[18] An ECP report is required for any real property that will be transferred, sold, leased, or acquired, according to Army Regulation 200-1, *Environmental Protection and Enhancement*, Section 15-5.

- 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 a renewable energy project with an intermittent resource, limiting the project size to prevent exporting energy

E.2 PROJECT ECONOMICS

A project's financial metrics 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 financial 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 financial return requirements for financing renewable energy projects, but must also be considered competitive in light of any Army pricing and contract requirements.

E.3 STAKEHOLDER SUPPORT

A project can have numerous stakeholders. Stakeholders can vary depending on the project location, effects on 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 Headquarters Department of the Army (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, Army Environmental Command, real estate managers, the utilities serving the installation, privatized utility contractors, 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 affect citizens outside the installation.

To manage risks proactively, it is important to maintain contact with key stakeholders and regularly update them, seeking 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 through the approvals process.

E.4 PROCUREMENT STRATEGY

Projects are procured through various contracts and agreements between the Army and developers, utilities, or other private sector providers. 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. Small- and medium-scale projects should consider using simple, replicable business models to keep transaction costs affordable. For large-scale projects, 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 project.

Typical business models for large-scale projects are based on the long-term contract authorities available to the Army and include:

- *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.

Project-specific variations and modifications can only be properly identified by an exhaustive examination of existing contracts at the location, contracting authorities, state and local regulation of utility services, and the legal and business ramifications of the options. All transactions must adhere to federal acquisition and regulatory requirements.

E.5 Preparing Documentation to Support the Business Case

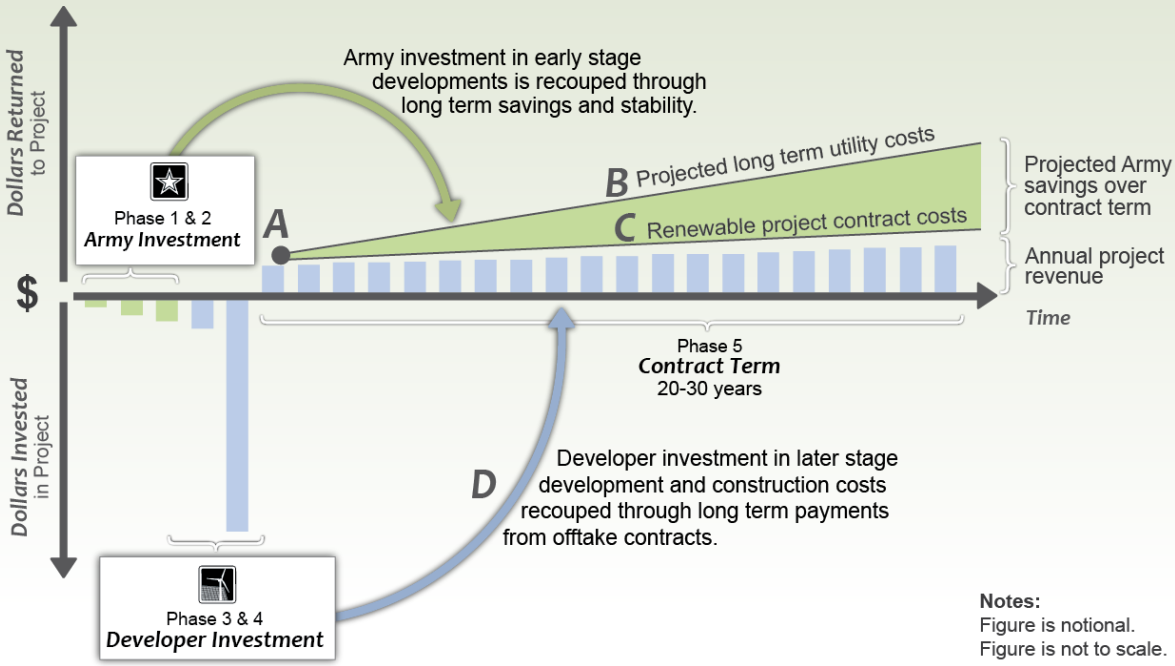
A fully documented business case must be submitted and approved prior to releasing solicitations to the private sector. In addition, the PVR must include all the elements of the proposed project to be documented, including the necessary approvals from the Chain of Command and the paperwork demonstrating all elements are in place to proceed with the project. Appendix G provides a template outline of a PVR. 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.

E.6 Key Financial Performance Metrics

To be financeable by private capital, a project that meets Army objectives must deliver competitive financial returns to investors. Two key financial performance metrics drive feasibility for privately-financed projects: energy price and project internal rate of return (IRR).

The price of energy is the key metric for the Army or for a market-based off-taker and is based on either a utility rate analysis or an assessment of local market conditions. Project IRR is a financial metric that defines the expected financial return generated by the project. It is determined based on the revenue generated from the sale of energy along with other renewable energy attributes[19] such as renewable energy credits (RECs), incentives, and tax attributes. A project's total economic value can be defined simply as the economic savings or benefits resulting from project implementation (see Figure E.1).

[19] Environmental Attributes, also called "Non-Energy Attributes," are any and all benefits, emissions reductions, environmental air quality credits, emissions reduction credits, renewable energy credits, offsets, and allowances attributable to the generation, purchase, sale or use of electrical energy from a renewable resource resulting from the avoidance, reduction, displacement, or offset of the emission of any gas, chemical or other substance, including any of the same arising out of legislation or regulation concerned.



Key:

Value = shaded triangle between lines B and C.
Point A = Starting price of power from a project.
Slope of Line B = Projected annual increases of long-term utility costs.
Slope of Line C = Projected annual increases to renewable project PPA contract.
Relationship D = Financial yield of project, calculated as ratio between total project cost and annual project income.

FIGURE E.1. PROJECT CASH FLOWS AND FINANCIAL METRICS

E.7 UTILITY RATE ANALYSES – ENERGY PRICE

When the Army is buying energy from a project, price is the key financial metric representing economic feasibility for the Army. Price is also an important consideration for projects that use Army lands but do not sell energy to the Army. If the price of energy from the project is not competitive for other consumers, revenue is not available for the developer, and the project will not be financed.

Utility Rate Analysis – Energy Price Calculation for Army Purchase

Calculating the energy price for projects where the Army is buying energy is not simple because of 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 establish an accurate price ceiling, or the "not-to-exceed" value that the Army is willing to pay for energy.[20]

Importance of Utility Rate Analysis

When evaluating small- and medium-scale projects, existing energy tariffs must be evaluated to ensure the project creates value for the installation through cost avoidance or price stability.

This is a critical step to assess economics performed in Phase 1.

[20] During the HQDA approval process, a project is approved as long as ultimate contract pricing comes in below not-to-exceed parameters. Approval processes are detailed further in Appendix H.

A project that appears competitive against the overall blended electricity cost ($/kWh) may in fact not be 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 given period. A blended rate can be used for high-level economic study, but is inaccurate in determining the price ceiling. This is because renewable energy projects typically offset the kilowatt-hours consumed from a utility but may not offset demand-based charges proportionately, especially for intermittent renewable resources like wind and solar.

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 $13.2 million, resulting in an average blended rate of $0.071/ kWh. Energy prices for ground-mounted solar for large-scale projects in the region ranged between $0.06 and $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 consisted of an energy charge of only $0.0347/kWh, with the remainder of the bill consisting 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 as opposed to 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 OEI conducted a rate impact analysis examining the long-term effect 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 per kilowatt-hour when incorporating a solar photovoltaic system.

The utility rate analysis revealed the project was not likely to meet the Army's price constraint. Because this was determined early in the development process, efforts to pursue the project were quickly suspended and redirected toward feasible projects.

Utility rate impact analysis shows how different project scenarios affect an installation's total annual energy cost. 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 Appendix H), 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.

Outgrant of Army Lands – Energy Price for Third Party Purchase

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 since comparison to wholesale market prices is less complicated than a 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.

E.8 THE PROJECT *PRO FORMA* – PROJECT IRR

Project IRR is an indicator of project value, and is a key financial metric for developers and investors. It is defined below and is used in this Guide to represent financial return metrics used by private capital investors, developers, and lenders.

Internal Rate of Return (IRR)

The IRR is the interest rate at which the net present value equals zero (NPV = 0). The result determines the expected profit for investors and developers. The IRR is tied to the project's risk level. The higher the risk, the higher the IRR needs to be to offset the risks. Investors, lenders, and developers may each use different calculations or financial metrics specific to their business to analyze investment opportunities. The IRR is a financial calculation used here to represent financial returns in general, and is a commonly used metric in finance.

The financial returns to developers, and to equity and debt providers, are derived from the project IRR and may be measured by a variety of financial calculations, including but not limited to project yield, return on investment, and cash-on-cash return metrics.[21] 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 extrapolate the energy or electricity price and project yield for a particular project configuration, location, or design.

An unlevered project IRR 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 of project returns without using debt financing. This is used to isolate the risk/return characteristics of a project from those that result when debt (leverage) is applied. Projects with an unlevered return 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 IRR for Renewable Energy Projects

Energy sales revenue is not the only source of revenue that contributes to project returns. Renewable energy projects can also produce other sources of revenue, such as RECs, and can benefit from valuable state and federal tax benefits. The sale of these products or attributes produces non-energy revenue that can lower energy prices. The Army benefits from these sources of revenue or financing because they drive down the energy price necessary to achieve a competitive IRR from energy revenue alone.

Estimating Yield for Small-Scale Projects

For small-scale projects, the time and expense of generating a *pro forma* model may seem unnecessary. However, this analysis is essential to evaluating economic feasibility and will be necessary to document the business case and meet project approval requirements.

Installations should use the expertise of experienced consultants to evaluate small- and medium-scale projects.

[21] The definition of yield is simplified to introduce the concept of financial metrics. Detailed financial analysis and expertise are necessary to accurately calculate and interpret financial performance.

Both state and federal policy, along with regulatory policy, create non-energy revenue opportunities, with the resulting market conditions often determining the value of non-energy revenue for sources like RECs. One example is state-wide renewable portfolio standards that require utilities to acquire a percentage of overall energy sales from renewable sources, some or all of which can be satisfied by purchasing 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, thereby earning a return against the tax liability owed. Investors with tax liability can buy credits at a discount, 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, to count toward compliance with energy mandates. (The Energy Policy Act of 2005 and the President's climate goals both require Army ownership of RECs.) If the project's financial viability 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 project by project 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 the Army agrees. By current policy, the Army cannot purchase unbundled RECs (RECs without the associated renewable energy) for compliance.

Army RECs are retained, and 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.

E.9 INTERPRETING PRICE AND PROJECT IRR

For most projects, electricity price and financial returns are closely related, i.e., for a given capital investment and operating cost, the higher the electricity price, the higher the project IRR. The Army seeks to lower prices. The developer and investors seek a higher IRR. 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 IRR is illustrated in Figure E.2. If a project can achieve a project IRR that is attractive to the market by demanding a price that is below the Army's price ceiling (or the price of electricity the market is willing to pay), the project creates value and can be considered a good candidate for development.

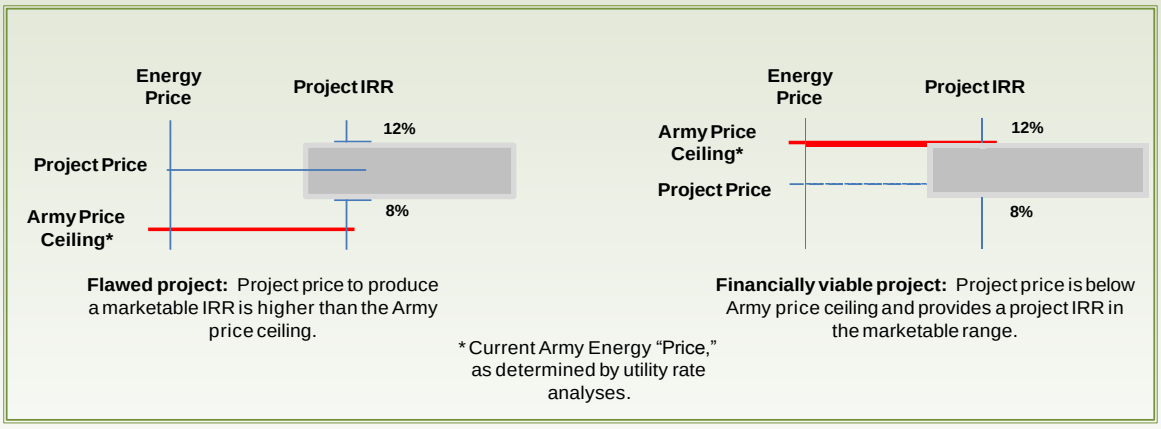


FIGURE E.2. ARMY PRICE CEILING VS. PROJECT IRR

Appendix F – Eight Assessment Criteria Matrices by Phase

The following matrices summarize the eight assessment criteria for Phases 1-3 described in Part 3.

F.1 PHASE 1 MATRIX

Eight Assessment Criteria	Phase 1 Project Assessment Activities	Typical Work Products
Mission/ Energy Security	➢ Identify installation energy security requirements and how the project can support those needs ➢ Identify potential effects of technologies and site options on installation operations or tenant missions ➢ Develop and document project goals and objectives, and energy security and/or installation energy strategy ➢ Perform Office of the Secretary of Defense (OSD) Clearinghouse review, cyber/intel threat, and glint/glare analyses, as applicable ➢ Establish Memorandum of Understanding (MOU) with installation (for large-scale projects >10 MW) **Expertise**: Installation Master Planner, Energy Managers, Airfield Manager, G6-NEC, Frequency Managers, and Aviation Trainers **Stakeholders**: Mission and Installation Commanders	✓ Installation Assessment Report ✓ Documented mission impact ✓ Energy security requirements ✓ Project goals and objectives ✓ OSD Clearinghouse review ✓ Glint/glare analysis **Goal**: Army stakeholder buy-in on project goals and objectives, technology, and site
Economics	➢ Define installation energy requirements and role of privately-financed renewable energy ➢ Perform utility tariff/rate analyses ➢ Project utility rate ~20 years into future ➢ Assess economic viability of renewable resources ➢ Define alternative courses of action ➢ Perform preliminary business case and financial analyses (*pro forma)* to show economic viability of opportunity **Expertise**: Electrical and utility engineers, electricity and energy market analysts, resource assessment teams/ data/equipment, financial analysts **Stakeholders**: Installation Commanders, utilities, off-takers	✓ Utility rate analyses ✓ Installation energy baseline data, energy requirements ✓ Forecasted utility rates ✓ Resource assessment ✓ *Pro forma* ✓ Business case analysis ✓ Utility rate impact assessment ✓ Economic alternatives analysis ✓ Life-cycle cost analysis **Goal**: Documented project value supported by commercial fundamentals
Real Estate	➢ Review Installation master plan and prior land use to identify conflicts ➢ Investigate ownership/status of available land ➢ Identify project site(s), and consult Installation Real Estate Planning Board for its approva ➢ Get estimated land value from U.S. Army Corps of Engineers (USACE) Real Estate **Expertise**: Federal real estate specialists, USACE or the Bureau of Land Management, Geographic Information Systems experts **Stakeholders**: Mission Commanders, land holders, neighbors, FAA	✓ Site visit and assessment ✓ Title due diligence ✓ Clear Parcels Map ✓ USACE land value estimate **Goal**: Defined site or alternative sites that are available for long-term energy generation facilities, with costs that can be supported by project economics

Eight Assessment Criteria	Phase 1 Project Assessment Activities	Typical Work Products
Regulatory and Legal	➢ Perform a regulatory review to determine interconnection and net metering limits ➢ Review state renewable portfolio standards (RPS) and renewable energy credit (REC) policies, and federal, state, and local incentives ➢ Review state requirements for emissions and plant sizing, as needed **Expertise**: Legislative and regulatory expertise, energy market analysts, utility engineers **Stakeholders**: Installation, utilities, state regulators	✓ Regulatory assessment ✓ Interconnection regulations ✓ REC policies and available incentives **Goal**: Clearing of regulatory hurdles (or at least identifying them at this stage)
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 (megawatts), market or Army demand, and off-taker(s) identified
Technical/ Integration	➢ Gather data on transmission and distribution lines, 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 requirements ➢ 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 National Environmental Policy Act (NEPA) contracting, scheduling, and cost issues ➢ Work with installation/USACE to develop the Environmental Condition of Property (ECP) report for real estate documents **Expertise**: Army Environmental Command (AEC), environmental contractors, environmental experts **Stakeholders**: Installation, developers	✓ Identification of NEPA requirements for Environmental Assessment (EA), Environmental Impact Statement (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 Record of Decision (ROD), including schedule and cost

Eight Assessment Criteria	Phase 1 Project Assessment Activities	Typical Work Products
		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 F.1. PHASE I PROJECT ASSESSMENT MATRIX

F.2 PHASE 2 MATRIX

Eight Assessment Criteria	SUMMARY OF PHASE 2 PROJECT ASSESSMENT ACTIVITIES	Work Products
Mission/Energy Security	➢ 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	✓ 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	➢ Value in-kind consideration (IKC) benefits, if any, for incorporation into Concept Report of Availability (ROA) ➢ Perform sensitivity cost analysis, and define not-to-exceed parameters ➢ Perform detailed CBA, and provide to the Deputy Assistant Secretary of the Army for Cost and Economics (DASA(CE)) lead analyst for independent validation by OASA (FM&C) ➢ Perform Office of Management and Budget (OMB) scoring analysis using OMB Circular A-11, Appendix D scoring criteria ➢ Perform life cycle cost analysis (LCCA) of three options: (1) proposed renewable energy project through private financing; (2) funding with Military Construction, with Army ops; and (3) status quo (doing nothing) **Stakeholders**: DASA (FM&C)	✓ IKC valuation ✓ Sensitivity assessment ✓ DASA(CE) CBA validation memo ✓ OMB scoring test results ✓ LCCA ✓ *Pro forma* **Goal**: Finalized financial models and economic analyses of selected technology supporting value of project
Real Estate	➢ 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 Deputy Assistant Secretary of the Army for Installations, Housing & Partnerships (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 fair market value (FMV) of the proposed lease interest ➢ Prepare outgrant terms and conditions for Request for Proposal (RFP), including non-excess justification **Stakeholders**: Installation master planning and real estate, USACE regions, DASA(IH&P)	✓ Fair market value for in-kind consideration discussions ✓ Approved Concept ROA and real estate documentation ✓ Information in Project Validation Report (PVR) (Appendix G) ✓ Completed draft real estate documents **Goal**: Site location with completed outgrant documentation
Regulatory and Legal	➢ Quantify RPS incentives, and coordinate with modeling and LCCA exercises ➢ Build state emissions (where appropriate) and permitting requirements into RFP **Stakeholders**: Army Regional Environmental and Energy Offices, Office of the Army General Counsel (OGC)	✓ RFP structure **Goal**: Regulatory risks to the project addressed, and path forward for permits or approvals determined

Eight Assessment Criteria	SUMMARY OF PHASE 2 PROJECT ASSESSMENT ACTIVITIES	Work Products
Market/Off-take	➢ If Army is not off-taker, or one of multiple off-takers, quantify 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	✓ Defined off-take potential **Goal**: Verified project size (MW) and business structure (lease or energy purchase)
Technical/ Integration	➢ Perform detailed evaluation of 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	✓ Identified issues related to UP contract ✓ A completed installation systems analysis ✓ Completed technical performance document **Goal**: Complete technical assessment of system integration requirements
Environmental	➢ Complete 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 Realty Governance Board (RGB) and prior to release of RFP **Stakeholders**: Installation environmental, AEC, Garrison Command, general public	✓ ECP documented in RFP attachments ✓ Signed FONSI by Garrison Command ✓ NEPA status documentation **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[22] brief ➢ Perform required briefs and obtain RGB approval memo ➢ Perform OSD concept briefing for 10 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 Performance Work Statement, Quality Assurance Surveillance Plan, evaluation criteria, Measurement and Verification Plan; USACE-conducts/develops Service Acquisition Workshop, Service Contract Acquisition Request, as applicable **Stakeholders**: DLA – Energy or USACE, Huntsville Center	✓ Identified acquisition authority ✓ Contracting organization selected ✓ Signed RGB approval memo ✓ Draft Contract Administration Plan ✓ Draft RFP **Goal**: Validated business model and draft procurement documents

TABLE F.2. PHASE 2 PROJECT ASSESSMENT MATRIX

[22] Most privately financed medium- to large-scale projects will involve a lease with a term longer than 5 years; these projects will therefore require approval by the RGB.

F.3 PHASE 3 MATRIX

Activity or Event	Summary of Phase 3 Project Activities	Products
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 ➢ Send project package to contracting organization, which submits draft Title 10 electronically on the first 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/Notice of Opportunity to Lease (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 Source Selection Evaluation Board (SSEB) to review proposals and establish competitive range ➢ Conduct negotiations with developers in competitive range, and select highest ranking offeror (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 Installation Management Command, Region, Headquarters Department of the Army (HQDA), and Assistant Chief of Staff for Installation Management (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 , Deputy Assistant Secretary of the Army for Energy & Sustainability, OSD, Congress	✓ Final NOL published and issued to offerors ✓ 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

Activity or Event	Summary of Phase 3 Project Activities	Products
For energy procurement contract: Solicitation and selection	➢ DLA/HNC prepares RFP for an energy contract with input from installation or Office of Energy Initiatives (OEI) (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 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 ➢ OEI or installation coordinates completion of energy contract (using Renewable Energy Service Agreement (RESA) template) for OSD approval and congressional notification ➢ Sign energy procurement contract **Stakeholders**: OSD, Congress, contracting organization, Army Leadership	✓ 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 ✓ OEI 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
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	✓ Army concurrence ✓ Required permits ✓ Project financial close ✓ Notice to Proceed **Goal**: Financial close and Notice to Proceed

TABLE F.3. PHASE 3 PROJECT ACTIVITY MATRIX

Appendix G – Project Validation Report Outline Template

The outline below illustrates the information required (as applicable) when submitting a Project Validation Report for project approval. The report is expected to not exceed 10 pages.

1. Executive Summary – not to exceed 1 page in length
   Overview of the project definition, goals and objectives, cost implications (appropriated and non-appropriated), business model, current private sector market, risk assessment, anticipated project milestones, timeline for implementation, and overall impact to the Army. Describe benefit to the Army with respect to economics, energy security, and energy mandates.

2. Project Description – Overview
   a. Background on the installation – include project support to mission and energy needs.
   b. Technology type and approximate system size.
   c. Available sites.
   d. Integration with existing installation infrastructure.
   e. Considered business model(s) business case.
   f. Congressional and local government interests.

3. Project Benefits and Risks
   a. Mission/Energy Security
      i. Potential impacts on installation missions/operations and mitigation plans, including Department of Defense Clearinghouse and glint/glare considerations.
      ii. Potential impacts on physical security of existing buildings and infrastructure, and cyber security of missions and operations, including materials sourcing considerations.
      iii. Benefit to installation energy security.
   b. Energy Mandates - project application to current Army and Federal energy mandates.
   c. Economics
      Summary of Life-Cycle Cost Analysis key findings, including:
      i. Conceptual cost estimate overview.
      ii. As applicable, address budget scoring in accordance with Office of Management and Budget (OMB) Circular A-11.
      iii. Utility rate analysis.
      iv. Analysis of alternatives; indicate if the project provides savings compared to existing or conventional alternatives.
      v. Financial pro-forma and assumptions.
      vi. Private investment requirement: net present value (NPV), internal rate of return (IRR), other measures of profitability.
      vii. Calculated cost to the Army: Levelized cost of electricity and annual cost projections, NPV, IRR. Other Army costs, including government administrative cost associated with developing, reviewing, and implementing the project.
      viii. Energy security premium and justification, if applicable.
      ix. Risks and sensitivity analysis.
   d. Real Estate
      i. Maps of each parcel, as well as location of installation within the state or territory.
      ii. Non-excess status based on Concept Report of Availability, as applicable.
      iii. Statement of verification of property ownership.
      iv. Description of property, including any improvements, current land issues, previously planned land uses and reason(s) they were abandoned, and description of adjacent property.
      v. Identification of supporting U.S. Army Corps of Engineers office for real estate actions.
      vi. Estimated fair market value of the out grant, plan for valuing the land, and fulfillment of 10 U.S.C. § 2662 requirements, if applicable.

vii. Real estate vehicles used and planned applications and considerations.
viii. Integration of the project into the installation's Master Plan and status of Real Property Planning Board approval, if applicable.

e. Regulatory and Legal
   i. Description of state and local regulations and effect on proposal.
   ii. Description of available project incentives and timeline considerations.
   iii. Requirements for developer.

f. Market/Off-take
   i. Summary of market area analysis (if off-take beyond installation is anticipated).
      a) Utility identification and assessment.
      b) Renewable energy market analysis – current and forecasted.
      c) Transmission capacities and availabilities.
   ii. Likelihood of developer interest in project.

g. 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.

h. Environmental
   i. Summary of potential environmental (including cultural, historic, wildlife, unexploded ordinance) conditions, issues, and concerns.
   ii. Identification of supporting organization for environmental actions.
   iii. Environmental Condition of Property status/results.
   iv. Required National Environmental Policy Act documentation and plan/process for completion, including any formal consultation required and estimated timeline.
   v. Any other required environmental documentation (i.e., state requirements).

i. Procurement
   i. Proposed procurement strategy or business model (i.e., competition or sole source, power purchase, lease, other authority).
   ii. Developer requirements.
   iii. Identification of selected contracting office.

4. Conclusion / Recommendations
   a. Desired procurement strategy and parameters for approval.
   b. Contracting agency and way ahead, including a milestone chart.
   c. Approvals and congressional notifications required.
   d. Risk assessment summary chart.

Appendix H – Project Review and Approval Requirements

This appendix details Army review and approval requirements for renewable energy generation projects, as well as external Office of the Secretary of Defense (OSD) and congressional requirements that may apply. The review and approval process ensures energy project planning and execution is consistent with current Army energy policy as described in the memorandum *Department of the Army Guidance for Energy Related Projects and Services.*[23] Summaries of the requirements are provided in Table H.1, Table H.2, Figure H.1, and Figure H.2.

H.1 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) Reporting and approval requirements apply to energy Savings Performance Contracts (ESPCs) or UESCs that include a renewable energy generation component.

(3) All projects requiring OSD final approval will be reviewed by the Deputy Assistant Secretary of the Army for Energy & Sustainability (DASA(E&S)) prior to submission to the OSD and the Assistant Secretary of the Army for Installations, Energy and Environment (ASA(IE&E)).

(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 Memorandum, *Glint/Glare Issues on or near DOD Aviation Operations*.

(6) Project proponents are responsible for obtaining all required approvals, including briefing the DASA(E&S) or the Realty Governance Board (RGB) for DASA(E&S) and Deputy Assistant Secretary of the Army for Installations, Housing & Partnerships (DASA(IH&P)) approvals, and briefing and submitting required packages for OSD approvals and certifications, and congressional notifications.

- 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 Office of Energy Initiatives (OEI) on medium-scale projects larger than 1 MW, but less than 10 MW. Support from installation Department of Public Works; Master Planning; environmental; Director of Plans, Training, Mobilization, and Security; airfield operators; Network Enterprise Centers; legal counsel; Senior Commander; and Garrison Commander are critical to determining the installation's ability to host the renewable energy project and to ensure the project supports the installation mission(s).
- The Army's centralized capability for development of large-scale renewable energy projects (currently the OEI) is the proponent for renewable or alternative energy generation projects

[23] Memorandum, ASA(IE&E), 19 Jul 2010, subject: Department of the Army Guidance for Energy Related Projects.

greater than or equal to 10 MW. OEI will coordinate with the installation command to ensure support for projects.

H.2 Small-Scale Project Approval and Reporting

Command approval through the appropriate chain of command is required for small 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.

These projects will:

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

(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 to10 years (except agreements under the authority of 10 U.S.C. § 2922a).

Approval of Small Projects

Approval 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.

Note that HQDA approval is required for all projects that include an agreement under the authority of 10 U.S.C. § 2922a or a renewable energy procurement contract with a term greater than 10 years, regardless of the value of the project.

H.3 Army (HQDA) Approval Process

Headquarters Department of the Army (HQDA) approval of energy projects is required, as described below, prior to any solicitation, contract negotiation, public announcement, or congressional notification. A written decision to approve, modify, defer, or disapprove the proposal will be provided within 10 working days of receipt of the submittal, briefing, or receipt of additional clarifying information requested. The Project Validation Report (PVR) template in Enclosure 3 provides a detailed outline of required information for the submittal package.

Business case and cost benefit analyses shall be performed in accordance with the *Department of the Army Cost Analysis Manual and the Standing Operating Procedure for Large-Scale Renewable Energy Projects Business Case Analysis Review and Validation*. These will identify cost and priority, and provide an analysis of the expected result, market/feasibility study/concept, Report of Availability (ROA), state and local regulatory requirements, environmental/historic considerations, and key stakeholders.

The HQDA approval process is completed in Phase 2, along with applicable external approvals required prior to solicitation. Final external approvals and notifications will be completed in Phase 3, as required. During Phase 2, a PVR and other documentation must be prepared and presented to the RGB or DASA(E&S) 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 using 10 U.S.C. § 2922(a) authority.

A template for the PVR is provided in Appendix G. 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), National Environmental Policy Act (NEPA) requirements, and the Environmental Condition of Property report are obtained.

Real Estate – The project team works with the U.S. Army Corps of Engineers (USACE) HQ to identify the USACE Division/District that will be responsible for coordinating the real estate documents for the project, and begins developing relevant real estate action attachments or other requirements of the real estate instrument being used.

Economics – (a) Funding is secured and a third-party utility forecast and escalation rate analysis is performed, and (b) the required external cost benefit analysis (CBA) is received from the Deputy Assistant Secretary of the Army for Cost and Economics (DASA(CE)).

When these documents have been coordinated, and the analyses discussed above and detailed in Table H.1 and Table H.2 are complete, the project proponent summarizes the findings by updating the PVR. In accordance with best practice, action officers of the RGB are briefed and concerns are 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 memorandum, signed by the DASA(E&S) and DASA(IH&P) as applicable, is received, the project moves into Phase 3, Contracting and Agreements.

H.3.1 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 G 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.

H.3.2 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 G 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(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(IH&P) will provide a written decision to the project proponent no more than 5 working days after the receipt of recommendation.

H.3.3 SECOND DASA REVIEW

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 approval is required, as applicable, 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.

H.4 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 Congress. OSD requirements are specified in the *Department of Defense Guidance on Financing of Energy Projects.*[24] 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 National Defense Authorization Act (NDAA) 2012 Sec 2822, *Considerations of Energy Security in Developing Energy Projects on Military Installations Using Renewable Energy Sources*. A summary of external reporting requirements is shown in Table H.1.

H.4.1 ENERGY PROJECTS INVOLVING OUTGRANTS OF ARMY REAL PROPERTY

Privately-financed energy projects containing a lease pursuant to 10 U.S.C. § 2667 with an annual rental FMV greater than $750,000 require OSD certification, and congressional notification in accordance with 10 U.S.C. § 2662.

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

(2) *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.

[24] Memorandum, DUSD(I&E), 09 Nov 2012, subject: Financing of Renewable Energy Projects Policy, The Department of Defense Guidance on Financing of Energy Projects.

- A 14-day wait time is required, beginning on the first day of the month after electronic notification.

H.4.2 ENERGY PROJECTS UNDER THE AUTHORITY OF 10 U.S.C. § 2922A

Privately-financed energy projects using the authority found in 10 U.S.C. § 2922a require an OSD concept briefing prior to solicitation and OSD approval before contract signing. Congressional notification in accordance with 10 U.S.C. 2662 is also required for 10 U.S.C. § 2922a projects with terms greater than 20 years per *National Defense Authorization Act for Fiscal Year 2013* (PL 112-239).

(1) *OSD concept briefing*

- Prior to solicitation, project proponents will provide a concept briefing to OSD. 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. It is anticipated that this briefing will become a requirement.

(2) *OSD approval process*.

- After the contract has been agreed to by the contractor but before it is awarded, project proponents will provide a package to OSD for approval. A second briefing is not required unless a significant change in project parameters required a second DASA approval.
- The approval package shall be as outlined in the *Department of Defense Guidance on Financing of Energy Projects* III.E.1.

(3) *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.

H.4.3 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 H.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. However, the concept briefing and certification may be performed concurrently.

H.4.4 ALL PROJECTS

For projects with a contract face value greater than $6.5 million, a public announcement and notification of project-related congressional members is required three business days prior to contract award, per DFARS Subpart 205.303—*Announcement of Contract Awards*, 1 October 2010 with Policy Alert 11-50 / Rev. 002, 20 Dec 2011.

For renewable energy projects that exclude the pursuit of energy security on the grounds that the inclusion of energy security is cost prohibitive, congressional notification per NDAA 2012, Section 2822 is required within 30 days of contract award. 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 cost benefit analysis (CBA) to support this decision is a required submittal.

Table H.1 provides a summary of all OSD and Congressional Notification requirements:

Timeline	Requirement	Responsible Office(s) – Requirement to	§ 2922a with Lease or Easement	§ 2922a Procurement Off-site	GSA Areawide with Lease or Easement	GSA Areawide Procurement	2667 Enhanced Use Lease
Prior to solicitation or public notice	**OSD Concept Briefing**	OEI – DUSD(I&E)	**<** $750k annual fair market rental value	All § 2922a procurements			
	OSD Certification	OEI – DUSD(I&E)	**>** $750k annual fair market rental value		**>** $750k annual fair market rental value		**>** $750k annual fair market rental value
	10 USC § 2662* Congressional Notification	OEI / USACE HQ / DASA(IH&P) – HASC and SASC	**>** $750k annual fair market rental value		**>** $750k annual fair market rental value		**>** $750k annual fair market rental value
Prior to contract / lease execution	**OSD Approval**	OEI **–** DUSD(I&E)	All § 2922a procurements	All § 2922a procurements			
	10 USC § 2662* Congressional Notification	OEI / USACE HQ / DASA(IH&P) - HASC and SASC	**>** $750k annual fair market rental value - OR - On Army land with contract term **>** 20 years		**>** $750k annual fair market rental value		**>** $750k annual fair market rental value
	DFARS 205.303 Announcement & Congressional Notification**	Contracting Office – Project related Congressional Representatives	Contract face value **>** $6.5 million				
After contract / lease	**NDAA FY 2012 Sec. 2822*** Congressional Notification**	OEI / DUSD(I&E) - HASC and SASC	Excludes pursuit of energy security based on cost				

***** Requires 14 day wait time beginning the first day of the month.
****** Submitted three business days prior to execution of the contract or lease.
******* Within 30 days after execution of the contract or lease.

TABLE H.1. OSD AND CONGRESSIONAL NOTIFICATION REQUIREMENTS SUMMARY

H.5 APPROVAL PROCESS TABLE AND DIAGRAMS

Statutory and policy approval requirements are driven by the contracting authorities who are selected to execute the project and the applicable thresholds for approvals/notifications based on project size, contract term, and business value. The required government approvals, including HQDA and other federal requirements, are summarized in Figure H.1. and shown graphically for each of the business models relating to specific applications of the long-term DOD acquisition authorities. The timing of approvals is illustrated relative to life-cycle Phases 2 and 3, where the approval functions are accomplished.

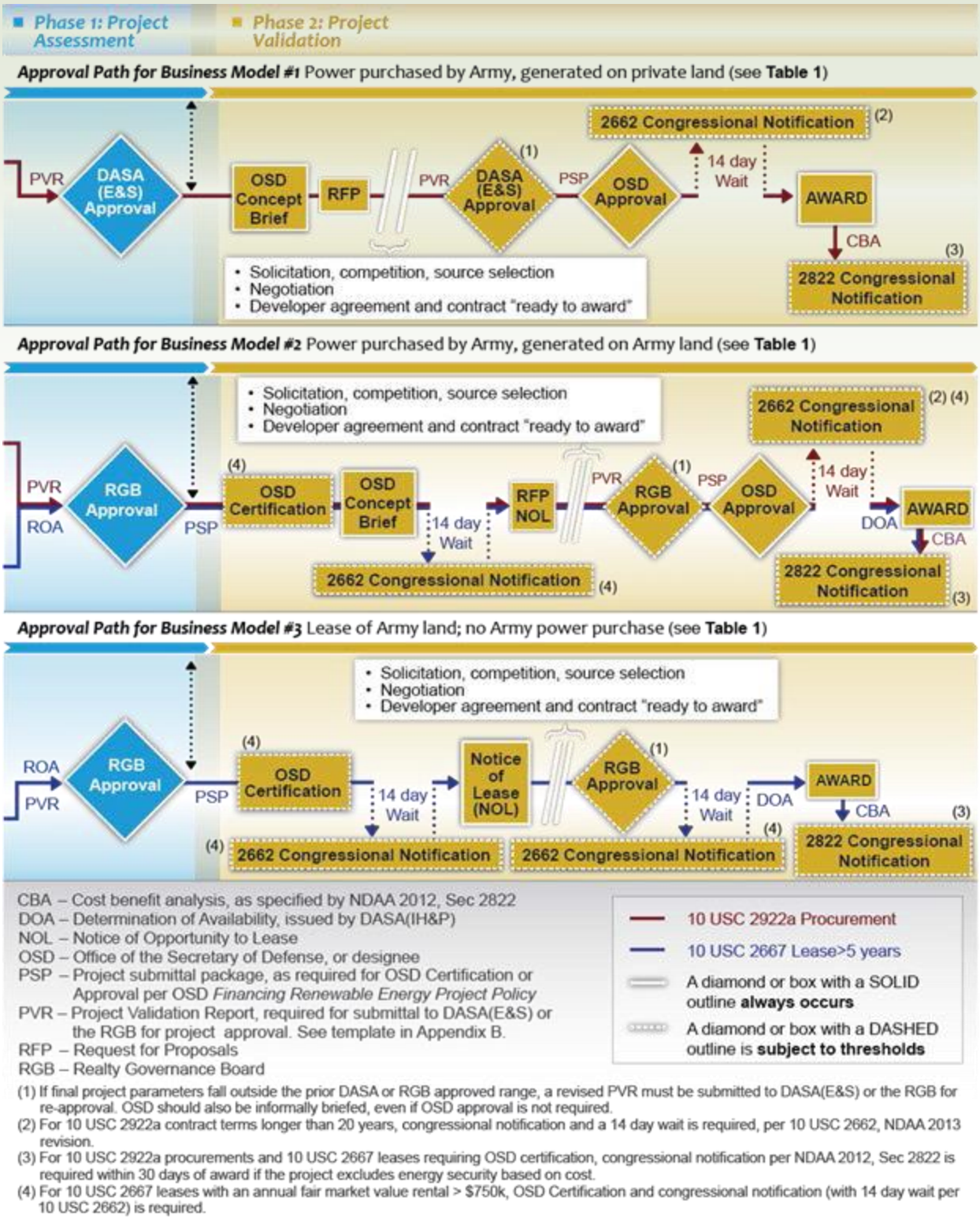


FIGURE H.1. APPROVAL PATHS FOR BUSINESS MODELS RELATED TO LONG-TERM AUTHORITIES

Table H.2 summarizes and describes project approval requirements.

Project Thresholds	**ACSIM Approval** (and documentation in AEWRS 30 days before project start or award)	**DASA(E&S) Approval** (2) (Prior to solicitation)	**RGB Review** (2) – DASA(IH&P) Approvals (Prior to solicitation)	**OSD Certification** (Prior to solicitation)	**OSD Concept Briefing** (Prior to solicitation) **and Approval** (Prior to contract award)	**Congressional Notification**
	'X' indicates approvals and requirements for the project threshold. (1)					
Project size (estimated cumulative business value)						
≤ $750,000	X					
> $750,000		X				
Contract face value > $6.5 million						X (3)
Project term						
ESA ≤ 10 years	X					
ESA > 10 years		X				
10 USC § 2922a ≤ 20 years		X			X	X (4)
10 USC § 2922a > 20 years		X			X	X (4)(5)
Use of Army land						
≤ 5 year term	X					
> 5 year term			X			
> $750,000 annual FMV rental				X		X (4)(6)

(1) All projects shall be reviewed and approved through the chain of command regardless of the approval level indicated by the "X."

(2) A second DASA approval is required prior to contract award or lease signing, if final project parameters fall outside the approved concept.

(3) DFARS 205.303 Announcement & Congressional Notification required prior to execution of contract or lease.

(4) After contract signing, per NDAA 2012, Sec. 2822, for renewable energy projects under 10 USC § 2922a or 10 USC § 2667 that do not pursue energy security due to cost.

(5) Congressional notification required prior to contract signing for 10 USC § 2922a projects with terms > 20 years per 10 USC § 2662.

(6) Congressional notification required prior to solicitation and again prior to lease signing for projects on Army land with annual fair market rental value > $750,000.

TABLE H.2. PROJECT APPROVAL REQUIREMENTS

Figure H.2 graphically illustrates renewable energy project approvals within the Army.[25]

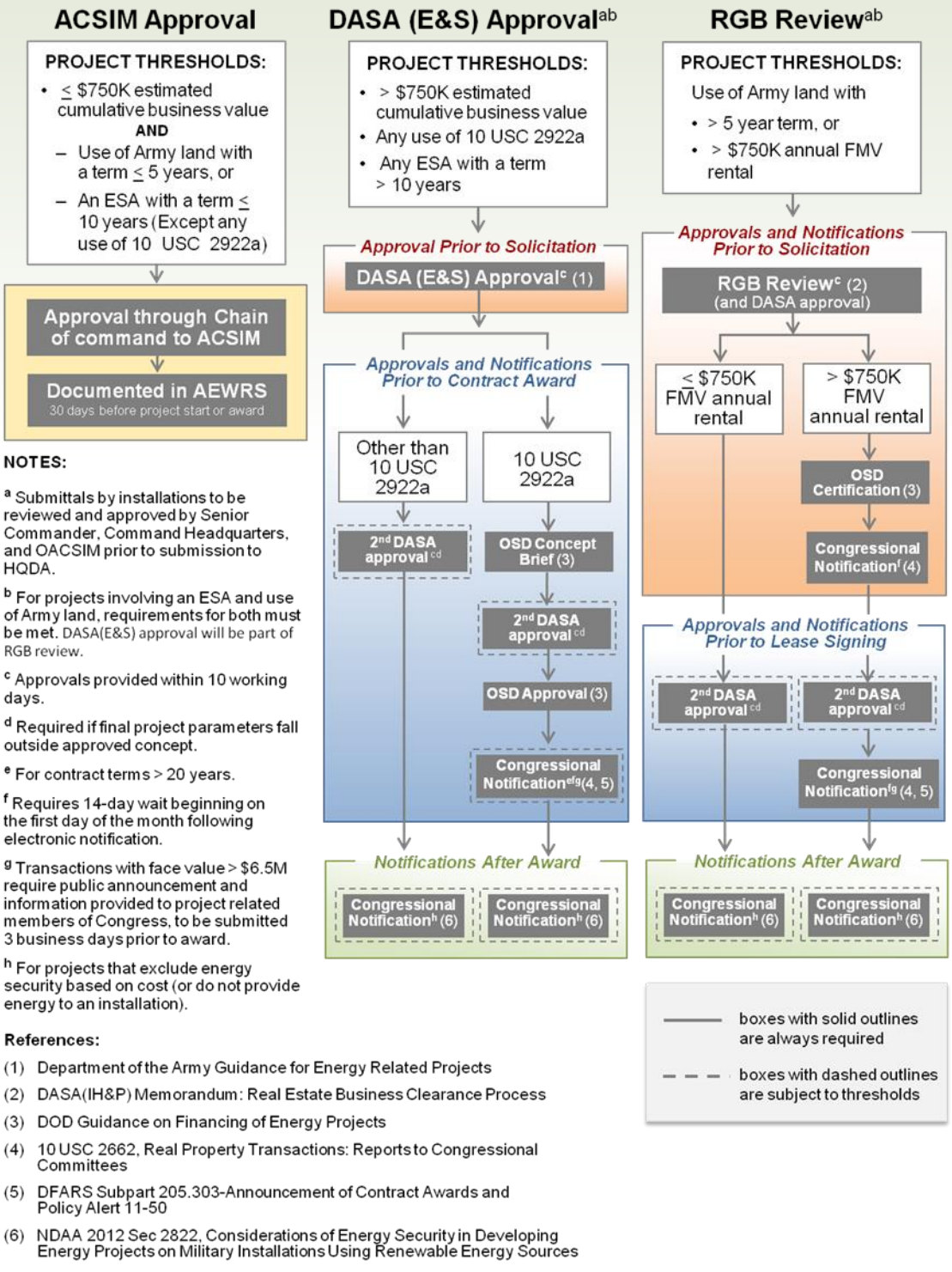


FIGURE H.2. ARMY RENEWABLE ENERGY PROJECT APPROVALS

[25] RESA is a specific type of an Energy Services Agreement (ESA). The ESA, as described in Figure H.2. can be used with a broader range of projects than those just focused on renewable energy.

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