FINDING OF NO SIGNIFICANT IMPACT
FOR
CONSTRUCTION AND OPERATION OF SOLAR PHOTOVOLTAIC RENEWABLE ENERGY PROJECTS ON ARMY INSTALLATIONS

The National Environmental Policy Act of 1969 (NEPA) (42 U.S. Code [U.S.C.] Section 4321 *et seq.*) requires federal agencies to consider potential environmental impacts prior to undertaking a course of action. NEPA is implemented through the Council on Environmental Quality (CEQ) regulations (40 Code of Federal Regulations [C.F.R.] Parts 1500-1508), and, within the Army, the Army's NEPA regulation (32 C.F.R. Part 651), Environmental Analysis of Army Actions. In accordance with these regulations, the Army has prepared a Programmatic Environmental Assessment (PEA), which is incorporated by reference in this Finding of No Significant Impact (FNSI), to consider environmental effects of construction, operation, and maintenance of solar photovoltaic (PV) renewable energy projects on Army installations.

The PEA is programmatic and nationwide in scope. For years, the Army has analyzed and implemented solar PV projects at Army installations across the country. In the PEA, the Army leveraged this experience with the goal of streamlining the NEPA process for future solar PV proposals, as appropriate, in a manner consistent with CEQ and Army regulations.

1. Proposed Action

The Proposed Action is to construct, operate, and maintain solar PV arrays and/or ancillary power systems on Army installations, to include U.S. Army Reserve facilities, Army National Guard sites, and joint bases managed by the Department of the Army (with all henceforth referred to only as "Army installations" or "installations"). The Proposed Action includes, for those solar PV projects where the existing infrastructure is insufficient, constructing (or upgrading) and maintaining the associated infrastructure required for the transmission and management of the generated electricity to the electric grid. Associated infrastructure includes but is not limited to electricity transformers, transmission and distribution lines, and sub or switching stations; as well as ancillary power control systems such as energy storage systems, micro-grid components, and back-up power generators. The Proposed Action may include real estate actions on Army lands where the projects could be funded and constructed by the Army, funded through a third party Power Purchase Agreement utilizing a lease of Army or Joint Base land to an independent power producer or the local regulated utility company (e.g., via an "Enhanced Use Lease"), or funded via some other relationship with a private or public entity.

The projects being evaluated and analyzed would generally range from approximately 10 megawatt (MW) to 100 MW per site; however, the projects outside of this MW range (e.g., less than 10 MW) are inclusive in this Proposed Action. On average, seven acres (2.8 hectares) of land are currently required to produce one MW of power. As this technology has evolved, the acreage requirement for one MW generating capacity has decreased; therefore, it is possible

that future solar PV technologies may require even less acreage per MW; currently, approximately 70 acres (28 hectares) of land would be required for a 10 MW site and 700 acres (283 hectares) of land for a 100 MW site. PV systems on rooftops would generally expect to have capacity measured in watts or kilowatts (kW), not MW, and be of a much smaller size and scope.

Routine maintenance would ensure proper operation of the solar PV system, including vegetation control, snow removal, solar module washing, and periodic module/other equipment replacement. Equipment monitoring and as-needed repairs by the system operator would also enable proper operation.

2. Alternatives

The PEA looks at three action alternatives and a no action alternative. The goal of this programmatic approach is to streamline the NEPA process for the construction, operation, and maintenance of solar PV renewable energy projects by providing installations with sufficient detail about environmental impacts on resources to enable them to tier off of the PEA, as appropriate. As part of this programmatic approach, the PEA has a checklist to be used with the action alternatives to help installations determine whether additional site-specific NEPA documentation is required. Tiering from this PEA would avoid or reduce the costs of repetitive, similar analyses, and allow the Army to focus resources on only those site-specific environmental issues that require a deeper analysis. The programmatic approach would include all the benefits discussed in CEQ's *Final Guidance on Effective Use of Programmatic NEPA Reviews*.

The alternatives considered and analyzed in the PEA are:

- **No Action Alternative.** CEQ regulations require that the Army analyze a No Action Alternative to serve as a baseline to compare environmental impacts of no action with the action alternatives (40 C.F.R. § 1502.14(d)). The No Action baseline in this analysis compared the environmental impacts of not constructing new solar PV projects on Army installations, though it does include existing and already-planned solar PV projects on Army installations. Selection of the No Action Alternative would mean that Army installations would not be able to tier from the PEA analysis, but would have to continue to conduct repetitive analyses for solar PV projects.

- **Alternative 1: Implementation of Proposed Action on a Greenfield site.** Alternative 1 includes using a greenfield site on an Army installation to construct, operate, and maintain a solar PV array and/or ancillary power systems. A greenfield site is land that has not been previously developed and includes natural vegetation, agriculture applications, or landscaped parks.

- **Alternative 2: Implementation of Proposed Action on a Previously Developed Site.** This Alternative considers use of Army installation land for construction, operation, and maintenance of a solar PV project and/or ancillary power systems on a previously developed site. A previously developed site is land that has been used for commercial,

industrial, or residential purposes, and has been allowed to return to nature through disuse, decay, or the removal of developed additions. A previously developed site may contain hazardous or solid waste, munitions and explosives of concern, or other pollutants and may be managed under the Army Cleanup Program, also known as the Army's Environmental Restoration Program.

- **Alternative 3: Implementation of Proposed Action on or over Structures or Impervious Surfaces (e.g., on a building, garage, or carport).** This Alternative involves the construction, operation, and maintenance of a solar PV project on existing buildings or on carports over existing impervious parking areas. This alternative may include construction, operation, and maintenance of ancillary power control systems. Construction of PV projects on roofs typically affects a smaller footprint than those mounted on the ground as the array is limited to the confines of the building footprint or parking lot area.

3. Summary of Environmental Effects

No significant impacts are anticipated as a result of the No Action Alternative or any of the three action alternatives proposed in this PEA. Beneficial impacts, no impacts, and the extent of potential adverse impacts (negligible, minor, and moderate / less than significant) as a result of implementing the Proposed Action are summarized in Table 1 for each resource area analyzed (located in the appendix to this FNSI). Impacts are largely anticipated to be minimized through avoidance and through the implementation of environmental protection measures, as summarized in Table 2 (located in the appendix to this FNSI). Avoidance may be a result of the selection of proposed site locations, how the project site is designed, and when construction activities are scheduled. Environmental protection measures would include, for example, implementing erosion and storm water control measures during construction, maintaining construction vehicles and equipment, ensuring adequate and ecosystem-appropriate vegetation and/or gravel cover at the post-construction site, and ensuring safety equipment is appropriately used by construction and maintenance workers. No new mitigation measures are anticipated to be required.

4. Installation Checklist

As noted previously, the goal of this programmatic approach is to streamline the NEPA process for the construction, operation, and maintenance of solar PV renewable energy projects by providing installations with sufficient detail about environmental impacts on resources to enable them to tier off of this PEA, if appropriate.

Installations may choose any or all of the action alternative approaches to solar PV. Installation-specific proposals for solar PV projects would require an appropriate level of site-specific NEPA analysis and documentation. Proposed projects tiering from the PEA and this FNSI will utilize the checklist in in the appendix of this FNSI to assist Army installations in identifying site-specific NEPA requirements. This checklist is a duplicate of the checklist contained in Appendix A of the PEA. If careful application of the checklist to the proposed project at an installation requires a

"yes" or "maybe" response to any checklist item, then additional environmental analysis and consideration of mitigation measures may be required as part of an installation-level, site-specific NEPA process. Where further analysis would be required to meet site-specific NEPA requirements, the PEA may still be used for tiering, allowing the installation to focus on those resources which require site-specific analysis. The use of the checklist is set out in Section 1.5 of the PEA.

5. Public Review and Interagency Coordination

The PEA and draft Finding of No Significant Impact (FNSI) were made available for public, agency, and Tribal review on December 2, 2016 when a Notice of Availability was published in the *Federal Register*. That same day, an electronic copy of the draft FNSI and PEA was made available for download from the U.S. Army Environmental Command's website at http://www.aec.army.mil/Services/Support/NEPA/Documents.aspx. The Army invited public, agency, and Tribal participation in the NEPA process.

The Army received three comments as a result of the 30-day public comment period. One concerned the Army's business and real estate practices, rather than the substance of the environmental analysis. Another communicated Virginia state requirements pertaining to future projects that could tier from the PEA. The third objected to the programmatic nature of the analysis and questioned its adequacy. With respect to the third comment, the Army wishes to highlight that the PEA/FNSI does not claim that there is no limit on the number or extent of projects that may be undertaken at a specific installation. Though the analysis applies to projects of variable sizes and scope, generally anticipated to be between 10 MW and 100 MW, specific projects proposed by installations tiering from the PEA are to use the screening criteria in Section 1.6, meaning that no installation could ever be blanketed with solar panels and transmission facilities. Furthermore, the PEA/FNSI does not purport to claim that there never would be circumstances under which an EA or EIS would be necessary; indeed, as explained above, the very reason for the checklist in the appendix is to assist installations in determining whether additional NEPA analysis is required for a given proposed project. In summary, no edits are needed, nor were any made, to the PEA, dated November 2016, in response to the comments received.

6. Conclusion

Based on a careful review of the PEA, which is incorporated by reference, and comments received from the public, agencies, and Tribes, I have concluded that no significant environmental impacts are anticipated to result from the implementation of the Proposed Action and any of the alternatives, subject to application of the checklist for consideration of site-specific projects. Consequently, I have also concluded an environmental impact statement is not required, and will not be prepared.

My decision is based on potential environmental and socioeconomic impacts associated with the Proposed Action and alternatives, as analyzed in the PEA. This decision complies with legal requirements and has been made after taking into account all submitted information and considering a full range of reasonable alternatives.

March 02, 2017
Date

J.E. Surash
Acting Deputy Assistant Secretary of the Army
(Energy & Sustainability)
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Appendix

Table 1. Summary of the Potential Effects on the Evaluated Alternative FNSI-9

Table 2. Summary of Adopted Environmental Protection Measures..... FNSI-13

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Table 1. Summary of the Potential Effects on the Evaluated Alternative

Resource Area	No Action Alternative	Alternative 1: Greenfield Site	Alternative 2: Previously Developed Site	Alternative 3: Roof
No Significant Impacts identified for any resource areas.				
Land Use	• No impacts	• No to minor adverse impacts, both short- and long-term	• No to minor adverse impacts, both short- and long-term	• No to minor adverse impacts, both short- and long-term
Air Quality and GHG	• No to negligible adverse impacts, both short- and long-term	• Short-term minor adverse impacts; • Long-term beneficial impacts to negligible adverse impacts	• Short-term minor adverse impacts; • Long-term beneficial impacts to negligible adverse impacts	• Short-term minor adverse impacts; • Long-term beneficial impacts to negligible adverse impacts
Noise	• No to negligible adverse impacts, both short- and long-term	• Short-term, minor adverse impacts; • Long-term beneficial impacts to minor adverse impacts	• Short-term, minor adverse impacts; • Long-term beneficial impacts to minor adverse impacts	• Short-term, minor adverse impacts; • Long-term beneficial impacts to minor adverse impacts
Geological and Soil Resources	• No impacts	• Short-term moderate / less than significant adverse impacts; • Long-term minor, adverse impacts	• Short-term moderate / less than significant adverse impacts; • Long-term negligible to minor adverse impacts	• Short-term moderate / less than significant adverse impacts; • Long-term negligible adverse impacts
Water Resources	• No impacts	• Short-term negligible to minor adverse impacts • Long-term negligible to moderate / less than significant impacts	• Negligible to moderate / less than significant adverse impacts, both short- and long-term	• No to minor short-term adverse impacts; • Long-term negligible adverse impacts

Table 1. Summary of the Potential Effects on the Evaluated Alternative (con't)

Resource Area	No Action Alternative	Alternative 1: Greenfield Site	Alternative 2: Previously Developed Site	Alternative 3: Roof
No Significant Impacts identified for any resource areas.				
Biological Resources	• No to negligible adverse impacts, both short- and long-term	• Minor to moderate / less than significant adverse impacts, both short- and long-term	• Negligible to moderate / less than significant adverse impacts, both short- and long-term	• Negligible to minor adverse impacts, both short- and long-term
Cultural Resources	• No impacts	• Negligible to moderate / less than significant adverse impacts, both short- and long-term	• Negligible to moderate / less than significant adverse impacts, both short- and long-term	• Negligible to moderate / less than significant adverse impacts, both short- and long-term
Socio-economics	• Short-term negligible adverse impacts • No long-term impacts	• Short-term beneficial to moderate / less than significant adverse impacts • No to moderate / less than significant adverse long-term impacts	• Short-term beneficial to moderate / less than significant adverse impacts • No to moderate / less than significant adverse long-term impacts	• Short-term beneficial to minor adverse impacts • No to minor adverse long-term impacts
Transp. and Traffic	• No impacts	• Short-term minor adverse impacts; • Long-term negligible, adverse impacts	• Short-term negligible to minor adverse impacts; • Long-term negligible, adverse impacts	• Short-term minor to moderate / less than significant adverse impacts; • Long-term negligible, adverse impacts
Airspace	• No impacts	• No to negligible adverse impacts, both short- and long-term	• No to negligible adverse impacts, both short- and long-term	• No to negligible adverse impacts, both short- and long-term
Electro-magnetic Spectrum	• No impacts	• No short-term adverse impacts; • No to moderate / less than significant long-term adverse impacts	• No short-term adverse impacts; • No to moderate / less than significant long-term adverse impacts	• No short-term adverse impacts; • No to moderate / less than significant long-term adverse impacts

Table 1. Summary of the Potential Effects on the Evaluated Alternative (con't)

Resource Area	No Action Alternative	Alternative 1: Greenfield Site	Alternative 2: Previously Developed Site	Alternative 3: Roof
No Significant Impacts identified for any resource areas.				
Utilities	• No to negligible adverse impacts, both short- and long-term	• Short-term negligible to minor adverse impacts; • Long-term beneficial impacts to minor adverse impacts	• Short-term negligible to minor adverse impacts; • Long-term beneficial impacts to minor adverse impacts	• Short-term negligible to minor adverse impacts; • Long-term beneficial impacts to minor adverse impacts
Hazardous and Toxic Materials and Waste	• No effect	• Short-term minor adverse impacts; • Long-term negligible adverse impacts	• Short-term negligible to moderate / less than significant adverse impacts; • Long-term negligible adverse impacts	• Short-term minor adverse impacts; • Long-term negligible adverse impacts
Human Health and Safety	• No to negligible adverse impacts, both short- and long-term	• Minor adverse impacts, both short- and long-term	• Minor adverse impacts, both short- and long-term	• Minor adverse impacts, both short- and long-term
Cumulative	• Moderate / less than significant	• Moderate / less than significant	• Moderate / less than significant	• Moderate / less than significant

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Table 2. Summary of Adopted Environmental Protection Measures

Resource Area	Environmental Protection Measures
Land Use	• Stakeholder coordination/consultation and/or consolidation of infrastructure during the scoping and design. • Incorporation of solar PV projects and ancillary power control systems into the installation's RPMP. • Site designed for compatibility with regulatory requirements (Alternative 2).
Air Quality and GHG	• Site design to minimize movement of large amounts of dirt (e.g., excavation and fill) (Alternatives 1 and 2). • Dust control measures on the project site and unpaved roads used during construction. • Temporary suspension of excavation and grading activities during periods of high winds. • Emission control devises and vehicle maintenance of construction and maintenance vehicles and equipment. • Emission control equipment if required on stationary back-up power supply. • Adherence to requirements for CAA permit associated with back-up power generation systems, if any.
Noise	• For projects including back-up generators, site design to appropriately minimize operational noise impacts to sensitive receptors. • Scheduling of construction activities to minimize impacts to noise-sensitive receptors. • Personal hearing protection by appropriate construction personnel. • If maintenance activities would create noise impacting sensitive receptors, maintenance performed at a time to minimize impacts.
Geological and Soil Resources	• Site design to minimize grading requirements and avoid unique geological features and soils for which there are substantial construction issues (Alternatives 1 and 2).

Table 2. Summary of Adopted Environmental Protection Measures (con't)

Resource Area	Environmental Protection Measures
Geological and Soil Resources (con't)	• Site design, on a former landfill site, to consider slope stability and landfill settlement (Alternative 2). • Site design, construction, operation, and maintenance on an IRP site compatible with long-term management requirements and laws and regulations governing the IRP site (Alternative 2). • Site design meets building codes to include, in seismic-prone areas, those codes related to earthquake-resistant construction (Alternative 3). • Site design of transmission lines, when part of project, to maximize placement along existing road disturbance limits and within existing utility easements. • Appropriate geotechnical surveys completed, as required. • Construction permits obtained, as required, and permit requirements adhered to. • Erosion and storm water management control measures on the project site during construction. • Fugitive dust control plan for construction developed and implemented, as required. • Minimize unnecessary soil compaction during construction. • Minimize import or export of earthen material to/from the site. • No soil removal from an IRP site until the installation determines if the soil requires analytical testing (Alternative 2). • Spill prevention and response measures in place for construction and maintenance activities. • During construction, if any scientifically significant paleontological resources are found, should stop work and notify installation's environmental office. • Monitor, by system operator, soil erosion, and investigate and remedy as appropriate. • Maintain vegetation and/or gravel cover under and around the operating solar array system as much as possible.
Water Resources	• Site design to maximize avoidance of water features and minimize the size of disturbed areas.

Table 2. Summary of Adopted Environmental Protection Measures (con't)

Resource Area	Environmental Protection Measures
Water Resources (con't)	• If construction in a floodplain anticipated to be unavoidable, undergo process outlined in EO 11988, as amended by EO 13690, which may result in a FONPA. • Site investigation, when warranted, should identify specific contaminants (if any) and existing paths of migration (Alternative 2). • Site design, construction, operation, and maintenance prevents or reduces migration of contaminant (if any are warranted based on the type of contaminant) to off-site surface water or groundwater (Alternative 2). • Site design, on a former landfill site, to consider slope stability and landfill settlement (Alternative 2). • Site design, construction, operation, and maintenance on an IRP site compatible with long-term management requirements and laws and regulations governing the IRP site (Alternative 2). • Site design of transmission lines, when part of project, to maximize placement along existing road disturbance limits and within existing utility easements. • Construction permits obtained, as required, and permit requirements adhered to. • Erosion and storm water management control measures on the project site during construction. • Integrity and functionality of landfill liners are maintained during construction (Alternative 2). • Proper maintenance of vehicles and equipment used for construction and maintenance to avoid spills, leaks, etc. • Post-development vegetation and/or gravel cover appropriate for the ecosystem; vegetation covers shouldn't require watering once established. • Monitor soil erosion (by system operator) and investigate and remedy as appropriate. • Maintain vegetation and/or gravel cover under and around the operating solar array system as much as possible and, for systems (to include transmission lines) potentially impacting shorelines, along the riparian area.

Table 2. Summary of Adopted Environmental Protection Measures (con't)

Resource Area	Environmental Protection Measures
Water Resources (con't)	• Module cleaning water generally not anticipated to include cleaning chemicals; however, if needed, should be biodegradable and environmentally safe. • For installations in areas where water resources are limited or constrained by current uses, compressed air considered as a replacement for water in order to clean modules. • Module washing scheduling such that washing does not cause excessive run-off. • For solar PV array fields or ESSs adjacent to shorelines, maintenance vehicles avoid the shoreline and, where feasible, stay on hard surface or gravel roads (Alternatives 1 and 2).
Biological Resources	• Stakeholder coordination/consultation conducted during the scoping and design. • Appropriate biological resources surveys identified and completed in time to inform site design and/or construction activities. • Site selection to avoid biological resources essential to maintaining installation compliance. • Site selection to minimize impacts to biological resources essential to maintaining installation stewardship responsibilities. • Site design incorporates set-back requirements to sensitive habitats and protected species. • Site design to minimize the size of disturbed areas. • Site design, construction, operation, and maintenance on an IRP site compatible with long-term management requirements and laws and regulations governing the IRP site (Alternative 2). • Site design of transmission lines, when part of project, to maximize placement along existing road disturbance limits and within existing utility easements. • Site design should provide means to diminish or break up a lake-like effect of modules so as to reduce the potential of bird strikes. • Site design to minimize potential nesting sites. • Site design to minimize attracting insects to lighting.

Table 2. Summary of Adopted Environmental Protection Measures (con't)

Resource Area	Environmental Protection Measures
Biological Resources (con't)	• Site design of permanent nighttime lighting to support operations will prioritize use of the lowest illumination possible while still allowing for safe operations. • Site design of permanent nighttime lighting to support operations set at the lowest height possible and shielded so that it would be directed only toward areas needing illumination. • Scheduling of construction activities to minimize impacts to protected species, migratory birds, and sensitive habitats. • Erosion and storm water management control measures on the project site during construction. • Minimize unnecessary soil compaction during construction. • Dust control measures on the project site and unpaved roads used during construction. • Spill prevention and response measures in place for construction and maintenance activities. • Measures taken for construction and maintenance activities to minimize the potential for wildland fire when wildland fire risks are high. • Appropriate monitoring and/or cleaning of equipment and vehicles to avoid transportation of noxious, invasive and pest species and minimize spread of non-native noxious, invasive, or pest pioneer species. • Landfill liners not impacted during construction (Alternative 2). • Construct overhead transmission lines in accordance with avian protection guidelines. • Replace and re-vegetate top soil removed for grading. • Post-development vegetation and/or gravel cover appropriate for the ecosystem; preference in plant selection should be for native plants and take into consideration the wildlife species they support and natural resources management objectives to attract or detract select wildlife species; vegetation covers shouldn't require watering once established. • Monitor, by system operator, soil erosion, and investigate and remedy as appropriate. • Maintain vegetation and/or gravel cover under and around the operating solar array system as much as possible.

Table 2. Summary of Adopted Environmental Protection Measures (con't)

Resource Area	Environmental Protection Measures
Biological Resources (con't)	• Avoid accidental fatalities to small wildlife when mowing, to the extent practicable. • Apply seasonal restrictions to mowing, if appropriate. • Construct, operate, and maintain solar PV project in adherence to the installation's INRMP and IPMP.
Cultural Resources	• Stakeholder coordination/consultation conducted during the scoping and design. • If proposed site hasn't been surveyed for cultural resources, complete survey. • Site design to minimize the size of disturbed areas. • Site design incorporates cultural resource sensitivities in order to reduce impacts. • Site design to minimize the effect of potential impacts to historic properties. • Site design to avoid substantive direct impacts to cemeteries. • Site design incorporates appropriate set-back requirements, if any, for affected cultural resources. • Site design of transmission lines, when part of project, to maximize placement along existing road disturbance limits and within existing utility easements. • For sites adjacent to a cemetery, off-limits criteria should be established for solar PV system construction and maintenance workers. • Pre-construction access for visitation and maintenance to cemeteries impacted by solar PV construction would be maintained. • Complete appropriate pre-disturbance surveys for cultural resources as part of the NHPA Section 106 process. • Execute appropriate requirements described in a MOA, if applicable, as a result of the NHPA Section 106 process. • Storm water management control measures on the project site during construction.

Table 2. Summary of Adopted Environmental Protection Measures (con't)

Resource Area	Environmental Protection Measures
Cultural Resources (con't)	• During construction, if any human remains or possible cultural resources are found, then stop work, notify the cultural resource manager, and adhere to applicable legal and regulatory requirements. • Construct, operate, and maintain solar PV project in adherence to the installation's ICRMP.
Socioeconomics	• Site selection process confirms no disproportional adverse impacts would occur to low income or minority populations. • Site design appropriately considers trade-offs, if applicable, of solar PV project versus conservation reimbursable programs (e.g., forestry and agricultural/grazing outleases). • Site design to avoid substantial loss or displacement of recreational opportunities and resources relative to the baseline. • For the protection of children, store construction vehicles, equipment, and materials in fenced areas and secure when not in use. • If the project site is located within reasonable walking or bicycling distance of children, with no existing security measures restricting access to the proposed site, erect a security fence and gate, with 'no trespassing' signs. • If the proposed project includes construction of a substation, or ESS, erect a permanent security fence, with 'no trespassing' signs, around the assets.
Transportation and Traffic	• Potential limitations of what ACPs construction vehicles may be permitted to use. • Potential scheduling limitations to avoid use of poorly rated roads and intersections by construction vehicles during peak usage times. • Erosion and storm water management control measures. • If and as needed, temporary short-term road closures to ensure safety (Alternative 3). • Coordination with the FAA and installation aviation organizations for sites proposed near or adjoining an airfield.

Table 2. Summary of Adopted Environmental Protection Measures (con't)

Resource Area	Environmental Protection Measures
Transportation and Traffic (con't)	• Coordination with installation low-level aviation trainers and/or the Test Center Commander when above-ground power distribution lines are part of the proposed project.
Airspace	• Completion of a solar glint/glare hazard evaluation. • Site design features to select material to minimize potential solar glare. • Site design of permanent nighttime lighting to support operations set at the lowest height possible and shielded so that it would be directed only toward areas needing illumination. • Coordination conducted with installation aviation organizations and/or the Test Center Commander.
Electromagnetic Spectrum	• Stakeholder coordination conducted during the scoping and design. • Site selection and site design to avoid or minimize electromagnetic interference between signal generation points and receivers.
Utilities	• Project design to be compatible with existing grid system. • Temporary restroom facilities provided for construction workers include disposal services to a permitted wastewater treatment facility (contractor responsibility). • Construction contractor's C&D waste management plan should support the Army's 50 percent minimum diversion of C&D waste, by weight, from landfill disposal. • If material was on the selected site, should process pre-existing concrete and masonry materials into recycled concrete aggregate (Alternative 2).
Hazardous and Toxic Materials and Waste	• Spill prevention and response measures in place for construction and maintenance activities, to include plans, if appropriate, for other hazardous material encounters (e.g., asbestos, under Alternative 3). • Proper maintenance of vehicles and equipment used for construction and maintenance to avoid spills, leaks, etc.

Table 2. Summary of Adopted Environmental Protection Measures (con't)

Resource Area	Environmental Protection Measures
Hazardous and Toxic Materials and Waste (con't)	• Proper disposal of all hazardous waste generated during construction and maintenance, in compliance with applicable laws and regulations. • For lined and/or capped sites, site design to consider slope stability and settlement and the continued need for maintaining the functionality of any existing cap and liner (Alternative 2). • Site design, construction, operation, and maintenance (e.g., on an IRP site) compatible with long-term management requirements and laws and regulations governing the site (Alternative 2). • Hazardous building material inventories, if appropriate (Alternative 3). • Use of protective gear and equipment by construction and maintenance workers to minimize potential impacts from hazardous material.
Human Health and Safety	• Site design appropriately considers the type, scope, and extent of the contaminant, if any (Alternatives 2 and 3). • Site design considers safety of maintenance personnel and roof access for firefighters. • Site design to minimize potential nesting sites, especially by birds which actively defend their nest (Alternative 3). • No project permitted within SDZs without explosives safety approvals for a waiver of safety regulations. • For a solar PV array, ESS, or back-up generator mounted at ground level, wiring is protected from ready access. • As appropriate, MEC survey completed. • If any evidence of MECs are encountered on the site during construction or operation and maintenance, cease work immediately and remain stopped until the appropriate military office has been notified and appropriate clearance procedures have been completed. • Limit access to the construction site to authorized personnel. • Construction vehicles, equipment, and materials stored in fenced areas and secured when not in use.

Table 2. Summary of Adopted Environmental Protection Measures (con't)

Resource Area	Environmental Protection Measures
Human Health and Safety (con't)	• Develop and implement comprehensive construction health and safety plan which addresses site specific health and safety issues, including specific emergency response services and procedures and evacuation measures (contractor responsibility). • Maintain and use safety tools and equipment for appropriate construction and maintenance activities. • Use of pesticides and herbicides is in adherence to the installation's IPMP. • Use of protective gear and equipment by construction and maintenance workers to minimize potential health hazards and accidents and potential impacts from hazardous material. • Firefighters should be trained to identify and mitigate potential hazards associated with solar PV modules at the site of an emergency.

Environmental Checklist for Solar Photovoltaic Project(s)

To ensure compliance with the President's Council on Environmental Quality (CEQ) guidance (40 C.F.R. Parts 1500-1508) and the Army's National Environmental Policy Act (NEPA) regulation (32 C.F.R. Part 651), the below checklist supports referencing of the *Programmatic Environmental Assessment for Construction and Operation of Solar Photovoltaic Renewable Energy Projects on Army Installations* and the associated Finding of No Significant Impact (FNSI) for site-specific projects on Army installations. The programmatic environmental assessment (PEA) addresses solar photovoltaic (PV) systems, to include associated energy storage, microgrid infrastructure, and infrastructure to connect to the grid. The environmental checklist facilitates the consideration of environmental effects for proposed site-specific projects and provides a framework for identifying site-specific NEPA requirements. If site-specific solar PV projects includes work outside the scope of the PEA, additional NEPA would be required.

"Installations" include active Army garrisons and installations, U.S. Army Reserve facilities, U.S. Army National Guard sites, and joint bases managed by the Department of the Army.

Use of the PEA assumes that installations are considering alternative renewable energy technologies and will analyze alternative technologies along with solar PV, or have determined that these alternative technologies are not feasible to meet that particular installation's need. Installations must carefully consider all reasonable alternatives, including other renewable energy technologies, to meet their particular needs.

Army installations tiering from the solar PV PEA and associated FNSI shall use this checklist to determine whether reliance on the PEA (and possibly other NEPA analyses and one or more Categorical Exclusions [CXs]) are appropriate, or whether additional NEPA analysis is needed for a specific proposed project.

If the installation can respond "no" to each of the statements in the checklist below, then no further NEPA analysis would appear to be required and the action likely qualifies for a Record of Environmental Consideration (REC).

When a project qualifies for a REC, the installation REC should cite 32 C.F.R. § 651.12(a)(2) ("action is adequately covered within an existing EA or EIS") and name the solar PV PEA and FNSI. If the REC is also based on other environmental analyses and/or CXs under 32 C.F.R. Part 651, the REC should name the other applicable analyses and associated FNSI or ROD and cite any applicable CX(s). The completed checklist should be attached to the installation's REC.

If the installation checks "yes" for one or more resources, it can reconsider both the sites and layout of the project, or other mitigations, to see if the effect on the resource can be avoided and the answer changed to "no".

If careful application of this checklist to the proposed project at an installation requires a "yes" or "maybe" response to any checklist item, then additional environmental analysis may be required as part of an installation-level, site-specific NEPA process. If, upon investigation of each "yes"

and “maybe” response on the checklist, the installation determines that no further environmental analysis is required and that a REC is appropriate, documentation of the results of the investigation should be maintained with the REC and completed checklist.

If the installation concludes that additional NEPA analysis is necessary, 32 C.F.R. Part 651 requires it be prepared before any irreversible and irretrievable commitments of resources occur for the Proposed Action. The site-specific NEPA process should be streamlined by tiering off of the solar PV PEA, with the tiered document focused only on those resource areas where site-specific considerations require additional NEPA analysis of potential impacts. Within the tiered analysis (e.g., within an appendix), as it relates to resource areas for which no further analysis was needed, documentation should be included regarding the completed checklist and those “yes” and “maybe” investigations which concluded that a resource area did not need further analysis as a result of the Proposed Action.

This checklist is to enable the identification of the documentation required to meet NEPA requirements. Requirements to comply with other federal and state environmental and/or energy laws and regulations are to be adhered to, as appropriate and applicable. These may include, for example, those requiring site-specific consultations with other federal, state, and Tribal governments and agencies (such as consultation under the Endangered Species Act or National Historic Preservation Act); completing NEPA-like requirements of the state, if any and if applicable; or complying with certain state requirements for systems proposed to be connected to an off-post power grid.

Environmental Checklist for Solar Photovoltaic Project

This adopted checklist is a duplicate of the checklist contained in Appendix A of the *Programmatic Environmental Assessment for Construction and Operation of Solar Photovoltaic Renewable Energy Projects on Army Installation*.

[Insert description of installation's Proposed Action to include location(s) and installation name, size of solar PV array(s), energy storage system(s) and microgrid infrastructure; details on the connection to the electrical grid; construction requirements; and proposed dates.]

a. Land Use

1. Construction of the proposed project, to include associated infrastructure, if any, on the installation is in conflict with the real property master plan and/or range complex master plan. NO / MAYBE / YES

b. Air Quality

2. Construction activities associated with the proposed project would contribute to a change in the air quality compliance status in the region (e.g., from attainment to nonattainment). NO / MAYBE / YES

c. Noise

3. Noise generated during construction of the proposed project would have a significant negative impact on sensitive noise receptors (e.g., residential areas, hospitals, and schools) and/or sensitive wildlife populations, to include threatened and endangered species. NO / MAYBE / YES

d. Geological and Soil Resources

4. Construction of the proposed project is anticipated to include construction activities on highly erodible soils. NO / MAYBE / YES

5. Construction of the proposed project is to be done on a closed landfill, Installation Restoration Program (IRP), Military Munitions Response Program (MMRP), or Compliance Cleanup (CC) site and would cause significant soil contamination or violate regulations. NO / MAYBE / YES

e. Water Resources

6. Construction, operation, or maintenance of the proposed project would result in unpermitted direct impacts to waters of the U.S., regulated recharge zones, and/or groundwater aquifers. NO / MAYBE / YES

7. Construction of the proposed project is anticipated to include construction activities on jurisdictional wetlands or require additional surveys to identify and delineate jurisdictional wetlands (same as Q14 below). NO / MAYBE / YES

8. Construction of the proposed project is anticipated to affect a coastal zone regulated by the Coastal Zone Management Act (CZMA), requiring a CZMA consistency evaluation that has not yet been completed. NO / MAYBE / YES

9. Construction of the proposed project, to include associated infrastructure, if any, would require substantial modification of the installation's storm water discharge prevention plan. NO / MAYBE / YES

10. Potable water availability at the installation is dependent on groundwater that is currently stretched to or beyond its capacity, and brackish or salt water intrusion is currently a problem. NO / MAYBE / YES

11. Construction is proposed to be done on a closed landfill, IRP, MMRP, or CC site and would cause significant surface water or groundwater contamination or violate regulations. NO / MAYBE / YES

f. Biological Resources (including Threatened and Endangered Species)

12. Construction, operation, or maintenance of the proposed project is likely to result in an unauthorized "take" of a protected species (e.g., under the Endangered Species Act, Migratory Bird Treaty Act, Marine Mammal Protection Act, or Bald and Golden Eagle Protection Act) and/or construction activity is anticipated to effect critical habitat, as designated by the U.S. Fish and Wildlife Service under the Endangered Species Act. (Note: All required USFWS or NMFS informal or formal consultation must be completed prior to commencing with the proposed project.) NO / MAYBE / YES

13. Construction, operation, or maintenance of the proposed project is likely to result in an unauthorized "take" of a state-protected species and the installation is required to comply with the associated legal and regulatory requirements of the state. NO / MAYBE / YES

14. Construction of the proposed project is anticipated to include construction activities on jurisdictional wetlands or require additional surveys to identify and delineate jurisdictional wetlands (same as Q7 above). NO / MAYBE / YES

15. Construction of the proposed project is located in whole or in part within a floodplain and must undergo the process outlined in Executive Order 11988, as amended by Executive Order 13690, possibly resulting in a Finding of No Practicable Alternative. NO / MAYBE / YES

16. Construction of the proposed project is anticipated to include construction activities in biological sensitive areas other than those mentioned above. NO / MAYBE / YES

17. All or part of the proposed construction area needs to be surveyed for one or more protected species, such as threatened or endangered species protected under the Endangered Species Act (a YES means that the appropriate biological resource survey does not exist for all or part of the construction area). NO / MAYBE / YES

18. Construction of the proposed project would cause a substantial decrease in the relative percentage of any one vegetation type (native to the region) within the installation, particularly if the vegetation type in the region is already highly fragmented as a result of human activity. NO / MAYBE / YES

g. Cultural Resources

19. All or part of the proposed construction area needs to be surveyed for cultural resources (a YES means that a cultural resources survey does not exist for all or part of the construction area). NO / MAYBE / YES

20. Construction of the proposed project is anticipated to have adverse effects on National Historic Preservation Act (NRHP)-listed and/or -eligible historic properties and those effects are unlikely to be able to be avoided or mitigated. (Note: All required NHPA Section 106 consultation with SHPO, ACHP, Tribes, and other interested parties must be completed prior to commencing with the proposed project.) NO / MAYBE / YES

21. Construction, operation, or maintenance of the proposed project will prevent the traditional use of sacred or ceremonial sites or resources by Federally-recognized Native Americans, Alaska Natives, or Native Hawaiians. (Note: All required NHPA Section 106 consultation with SHPO, ACHP, Tribes, and other interested parties must be completed prior to commencing with the proposed project.) NO / MAYBE / YES

h. Socioeconomics

22. Construction of the proposed project is anticipated to result in substantial loss or displacement of recreational opportunities and resources (e.g., hunting and fishing) relative to the baseline. NO / MAYBE / YES

23. Only one or two of all the residential areas bordering the installation are primarily occupied by low income and/or minority populations, and the site of the proposed project is adjacent or in close proximity to that low income / minority population area. NO / MAYBE / YES

i. Transportation and Traffic

24. Construction of the proposed project would require large construction and delivery vehicles to traverse poorly rated roads (e.g., Level of Service E or F) and intersections during peak usage times, or would degrade existing roads to Level of Service E or F. NO / MAYBE / YES

j. Airspace

25. The glint/glare report on the proposed project indicates a likely significantly negative impact on air operations at or near the installation. NO / MAYBE / YES

k. Utilities

26. The proposed project is designed so that it is not compatible with the existing nearby electrical grid system or is located such that there is no use for the generated electricity. NO / MAYBE / YES

27. Construction of the proposed project would sever the provision of utilities (electricity, natural gas, water, telecommunication service, wastewater management services, solid waste management service (non-hazardous), and other essentials), to local communities, homes, and businesses for durations that would affect health, welfare, and economic viability. NO / MAYBE / YES

l. Hazardous and Toxic Material and Waste

28. Construction is proposed on a closed landfill, Installation Restoration Program, Military Munitions Response Program or Compliance Cleanup site and would cause contamination or violate a Federal Facility Agreement, permit, and/or regulation. NO / MAYBE / YES

29. The installation would need to build, or significantly modify, facilities necessary to store waste petroleum, oil, and lubricant products associated with the construction, operation, and maintenance of the proposed project, in accordance with local/state/federal regulations. NO / MAYBE / YES

30. Construction of the proposed project would require substantial modification for the installation's Spill Prevention, Control and Countermeasures Plan. NO / MAYBE / YES

m. Human Health and Safety

31. Construction, operation, or maintenance of the proposed solar PV project would require substantial modification of the installation's health and safety plan. NO / MAYBE / YES

32. The addition of roof-top mounted solar PV modules requires substantial structure re-design to enable the structure to safely support the additional load.
NO / MAYBE / YES

n. General

33. The installation (e.g., some ARNG installations) or the solar PV system operator is required to comply with state-level NEPA-like requirements and those requirements include analysis of topics not addressed in the PEA. NO / MAYBE / YES

o. Cumulative Effects

34. Other actions are underway, or proposed, that when combined with the potential effects of construction, operation, and maintenance of the proposed project, could have a significant cumulative effect on human health or the environment. NO / MAYBE / YES