2 BLM ALTERNATIVES

The alternatives being analyzed through this Supplement include the no action alternative, which would continue the BLM's existing policies, and two action alternatives, each of which would have the BLM establish a comprehensive Solar Energy Program to facilitate utility-scale solar energy development on BLM lands. On the basis of further data collection, consultation with cooperating agencies and resource managers, and analysis of comments submitted on the Draft Solar PEIS, modifications have been made to the BLM's action alternatives. Those changes are described and analyzed as part of this Supplement.

The BLM may choose to adopt one of the alternatives or a combination of alternatives from this Supplement; selected alternatives may also vary by geographic region. The BLM's final decisions regarding its Solar Energy Program will be informed by public comment and ongoing consultations.

2.1 NO ACTION ALTERNATIVE

The no action alternative remains unchanged from the Draft Solar PEIS (see Section 2.2.1 of the Draft). The no action alternative continues the issuance of ROW authorizations for utility-scale solar energy development on BLM-administered lands by implementing the requirements of the BLM's existing solar energy policies on a project-by-project basis. Lands available for solar energy development would include those areas currently allowable under existing applicable laws and statutes (approximately 98 million acres [396,600 km^2] in the six-state study area) and in conformance with the approved land use plan(s).

2.2 MODIFIED BLM ACTION ALTERNATIVES

2.2.1 Program Components Common to All Action Alternatives

Under the BLM's proposed Solar Energy Program, both action alternatives would include comprehensive ROW authorization policies, requirements for adaptive management and monitoring, and implementation of specific design features that would mitigate known adverse effects of solar energy development. These elements of the proposed program are described in detail in the following subsections.

2.2.1.1 Right-of-Way Authorization Policies

This section includes a comprehensive update to Section A.2.1.2.4 in Appendix A of the Draft Solar PEIS. Changes in BLM's proposed ROW authorization policies have been made to reflect comments received on the Draft Solar PEIS as well as to ensure consistency with BLM

Instruction Memoranda in existence or released after the publication of the Draft Solar PEIS. Note the BLM has decided to undertake rulemaking to establish a competitive process for offering public lands for solar as well as wind energy development. When established, the rule may supersede some of the authorization policies identified in this Supplement (see Section 1.8.2 of this Supplement for more information). The revised comprehensive list of authorization policies is as follows:

- ***ROW Authorizations.*** Applications for utility-scale solar energy facilities will be authorized ROWs under Title V of FLPMA and 43 CFR Part 2800. Applications submitted to the BLM for utility-scale solar energy development will use Form SF-299, Application for Transportation and Utility Systems and Facilities on Federal Land (available at https://www.blm.gov/FormsCentral/show-form.do?nodeId=1011), consistent with the requirements of 43 CFR Part 2804.

  The Secretary of the Interior, with respect to public lands, is authorized to grant, issue, or renew ROWs over, upon, under, or through such lands for systems for generation, transmission, and distribution of electric energy (43 USC 1761(a)(4)). The term "ROW" as defined by FLPMA includes an easement, lease, permit, or license to occupy, use, or traverse public lands (43 USC 1702(f)). The BLM has prepared a template ROW lease/grant that would be used to authorize utility-scale solar energy development projects (see http://www.blm.gov/wo/st/en/prog/energy/solar_energy.html). Authorizations will include the solar collectors, tower, turbine generator, fossil-fired generator for hybrid systems, thermal storage, access roads, electrical and transmission facilities, and other testing and support facilities.

- ***Competing Applications.*** If the BLM determines that competition exists, BLM has the regulatory authority to use competitive bid procedures (43 CFR 2804.23). Multiple applications for the same lands can provide an indication of the need to consider a competitive process. The purpose of a competitive process under existing regulations is to determine which application would be processed.

- ***Term of ROW***. In accordance with Title V of FLPMA and the BLM's ROW regulations, the term or length of a solar energy ROW authorization is limited to a reasonable term (43 USC 1764(b); 43 CFR 2805.11(b)). The BLM will issue all solar energy ROW authorizations for a term not to exceed 30 years; shorter terms may be justified in some cases. Thirty years provides a reasonable period consistent with the expected needs of a solar energy facility; it also provides for operation periods that are consistent with typical PPAs. The BLM will also include in each solar energy ROW authorization a specific provision allowing for renewal, consistent with the regulations at 43 CFR 2807.22.

- ***Renewal of ROW.*** An application for renewal must be submitted at least 120 days prior to the expiration of the existing authorization. The BLM authorized officer will review the application for renewal to ensure the holder is complying with the terms, conditions, and stipulations of the existing authorization instrument and applicable laws and regulations. If renewed, the ROW authorization shall be subject to the regulations existing at the time of renewal and any other terms and conditions that the authorized officer deems necessary to protect the public interest.

- ***Cost-Recovery Payments.*** Applicants must submit a complete and acceptable application and provide a cost-recovery payment before the BLM will initiate processing of a ROW application for utility-scale solar energy development. It is anticipated that most ROW applications for solar energy development will be Category 6, full cost-recovery applications.

- ***Valid Existing Rights.*** All solar energy ROW authorizations will be issued subject to valid existing rights.

- ***Rental Fees.*** In accordance with the requirements of Section 504(g) of FLPMA and the provisions of 43 CFR Part 2806, the BLM will require payment of annual rent for use of the public lands for utility-scale solar energy development on the basis of a rental schedule. FLPMA does not provide existing or current authorities for the collection of royalties. The BLM will calculate rents on all solar energy ROW authorizations consistent with the provisions of 43 CFR Part 2806. Some holders or facilities may be exempt from rent pursuant to the Rural Electrification Act of 1936 (REA), as amended (43 CFR 2806.14(d)). Electric facilities that are financed or are eligible for REA financing, qualify for a rent exemption under the provisions of the Act.

  The holder of a solar energy ROW authorization must pay an annual rent in conformance with the regulations (43 CFR 2806.10(a)). Consistent with 43 CFR 2806.50, the BLM has developed a schedule to calculate rental fees for solar energy ROW authorizations. This rental schedule includes a base rent for the acreage of public land included within the solar energy ROW authorization and an additional MW capacity fee based on the total authorized MW capacity for the approved solar energy project on the public land administrated by the BLM. The details of BLM's rental policy can be found in Instruction Memorandum No. 2010-141, issued June 10, 2010 (BLM 2010) (see Appendix A.1 in the Draft Solar PEIS).

  The BLM may adjust the rental whenever necessary, to reflect changes in fair market value as determined by the application of sound business management principles, and so far as practicable and feasible, in accordance with comparable commercial practices. The rental provisions of the authorization

may also be modified consistent with the provisions of any regulatory changes or pursuant to the provisions of new or revised statutory authorities.

- ***Due Diligence—Applicant Qualifications.*** The ROW regulations (43 CFR 2804.12(a)(5)) require all solar energy applications to include information on the financial and technical capability of the applicant to construct, operate, maintain and decommission the project. In addition, the BLM will include provisions requiring diligent development in each solar energy ROW authorization. The regulations (43 CFR 2804.26(a)(5)) provide authority to the BLM to deny any application where the applicant cannot demonstrate the technical or financial capability to construct the project or operate the facilities within the ROW.

  The ROW regulations set forth the qualifications that an individual, business or government entity must possess in order to hold a ROW authorization, including the requirement that the potential grantee be technically and financially able to construct, operate, maintain, and terminate the use of the public lands covered by the authorization (43 CFR 2803.10(b) and 2804.12(a)(5)). In carrying out its obligation to limit ROW authorizations to qualified individuals or entities and to prevent such individuals or entities from holding ROW authorizations merely for purposes of speculating, controlling, or hindering development on the public lands, the BLM will focus on ensuring that the applicant meets the qualification requirements in the regulations.

  In ensuring that an applicant meets the regulatory requirement to demonstrate its technical and financial capability to construct, operate, maintain, and terminate the proposed solar energy facility (43 CFR 2803.10(b) and 43 CFR 2804.12(a)(5)), the BLM will consider a variety of factors, including the following. (1) Applicant qualifications can be demonstrated by international or domestic experience with solar or wind energy projects on either federal or nonfederal lands. (2) The applicant should provide information on the availability of sufficient capitalization to carry out development, including the preliminary study phase of the project and the environmental review and clearance process. (3) Applicants in bankruptcy or with other financial difficulties would generally present financial risk and should be required to provide additional information regarding financial capability. Failure to provide such additional information can be the basis for the BLM authorized officer to deny the application pursuant to the regulations (43 CFR 2804.26(a)(5)). Further evidence of financial and technical capability can include conditional commitments of DOE loan guarantees; confirmed PPAs; engineering, procurement and construction (EPC) contracts; and supply contracts with credible third-party vendors for the manufacture and/or supply of key components for the solar energy project facilities.

During the assessment of technical and financial capability, the BLM authorized officer should also inform applicants that such requirements are continuous during the application process, and the BLM may periodically seek confirmation of these requirements. The BLM authorized officer should additionally inform applicants that such technical and financial capability will become a condition of any ROW authorization, and failure to sustain technical and financial capability for the development of an approved project could be grounds for termination of the authorization.

- ***Due Diligence—Plan of Development (POD).*** The BLM requires that a POD be submitted for all solar energy development ROW applications, consistent with the provisions of 43 CFR 2804.25(b). The BLM will not accept a POD that is simply a conceptual plan. The POD must be of sufficient detail to provide the basic information necessary to begin the environmental analysis and review process for a proposed solar or wind energy project on the public lands. It is critically important that due diligence be demonstrated by the applicant in the timely submittal of an acceptable POD to ensure that the BLM processes those applications that are most likely to result in appropriate renewable energy development on the public lands.

  The BLM authorized officer initiates the due diligence process by requesting, in writing, submittal of a complete POD to the BLM for review. The applicant will be requested to provide the POD within 90 days. If the applicant does not respond within 90 days, or if the applicant has responded and the information is not sufficient, the BLM authorized officer will send a second written request with a 60-day response. A final 30-day show cause letter will be provided to the applicant prior to issuing any decision to deny the application for failure to respond pursuant to the regulations (43 CFR 2804.26(a)(6)).

  The BLM may also deny an application if the applicant does not provide in a timely manner additional information requested by the BLM authorized officer to process an application (43 CFR 2804.26(a)(6)) or the processing fees required by 43 CFR 2804.14.

- ***Notification to Livestock Grazing Operators.*** Upon acceptance of a POD that is likely to adversely affect a current livestock grazing operation, the BLM authorized officer will send a certified letter to the permittee/lessee to serve as the 2-year notification of the BLM‘s potential decision to cancel the permit/lease, in whole or in part, and devote the public lands to a public purpose that may preclude livestock grazing, as required by 43 CFR 4110.4-2(b). The intent of the 2-year notification is to provide the grazing permittee/lessee time to make any necessary financial, business, or management adjustments should the permit/lease be cancelled (in whole or in part). The letter will also inform the permittee/lessee of his/her ability to unconditionally waive the 2-year prior notification.

Upon issuance of a ROW authorization that precludes livestock grazing, the BLM authorized officer will issue a separate proposed grazing decision to the grazing permittee/lessee that includes a copy of the ROW authorization. The proposed grazing decision will (1) state that the effective date of the permit/lease cancellation, and issuance of any new permit/lease for any remaining permitted use, will be 2 years from the permittee's/lessee's receipt of the certified letter sent by the BLM authorized officer to the permittee/ lessee as described in the preceding paragraph; (2) address compensation for range improvements (43 CFR 4110.4-2); and (3) address grazing management changes for the new permit/lease, as well as interim grazing adjustments as appropriate. The BLM will send the proposed grazing decision to the affected ROW applicant, grazing permittees/lessees, and any agent and lienholder of record who are affected by the proposed action, terms and conditions, or modifications relating to applications, permits, and agreements by certified mail or personal delivery. Copies of proposed decisions shall also be sent to the interested public (see 43 CFR 4160.1). The proposed grazing decision will become final unless protested.

- ***Performance and Reclamation Bond***. Title V of FLPMA and the ROW regulations authorize the BLM to require a ROW holder to provide a bond to secure the obligations imposed by the ROW authorization (43 USC 1764(i) and 43 CFR 2805.12(g)). The BLM will require a Performance and Reclamation bond for all solar energy projects to ensure compliance with the terms and conditions of the ROW authorization.

  Acceptable bond instruments include cash, cashier's or certified check, certificate or book entry deposits, negotiable U.S. Treasury securities equal in value to the bond amount, surety bonds from the approved list of sureties (U.S. Treasury Circular 570) payable to the BLM, irrevocable letters of credit payable to the BLM issued by financial institutions that have the authority to issue letters of credit and whose operations are regulated and examined by a federal agency, or a policy of insurance that provides the BLM with acceptable rights as a beneficiary and is issued by an insurance carrier that has the authority to issue insurance policies in the applicable jurisdiction and whose insurance operations are regulated and examined by a federal or state agency. The BLM will not accept a corporate guarantee as an acceptable form of bond. If a state regulatory authority requires a bond to cover some portion of environmental liabilities, such as hazardous material damages or releases, reclamation, or other requirements for the project, the BLM must be listed as an additionally named insured on the bond instrument. This inclusion would suffice to cover the BLM's exposure should a holder default in any environmental liability listed in the respective state bond. Each bond instrument will be reviewed by the appropriate Regional or Field Solicitor's Office for the DOI prior to its acceptance by the BLM.

The BLM authorized officer will review all bonds on an annual basis to ensure adequacy of the bond amount. The bond will also be reviewed at the time of any ROW assignment, amendment, or renewal. The BLM authorized officer may increase or decrease the bond amount at any time during the term of the ROW authorization, consistent with the regulations (43 CFR 2805.12(g)).

The BLM authorized officer will identify the total amount of the Performance and Reclamation bond in the decision that supports the issuance of the ROW authorization. The BLM will require the holder to post the portion of the bond associated with the activities to be approved by the Notice to Proceed (Form 2800-15; available at https://www.blm.gov/FormsCentral/show-form.do?nodeId=1666) prior to the issuance of that Notice. For example, if the Notice to Proceed is limited to an initial phase of development, the bond amount required to be posted before issuance of the Notice to Proceed will be limited to that phase. The bond amount required to be posted would increase with the issuance of a Notice to Proceed for future phases of the project.

The Performance and Reclamation bond will consist of three components for purposes of determining its amount. The first component will address environmental liabilities, including hazardous materials liabilities, such as risks associated with hazardous waste and hazardous substances. This component may also account for herbicide use, petroleum-based fluids, and dust control or soil stabilization materials. If a holder uses herbicides extensively, this component of the bond amount may be significant. The second component will address the decommissioning, removal, and proper disposal, as appropriate, of improvements and facilities. All solar projects involve the construction of substantial surface facilities and the bond amount for this component could be substantial. The third component will address reclamation, revegetation, restoration, and soil stabilization. This component will be determined based on the amount of vegetation retained on-site and the potential for flood events and downstream sedimentation from the site that may result in off-site impacts, including Clean Water Act violations or other violations of law. The holder of the ROW authorization can potentially reduce the bond amount for this component by limiting the amount of vegetation removal as part of the project design and limiting the amount of grading required for project construction.

The BLM may also require bond coverage for all expenses tied to cultural resources identification, protection, and mitigation. This may include, but is not limited to, costs associated with ethnographic studies, inventory, testing, geomorphological studies, data recovery, compensatory mitigation programs, curation, monitoring, treatment of damaged sites, and submission of reports. Bonding for cultural resource identification, protection, and mitigation is necessary in the event that a ROW holder disturbs a site where such resources are present but discontinues development before taking the necessary steps to

complete all analysis, documentation, and proper curation of site contents, and to stabilize or reclaim the cultural and historic properties so that they are returned to a secure condition.

Ultimately, the Performance and Reclamation bond will be a single instrument to cover all potential liabilities. The entire bond amount could be used to address a single risk event such as hazardous materials release or groundwater contamination regardless of the fact that in calculating the total bond amount other risks were also considered. If the bond is used to address a particular risk, the holder would then be required to increase the bond amount to compensate for this use. This approach to establishing a bond is preferable to one allowing holders to maintain separate bonds for each contingency. If separate bonds are held, an underestimation of one type of liability may leave the BLM responsible for making up the difference, as the funds associated with one bond may not be applicable for the purposes of another. Requiring a single, larger bond will ensure that the holders are bonded with a surety that has the capacity to underwrite the entire amount associated with the authorization.

The regulations authorize the BLM to require that applicants submit a Decommissioning and Site Reclamation Plan (DSRP) that defines the reclamation, revegetation, restoration, and soil stabilization requirements for the project area as a component of their POD (43 CFR 2804.25(b)). The DSRP shall require expeditious reclamation of construction areas and the revegetation of disturbed areas to reduce invasive weed infestation and erosion and must be approved by the BLM authorized officer prior to the authorization of the ROW. The approved DSRP will be used as the basis for determining the standard for reclamation, revegetation, restoration, and soil stabilization of the project area and, ultimately, in determining the full bond amount.

The BLM has issued policy guidance for determining bonding requirements for 43 Part CFR 3809 mining operations on the public lands (IM 2009-153 [BLM 2009]) that provides detailed information about the process for determining the appropriate financial guarantees for intensive land uses on the public lands. This guidance can also be used to assist in calculating the bond amount for utility-scale solar energy development projects on public lands. The guidance requires that mining operators submit a Reclamation Cost Estimate (RCE) to the BLM authorized officer for review to assist in determining the bond amount. Although the ROW regulations do not specifically require that a holder of a ROW submit a RCE to the BLM, the BLM can require a ROW applicant to submit a POD in accordance with 43 CFR 2804.25(b). Because a RCE is key to determining the bond amount, a figure that is set forth in any decision authorizing a solar energy project on the public lands, BLM policy will be to require all solar energy ROW applicants to submit a RCE as part of the DSRP and the overall POD for a solar energy

project. Attachment 1 to IM 2009-153 provides Guidelines for Reviewing RCEs and can be used as a guideline to assist in reviewing RCEs submitted for solar energy projects.

To assist in the consistent review of RCEs for solar energy projects and the establishment of bonding amounts for individual projects, the BLM will form an internal Solar Energy Bond Review Team to provide support to the BLM state and field offices. The Solar Energy Bond Review Team will consist of one representative each from California, Nevada, and Arizona and a BLM Washington Office ROW Project Manager. This Solar Energy Bond Review Team will assist the BLM state and field offices in the review of RCEs for solar energy projects and provide recommendations to the BLM authorized officer on the Performance and Reclamation bond for a solar energy project.

- ***Notice to Proceed.*** All solar energy ROW authorizations will include a provision that specifies that ground-disturbing activities cannot begin until the BLM authorized officer issues a Notice to Proceed. Each Notice to Proceed will authorize construction or use and occupancy only as therein expressly stated and only for the particular location or use and occupancy therein described (i.e., a construction phase or site location). The holder will not initiate any construction or other surface-disturbing activities on the ROW without such prior written authorization of the BLM authorized officer. The issuance of a BLM Notice to Proceed by the authorized officer could be delayed pending completion of a requirement(s) imposed by another federal and/or state entity (e.g., permit issuance, mitigation compliance, or biological opinion issuance).

- ***Administrative Appeal.*** All final decisions issued by the authorized officer in connection to the authorization of solar energy projects can be appealed under 43 CFR Part 4 and 43 CFR 2801.10. ROW authorizations are issued as full force and effect decisions (43 CFR 2801.10(b)) and will remain effective during any appeal period.

- ***Air Navigation Hazards.*** Upon issuance of a ROW authorization that includes meteorological or power towers or other tall structures that could pose a hazard to air navigation, the BLM will ensure that the locations of such facilities are noted on aerial navigation hazard maps for low-level flight operations that may be undertaken by the BLM and other federal or state agencies for fire operations, wild horse and burro censuses and gathers, wildlife inventories, facility maintenance, or other activities.

- ***Cadastral Survey Policies.*** Prior to approval of any solar energy ROW application that (1) is within 0.25 mi (0.4 km) of a boundary as described in BLM Instruction Memorandum No. 2011-122 (BLM 2011d), (2) does not conform to the Public Land Survey System, (3) can be located only by protraction diagram, or (4) may potentially affect a body of water, the

responsible field office will coordinate with the respective State Office Chief Cadastral Surveyor as required by BLM Instruction Memorandum No. 2011-122 to ensure adequate Cadastral Survey review of Boundary Evidence. The applicant shall be liable to the BLM for the reasonable cost of such review under the ROW application cost-recovery agreement with the BLM.

All authorizations for solar energy development on BLM-administered lands will contain the following stipulation:

> Evidence of the Public Land Survey System (PLSS) and related federal property boundaries will be identified and protected prior to commencement of any ground-disturbing activity. This will be accomplished by contacting BLM Cadastral Survey to coordinate data research, evidence examination and evaluation, and locating, referencing or protecting monuments of the PLSS and related land boundary markers from destruction. In the event of obliteration or disturbance of the federal boundary evidence the responsible party shall immediately report the incident, in writing, to the authorizing official. BLM Cadastral Survey will determine how the marker is to be restored. In rehabilitating or replacing the evidence the responsible party will be instructed to use the services of a Certified Federal Surveyor (CFedS), procurement shall be per qualification based selection, or reimburse the BLM for costs. All surveying activities will conform to the Manual of Surveying Instructions (Manual) and appropriate State laws and regulations. Local surveys will be reviewed by Cadastral Survey before being finalized or filed in the appropriate State or county office. The responsible party shall pay for all survey, investigation, penalties, and administrative costs.

- ***Diligent Development.*** The ROW regulations specify that a ROW authorization conveys to the holder only the rights that the authorization expressly contains (43 CFR 2805.14) and that the holder must comply with all terms and conditions included in the authorization (43 CFR 2805.12). In order to facilitate efficient development of solar energy on the public lands, the BLM will include a requirement in each ROW authorization that the holder begin construction of the initial phase of development within 12 months after issuance of the Notice to Proceed, but no later than 24 months after the effective date of the ROW authorization. Each authorization will also specify that construction must be completed within the time frames in the approved POD, but no later than 24 months after start of construction unless the project has been approved for phased development as described below. A Notice to Proceed will be issued for each phase of development.

  The BLM will not authorize more than three development phases for any solar energy ROW authorization. If an approved POD provides for phased development, the ROW authorization will include provisions specifying that

construction of each phase (following the first) must begin within 3 years of the start of construction of the previous phase.

The BLM authorized officer may suspend or terminate the authorization when the holder fails to comply with the diligent development terms and conditions of the authorization (43 CFR 2807.17). The regulations provide that before suspending or terminating the authorization, the BLM will send the holder a written notice that gives the holder a reasonable opportunity to correct any noncompliance or to start or resume use of the ROW (43 CFR 2807.18). This notice may be satisfied by the BLM sending a Notice of Failure to Ensure Diligent Development.

To address a failure to comply with an authorization's diligent development provisions, the holder must show good cause for any delays in construction, provide the anticipated date of completion of construction and evidence of progress toward the start or resumption of construction, and submit a written request for extension of the time lines in the approved POD. Good cause may be shown, for example, by delays in equipment delivery, legal challenges, and acts of God. This procedure will apply whether a project has multiple development phases or a single phase.

If, following receipt of a Notice of Failure to Ensure Diligent Development, the holder has satisfactorily complied with each of the requirements of the procedure described above, the authorized officer may grant the holder's request for an extension of the time lines in the approved POD. If, following receipt of such Notice, the holder does not satisfactorily comply with each of the requirements of this procedure, the authorized officer may elect to suspend or terminate the ROW authorization pursuant to 43 CFR 2807.17 where such action is justified.

Each ROW authorization for solar energy development will include terms and conditions requiring the holder to maintain all on-site electrical generation equipment and facilities in accordance with the design standards in the approved POD. In addition, the authorization will specify that any idle, improperly functioning, or abandoned equipment or facilities that have been inoperative for any continuous period of 3 months must be repaired, placed into service, or removed from the site within 30 days from receipt of a written Notice of Failure to Ensure Diligent Development, unless the holder is provided an extension of time by the BLM authorized officer. Upon receipt of such Notice from the BLM authorized officer, the holder must repair, place into service, or remove the equipment or facilities described in the Notice in a timely manner. Alternatively, the holder must show good cause for any delays in repairs, use, or removal; estimate when corrective action will be completed; provide evidence of diligent operation of the equipment and/or facilities; and submit a written request for an extension of the 30-day deadline. If the holder satisfies neither approach, the BLM authorized officer may elect to suspend or

terminate the authorization in accordance with 43 CFR 2807.17–2807.19 where such action is justified. In addition, the BLM may use the posted Performance and Reclamation bond to cover the costs for removal of any idle or abandoned equipment and/or facilities.

All solar energy ROW authorizations must include the diligent development provisions as described above in the terms and conditions of the authorization, consistent with the requirements of 43 USC 1765(b) and the ROW regulations at 43 CFR 2801.2.

- ***Operating Standards.*** The authorization holder shall perform all operations in a good and workmanlike manner, consistent with the approved POD, so as to ensure protection of the environment and the health and safety of the public. To ensure compliance with the terms and conditions of the ROW authorization and to ensure that operations are conducted consistent with those terms and conditions, the BLM authorized officer will conduct inspections of such operations and can issue notices of violations. The authorized officer may also order an immediate temporary suspension of operations, orally or in writing, in accordance with 43 CFR 2807.16 to protect public health or safety or the environment.

- ***Access to Records.*** The BLM may require the holder of a solar energy development ROW authorization to provide any pertinent environmental, technical, and financial records, reports, and other information, including PPAs and Interconnection Agreements, related to project construction, operation, maintenance, and decommissioning, including the production and sale of electricity generated from the approved facilities on public land (43 CFR 2805.12(p); 43 USC 1765(b); 43 USC 1764(g); 43 USC 1761(b)). The BLM may use this information for the purpose of monitoring the authorization and for periodic evaluation and adjustment of rental fees or other financial obligations under the authorization.

  Upon the request of the BLM authorized officer, the appropriate records, reports, or information shall be made available for inspection and duplication by such officer. Any information marked confidential or proprietary will be kept confidential to the extent allowed by law. Failure to cooperate with such request, provide data, or grant access to information or records, may, at the discretion of the BLM authorized officer, result in suspension or termination of the ROW authorization. All solar energy ROW authorizations must include such disclosure provisions in the terms and conditions of the authorization in accordance with the regulations (43 CFR 2807.17).

- ***Changes to Terms and Conditions.*** The BLM authorized officer may change the terms and conditions of the authorization as a result of changes in legislation, regulations, or as otherwise necessary to protect public health or safety or the environment in accordance with 43 CFR 2801.15(e).

- ***Upgrades or Changes to Facility Design or Operation***. Operators of solar power facilities on BLM-administered lands shall coordinate with the BLM and other appropriate federal, state, and local agencies regarding any planned upgrades or changes to the solar facility design or operation. Proposed changes of this nature may require additional environmental analysis and/or revision of the POD.

- ***10-Year Review.*** The solar ROW authorization, shall, at a minimum, be reviewed by the BLM authorized officer at the end of the 10th year and at regular intervals thereafter not to exceed 10 years.

- ***Transfers or Assignments Require BLM Approval.*** The ROW authorization may be assigned (i.e., transfer of interest) consistent with the provisions of the regulations (43 CFR 2807.21(b)). However, all assignments shall be approved by the BLM authorized officer, and the qualifications of all assignees must comply with 43 CFR 2803.10 and the due diligence requirements of the regulations (43 CFR2807.21(c)(1) and 43 CFR 2807.21(d)). The assignment shall not interfere with the BLM's enforcement of the terms and conditions of the authorization or management of the associated public lands. Transfers other than assignments must be approved by the BLM and may result in requirements for submittal of a new application or a Notice of Termination.

2.2.1.2 Adaptive Management and Monitoring

As described in the Draft Solar PEIS (Appendix A, Section A.2.1.1 of that document), the BLM (recognizing that data regarding the actual impacts of solar energy development on various resources are still limited) will develop and incorporate into its Solar Energy Program an adaptive management and monitoring plan to ensure that data and lessons learned about the impacts of solar energy projects will be collected, reviewed, and, as appropriate, incorporated into the BLM's Solar Energy Program in the future. Changes to the BLM's Solar Energy Program resulting from adaptive management and monitoring (e.g., modifications to exclusion areas) will be subject to appropriate land use planning, environmental review, and/or policy development.

Development of an adaptive management and monitoring plan will be coordinated with potentially affected natural resource management agencies. The plan will identify how the impacts of BLM's Solar Energy Program will be evaluated, types of monitoring that would be responsive to the data needs for program evaluation, and science-based thresholds for modification to policy or individual project management based upon monitoring results; and describe the process by which changes will be incorporated into the Solar Energy Program, including revisions to policies and design features. Sources of information to be considered in the context of adaptive management include data from specific project evaluations (for which monitoring would be required) as well as from regional long-term monitoring programs.

The BLM, in collaboration with the Agricultural Research Service and the U.S. Geological Survey, has developed a national monitoring strategy which provides the foundation for an adaptive management and monitoring plan for the BLM's Solar Energy Program. The strategy incorporates common indicators; standardized monitoring protocols; a Before-After Control-Impact sample design using paired ecological sites; remote sensed data to map abundance, extent, and disturbance; and a data management plan that addresses data quality, editing and replication, seamless data sets, and data availability. A plan to implement this monitoring strategy and the data analysis tools necessary for threshold analysis will be presented in the Final Solar PEIS. Individual projects will be required to incorporate the monitoring plan, developer assurances to implement the plan, adaptive management thresholds, and additional project-specific monitoring requirements to be identified on an individual project basis.

2.2.1.3 Design Features

In Appendix A, Section A.2.2 of the Draft Solar PEIS, the BLM proposed design features that would be required for all utility-scale solar energy applications submitted to the BLM for consideration. Design features are mitigation requirements that have been incorporated into the proposed action or alternatives to avoid or reduce adverse impacts. The proposed programmatic design features of the BLM's Solar Energy Program would apply to all utility-scale solar energy ROWs on BLM-administered lands under both modified action alternatives.

The BLM is evaluating all comments received on the Draft Solar PEIS regarding the proposed programmatic design features. A final proposed list of programmatic design features will be presented in the Final Solar PEIS.

2.2.2 Modified Solar Energy Development Program Alternative (BLM Preferred Alternative)

In an effort to better meet the objectives established for BLM's Solar Energy Program, as well as address comments and concerns raised by the public, stakeholders, and cooperating agencies through the review of the Draft Solar PEIS, the BLM has modified its solar energy development program alternative. Under the modified solar energy development program alternative (referred to as the "modified program alternative"), the BLM proposes categories of lands to be excluded from utility-scale solar energy development and identifies specific locations well suited for utility-scale production of solar energy (i.e., SEZs) where the BLM would prioritize development. The modified program alternative emphasizes and incentivizes development within SEZs and proposes a collaborative process to identify additional SEZs. In order to accommodate the flexibility described in the BLM's program objectives, the modified program alternative allows for utility-scale solar development in variance areas outside of SEZs in accordance with the proposed variance process. The modified program alternative also establishes authorization policies and procedures for utility-scale solar energy development on BLM-administered lands.

2.2.2.1 Proposed Right-of-Way Exclusion Areas

Under the modified program alternative, the BLM proposes to exclude specific categories of land that are known or believed to be unsuitable for utility-scale solar development. Right-of way exclusion areas are defined as areas which are not available for location of ROWs under any conditions (BLM Land Use Planning Handbook, H-1601-1 [BLM 2005]). On the basis of input received on the Draft Solar PEIS, the list of proposed exclusions has been modified, and state specific exclusions have been incorporated as appropriate (see Table 2.2-1). The BLM continues to work with cooperating agencies to refine the proposed exclusions for specific resources such as sage-grouse and desert tortoise. The BLM also expects that comments received on this Supplement will lead to further adjustments in the list of exclusions. A final proposal for exclusions will be presented in the Final Solar PEIS.

2.2.2.2 Proposed Solar Energy Zones

An SEZ is defined by the BLM as an area within which the BLM will prioritize and facilitate utility-scale production of solar energy and associated transmission infrastructure development. SEZs should be relatively large areas that provide highly suitable locations for utility-scale solar development: locations where solar development is economically and technically feasible, where there is good potential for connecting new electricity-generating plants to the transmission distribution system, and where there is generally low resource conflict.

ROWs for utility-scale solar energy development in SEZs would be given priority over all other ROWs. The BLM may decide to authorize ROWs for other uses that are found to be compatible with utility-scale solar energy development such as shared access roads and transmission lines. The identification of an area as an SEZ will not affect previously authorized ROWs, whether or not construction has been initiated on those ROWs. The BLM will consider the processing of pending ROW applications in identified SEZs on a case-by-case basis.

In a continued effort to find the areas best suited for utility-scale production of solar energy (per Secretarial Order 3285A1 [Secretary of the Interior 2010]), the BLM has modified the list of SEZs being carried forward for consideration in the Solar PEIS. Some of the SEZs analyzed in the Draft Solar PEIS were found to have substantial resource conflicts that make them inappropriate locations to prioritize utility-scale solar energy development. The BLM has decided to drop some SEZs entirely from further consideration based on the comments received on the Draft Solar PEIS and additional data collection that has taken place since the Draft Solar PEIS. The BLM has also decided to adjust the boundaries of some SEZs that will be carried forward in the Solar PEIS.

Specifically, the BLM has decided to drop the following proposed SEZs: Bullard Wash in Arizona, Iron Mountain and Pisgah in California, Delamar Valley and East Mormon Mountain in Nevada, and Mason Draw and Red Sands in New Mexico. In addition, the areas of the following SEZs have been substantially reduced: Riverside East in California; De Tilla Gulch, Fourmile East, and Los Mogotes East in Colorado; Amargosa Valley, Dry Lake, and Dry Lake Valley North in Nevada; and Afton in New Mexico. The overall result of these changes has been to

TABLE 2.2-1 Revised Areas for Exclusion under the BLM's Modified Solar Energy Development Program Alternative[a]

1. Lands with slopes greater than 5%.
2. Lands with solar insolation levels less than 6.5 kWh/m^2/day.
3. All Areas of Critical Environmental Concern (ACECs), including Desert Wildlife Management Areas (DWMAs) in the California Desert District.
4. All critical habitat areas (designated and proposed) for listed species under the Endangered Species Act of 1973 (as amended).
5. All areas where the applicable land use plan designates no surface occupancy (NSO).
6. All areas where there is an applicable land use plan decision to protect lands with wilderness characteristics.
7. Developed recreational facilities, special-use permit recreation sites (e.g., ski resorts and camps), and all Special Recreation Management Areas (SRMAs), **except for those in the State of Nevada and a portion of the Yuma East SRMA in Arizona.**[b]
8. All areas where solar energy development proposals are not demonstrated to be consistent with the land use management prescriptions for or where the BLM has made a commitment to take certain actions with respect to sensitive species habitat, including but not limited to sage grouse core areas, nesting habitat, and winter habitat; Mohave ground squirrel habitat; flat-tailed horned lizard habitat; and fringe-toed lizard habitat. **Greater sage-grouse habitat as identified by the BLM is excluded in California, Nevada, and Utah, and Gunnison's sage-grouse habitat is excluded in Utah.**[c]
9. All ROW exclusion areas identified in applicable plans other than those specific to utility-scale solar energy development.
10. All ROW avoidance areas identified in applicable plans other than those specific to utility-scale solar energy development.
11. All areas where the land use plan designates seasonal restrictions.
12. All Desert Tortoise translocation sites identified in applicable land use plans.
13. Big Game Migratory Corridors identified in applicable land use plans.
14. Big Game Winter Ranges identified in applicable land use plans.
15. Research Natural Areas.
16. Lands categorized as Visual Resource Management (VRM) Class I or II (and, in Utah, Class III[d]).
17. National Recreation Trails and National Back Country Byways
18. National Historic and Scenic Trails, including a corridor of 0.25 mi (0.4 km) from the centerline of the trail, except where a corridor of a different width has been established.

TABLE 2.2-1 (Cont.)

19. National Historic and Natural Landmarks.

20. Within the boundary of properties listed in the *National Register of Historic Places* and additional lands outside the designated boundaries to the extent necessary to protect values where the setting and integrity is critical to their designation or eligibility.

21. Areas with important cultural and archaeological resources, such as traditional cultural properties and Native American sacred sites, as identified through consultation and recognized by the BLM.

22. Wild, Scenic, and Recreational Rivers, including a corridor of 0.25 mi (0.4 km) from the ordinary high-water mark on both sides of the river, except where a corridor of a different width has been established.

23. Segments of rivers determined to be eligible or suitable for Wild or Scenic River status, including a corridor of 0.25 mi (0.4 km) from the ordinary high-water mark on either side of the river.

24. Old Growth Forest.

25. Lands within a solar energy development application found to be inappropriate for solar energy development through an environmental review process that occurred prior to finalization of the Draft Solar PEIS.[e]

26. **Lands previously proposed for inclusion in SEZs that were determined to be inappropriate for development through the NEPA process (i.e., the previously-proposed Iron Mountain SEZ area; parts of the Pisgah and Riverside East SEZs in California; parts of the De Tilla Gulch, Fourmile East, and Los Mogotes East SEZs in Colorado; and parts of the Amargosa Valley SEZ in Nevada).**

27. **Lands within the proposed Mojave Trails National Monument in California.[f]**

28. **BLM-administered lands in California proposed for transfer to the National Park Service with the concurrence of the BLM.[g]**

29. **Individual additional areas identified by BLM State or field offices as requiring exclusion due to ecological or cultural concerns.**

[a] Exclusion changes from those presented in the Draft Solar PEIS are shown in bold.

[b] In Nevada, many designated SRMAs are located on semi-degraded lands that might be appropriate for solar development. Decisions on solar ROW applications within Nevada SRMAs will be made on a case-by-case basis. A portion of the Yuma East SRMA was identified as a variance area rather than as an exclusion area based on its designation as VRM Class III and as a rural developed recreation setting, both of which allow for modifications to the natural environment.

Footnotes continued on next page.

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TABLE 2.2-1 (Cont.)

[c] In April 2010, the USFWS published its listing for the greater sage-grouse as "Warranted but Precluded." Inadequacy of regulatory mechanisms was identified as a major threat in the USFWS finding on the petition to list the greater sage-grouse. The USFWS has identified the principal regulatory mechanism for the BLM as conservation measures in RMPs. On the basis of the identified threats to the greater sage-grouse and the USFWS's time line for making a listing decision on this species, the BLM has initiated action to incorporate explicit objectives and adequate conservation measures into RMPs (including PEISs and project EISs) within the next 3 years in order to conserve greater sage-grouse and avoid a potential listing under the Endangered Species Act. To meet the objectives of BLM's sage-grouse conservation policy, the Solar PEIS has excluded specifically identified sage-grouse habitat (currently occupied, brooding, and winter habitat) located on BLM public lands in Nevada and Utah.

[d] In Utah, VRM Class III lands have also been removed due to the high sensitivity and location proximity to Zion, Bryce, Capital Reef, Arches, and Canyonlands National Parks, and to significant Cultural Resource Special Management Areas (in southeast Utah).

[e] For example, lands considered non-developable in the environmental review for the Ivanpah Solar Electric Generating System, Imperial Valley Solar Project, Calico Solar Project, Genesis Ford Dry Lake Solar Project, Blythe Solar Project, and Desert Sunlight Solar Project.

[f] As described in Senate Bill 138, California Desert Protection Act of 2011, introduced in the 112th Congress.

[g] Three specific geographic areas described as (1) the narrow strip of BLM-administered lands between Fort Irwin and Death Valley National Park, (2) an area of public lands on the northeastern side of the Mojave National Preserve adjacent to the California and Nevada border, and (3) an area along the northern boundary of Joshua Tree National Park.

reduce the total acreage potentially available for development in proposed SEZs from about 677,000 acres (2,740 km^2) to about 285,000 acres (1,153 km^2). Appendix B of this Supplement contains the BLM's rationale for dropping SEZs from further consideration. Appendix C contains the rationale for adjusting the boundaries of other SEZs and describes additional non-development areas within some of the SEZs. These appendices also include descriptions of the comments received for individual SEZs.

The Draft Solar PEIS described data available for the proposed SEZs and provided environmental analysis based on those data. The primary purpose of the SEZ-specific analyses provided in the Draft Solar PEIS was to provide documentation from which the BLM can tier future project authorizations, thereby limiting the required scope and effort of project-specific NEPA analyses. As requested by commentors on the Draft Solar PEIS, the BLM is committed to collecting additional SEZ-specific resource data and conducting additional analysis in order to more effectively facilitate future development in SEZs. The BLM has developed action plans for each of the SEZs that it has decided to carry forward in the Solar PEIS. These action plans are presented in Appendix C of this Supplement. Action plans describe data gaps for individual SEZs and propose data sources and methods for the collection of additional data. The BLM encourages input from the public regarding these action plans and appropriate data sources and methods. The BLM will prioritize the collection of additional data and analysis in those SEZs that are most likely to be developed in the near-future. Note that additional data and analysis will help facilitate development in SEZs but is not required to identify an area as an SEZ as part of the BLM's Solar Energy Program.

The BLM proposed SEZ-specific design features as part of the Draft Solar PEIS, in addition to the general Solar Energy Program design features applicable for all projects (see Appendix A, Section A.2.2 of the Draft Solar PEIS). SEZ-specific design features are mitigation measures that would be required of applications in SEZs to avoid or reduce potential adverse impacts. The BLM will continue to refine the list of SEZ-specific design features based on comments received on the Draft Solar PEIS, ongoing coordination with cooperating agencies, additional data collection described in SEZ action plans, and comments received on this Supplement. A final proposal for SEZ-specific design features will be presented in the Final Solar PEIS.

The processes and policies applicable to SEZs presented in the following sections replace components of Appendix A in the Draft Solar PEIS and incorporate applicable elements of BLM Instruction Memoranda in existence or released after the publication of the Draft Solar PEIS.

2.2.2.2.1 Authorization Process for Projects in SEZs

As part of this Supplement, the BLM is confirming its intentions to offer lands in SEZs through a competitive process. The BLM has decided to undertake rulemaking to establish a competitive process for offering public lands for solar and wind development, as described previously in Section 1.8.2.

The Advanced Notice of Proposed Rulemaking is expected to be published in October 2011 to accompany the release of the Supplement; the BLM intends to have a Proposed Rule available for public comment prior to the release of the Solar PEIS ROD (targeting late spring 2012). All applications for solar energy ROWs received after June 30, 2009, for lands inside the SEZs would be subject to the decisions in the Solar PEIS ROD. The BLM may process applications in SEZs prior to completion of the rulemaking process under its existing policies and authorities. In those cases where multiple applications have been filed on the same SEZ lands, the BLM will apply competitive procedures per 43 CFR 2804.23.

2.2.2.2.2 Environmental Review for Projects in SEZs

Utility-scale solar energy development projects proposed in SEZs will be required to comply with NEPA and other applicable laws, including, but not limited to the Endangered Species Act (ESA) and the NHPA, and applicable regulations and policies. The BLM has taken a number of important steps through the Solar PEIS to facilitate future development in SEZs in a streamlined and standardized manner. For projects proposed in SEZs, the BLM expects to comply with applicable laws, regulations, and policies in the manner described below. Projects proposed in SEZs identified and analyzed through state or local land use planning efforts (see Section 2.2.2.2.6 of this Supplement) would receive the same treatment as SEZs identified through the Solar PEIS.

The Secretary, Deputy Secretary, or Assistant Secretary will approve all decisions to authorize ROWs for utility-scale solar energy development in SEZs; the BLM authorized officer

will issue ROWs consistent with the Secretary's, Deputy Secretary's, or Assistant Secretary's decision. Projects in SEZs will therefore not be subject to administrative appeals to the IBLA.

Land Use Plan Conformance

Through the ROD for the Solar PEIS, the BLM will amend land use plans in the six-state study area to adopt those elements of the new Solar Energy Program that pertain to planning. No additional land use plan amendments are expected to be required to approve projects in identified SEZs.

NEPA

The BLM must complete a site-specific environmental review of all solar energy ROW applications in SEZs in accordance with NEPA prior to issuing a ROW authorization. As part of the Solar PEIS, the BLM is conducting a thorough environmental review of the proposed SEZs so that future reviews of applications within SEZs can tier to that NEPA analysis, thereby limiting the required scope and effort of additional project-specific NEPA analyses. Tiering is defined as using the coverage of general matters in broader NEPA documents in subsequent, narrower NEPA documents (40 CFR 1508.28, 40 CFR 1502.20). This allows the tiered NEPA document to concentrate solely on the issues not already addressed.

All future projects proposed in SEZs will tier to the analysis in the Solar PEIS. The extent of this tiering, however, will vary from project to project, as will the necessary level of NEPA documentation. While the SEZ analysis in the Solar PEIS analyzes the likely environmental effects of utility-scale solar development and identifies required SEZ-specific design features to address many resource conflicts, further evaluation will be required for future projects based on the actual location, technology, POD, and so forth.

The BLM authorized officer must determine whether potential environmental impacts associated with proposed projects are within the scope of analysis considered in the Solar PEIS for a given SEZ. If not, the authorized officer must determine the potential significance of any impacts outside the scope of the Solar PEIS and complete appropriate NEPA analysis. For example, if the water impacts associated with a proposed project were not covered by the SEZ analysis in the Solar PEIS and those water impacts are expected to be significant, a tiered EIS would be appropriate (if the impacts did not rise to the level of significance then a tiered environmental assessment [EA] would be appropriate). No matter the level of NEPA documentation, tiered analyses for projects in SEZs are expected to be narrowly focused on those issues not already adequately analyzed in the Solar PEIS. Field offices are instructed to incorporate by reference the relevant portions of the Solar PEIS to which project-specific NEPA documents will be tiered.

The level of NEPA documentation to be required for individual solar projects proposed in SEZs will be determined by the BLM authorized officer. All projects in SEZs that the authorized officer determines will require an EIS level of analysis must be submitted through the

State Director to the BLM Washington Office for the Director's concurrence prior to the issuance of a Notice of Intent (NOI). This will help ensure consistent implementation of the BLM's solar program after the Solar PEIS is completed.

An EA prepared in support of an individual action can tier to a programmatic EIS. An EA can be prepared for an action with significant effects, whether direct, indirect or cumulative, if the EA tiers to a broader EIS that fully analyzed those significant effects. Tiering to the programmatic EIS would allow the preparation of an EA and Finding of No Significant Impact (FONSI) for the individual action, so long as the remaining effects of the individual action are not significant. The finding of no significant impact in these circumstances may also be called a "Finding of No New Significant Impact" (43 CFR 46.140(c)). However if there are new circumstances or information that would result in significant effects of an individual action not considered in the programmatic EIS, tiering to the EIS cannot provide the necessary analysis to support a FONSI for the individual action. In these cases, an EIS would need to be prepared that tiers, to the extent practicable, to the programmatic EIS (BLM NEPA Handbook H-1790-1 [BLM 2008] Section 5.2.2; 43 CFR 46.140(c)).

Public Involvement

Through the Solar PEIS, extensive public involvement specific to solar energy development in SEZs has occurred. On June 30, 2009, the Agencies announced the availability of maps that identified 24 tracts of BLM-administered land for in-depth study for solar development. The BLM issued a *Federal Register* Notice of Availability to inform the public of the availability of the maps (74 FR 31307). Through public scoping (June 30–September 14, 2009), the BLM solicited public comments for consideration in identifying environmental issues, existing resource data, and industry interest with respect to the proposed SEZs. In addition, public comments were solicited on the SEZ analysis presented in the Draft Solar PEIS from December 17, 2010, to May 2, 2011, and as part of 14 public meetings held in February and March 2011. The BLM and applicants will use this input to inform future development in SEZs. Public involvement for projects in SEZs must meet the requirements of NEPA.

Endangered Species Act

The BLM will complete ESA consultation on the Solar PEIS with the USFWS under Sections 7(a)(1) and 7(a)(2) of the ESA. The BLM, in consultation with the USFWS, will complete a conservation review under Section 7(a)(1) of the ESA of the overall solar program, including the amendment of 89 land use plans and associated conservation measures. This consultation on the overarching program will provide guidance for subsequent solar projects by ensuring that the appropriate conservation measures for listed species are incorporated into project-level actions. The BLM will also consult with the USFWS on the identification of specific SEZs under Section 7(a)(2) of the ESA. A Biological Assessment will include appropriate mitigation, minimization, and avoidance measures intended to address any effects on listed (endangered and/or threatened) species and designated critical habitat. Further

Section 7(a)(2) consultation will occur as necessary at the level of individual projects and will benefit from preceding program- and SEZ-level consultation.

National Historic Preservation Act

The BLM has taken numerous actions to comply with requirements of the NHPA in relation to the Solar PEIS. The BLM consulted with Indian Tribes, the State Historic Preservation Offices (SHPOs) from the six states, the Advisory Council on Historic Preservation (ACHP), and the National Trust for Historic Preservation (NTHP). A Solar PA among the BLM, the six SHPOs, and the ACHP, expected to be executed prior to signing of the Solar PEIS ROD, will define steps the BLM will follow to take into account the effects of the BLM's Solar Energy Program on historic properties under Section 106 of the NHPA.

The first draft of the Solar PA was sent to all Tribes for their input in February 2011. A revised draft Solar PA will again be sent to all Tribes requesting their comments in the fall of 2011. Tribes will be invited to sign the agreement as Concurring Parties and will play an active role in its execution.

A tiered approach to the identification and consideration of effects on historic properties is being followed. Existing site record and surveyed space geographic information system (GIS) data bases were utilized to identify potential areas of conflict and define SEZ boundaries. The BLM plans to award a Class II sample survey contract in the fall of 2011 to provide a minimum SEZ survey coverage of 5% within Arizona, California, and Nevada. Results are expected to be available before the ROD is signed and will guide future development toward areas with the fewest conflicts with historic resources.

For future project-specific solar applications, the BLM will meet with project proponents and define what levels of additional survey will be required prior to submission of the completed application package. The terms and conditions of the ROW authorization will require that the project POD include documentation of a completed BLM-approved cultural resources mitigation program before ground disturbance and construction begins.

Tribal Consultation

As part of the Solar PEIS process, the BLM has consulted and engaged with Tribes through various means in order to meet the agency's affirmative responsibilities under the NHPA, NEPA, E.O. 13007 (~~–~~Indian Sacred Sites," *Federal Register,* Volume 61, page 26771, May 24, 1996), the American Indian Religious Freedom Information Act, and other statutes. Beginning in 2008 and continuing through the Final PEIS, the BLM has written to Tribes, provided complete documentation, maps, and current information, and requested government-to-government consultation. Tribes were invited to and participated in public meetings regarding the Draft Solar PEIS. Tribal comments regarding the Draft Solar PEIS affected decisions to drop certain SEZs and to reduce and reconfigure the boundaries of those carried forward.

The BLM contracted with SWCA Environmental Consultants to produce an ethnographic overview of six Tribes within the Great Basin region with cultural and historic ties to SEZs in Nevada and Utah. Detailed interviews with Tribal members and an ethnographic overview have identified traditional cultural properties, significant ethnobotanical resources, visual resource concerns, and Tribal perspectives on direct and indirect effects of solar development on Tribal interests. These ethnographic overviews are available through the Solar PEIS project Web site (solareis.anl.gov). Summaries of the findings available at the time of publication of this Supplement are included in SEZ-specific action plans (Appendix C of this Supplement).

Now that the draft results from the ethnographic overviews have become available, the BLM will contact all other Tribes with cultural and/or historical ties to the SEZs and lands available for development to explore if they share similar concerns or issues to those revealed in the study. Field offices in California and Nevada will consult with those Tribes who provided written comments on the Draft Solar PEIS to explain how their concerns will be taken into account and how Tribal consultation will continue under project-specific applications. A written explanation for how the BLM utilized Tribal input in determining Final Solar PEIS decisions will be mailed to all Tribes with the signing of the ROD.

The BLM will invite Tribes to participate in site-specific proposals within SEZs. On the basis of information and discussions arising from such meetings, the BLM will determine whether there is a need for new ethnographic research to provide sufficient information to adequately consider the effects of solar development on issues and resources of concern to Tribes. BLM field office cultural staff, including specialists assigned to Renewable Energy Coordination Offices where present, in consultation with their Deputy Preservation Officer, shall recommend to responsible BLM line officers whether new ethnographic data are required for a given solar application. Should new ethnographic research, studies, or interviews be judged necessary, the BLM cultural staff, in consultation with Tribal officials, will recommend to BLM line officers the appropriate scope of the study, provisions for safeguarding data confidentiality, and programs of mitigation.

2.2.2.2.3 Incentives for Projects in SEZs

In addition to the work already underway in SEZs (as described above), the BLM is proposing to undertake a variety of additional activities that will help steer future utility-scale solar energy development to the SEZs.

Facilitate Faster and Easier Permitting in SEZs

- The BLM will adhere internally to strict schedules for the completion of environmental reviews for applications in SEZs, with a target for completion of 12 to 18 months. Achieving a 12- to 18-month processing time line will require timely information from applicants.

- The DOI will undertake interagency coordination to expedite service and provide priority processing to projects in SEZs, provide a single point of contact for all DOI agencies responsible for coordinating environmental reviews and consultations, ensure timely performance of agencies, and facilitate stakeholder reviews.

- The BLM will maintain its Renewable Energy Coordination Offices in California, Nevada, and Arizona, and will maintain Renewable Energy Coordination Teams in Colorado, New Mexico, and Utah as long as needed to assist with efficient permitting of projects in SEZs. In addition, the BLM established a new National Renewable Energy Coordination Office on October 1, 2011.

- The BLM may, through rulemaking, establish a competitive process that results in the immediate issuance of a ROW lease authorization to the successful bidder.

Improve and Facilitate Mitigation

- Regional mitigation plans will be developed that are comprised of goals and objectives applicable to individual SEZs that both simplify and improve the mitigation process for future projects. Regional mitigation plans will address mitigation for resources such as biological resources, ecological resources, cultural resources, scenic resources, and socioeconomic factors, as appropriate. Regional mitigation plans can increase permit efficiencies and financial predictability for developers. Regional mitigation plans can also enhance the ability of state and federal agencies to invest in larger-scale conservation efforts that benefit sensitive species through higher-quality habitat, improved connectivity between habitat areas, and better long-term protection.

  The in-depth data collection and analyses proposed for SEZs will inform BLM‘s development of regional mitigation plans. Each regional mitigation plan will consider the cumulative impacts of development within an SEZ as well as ongoing conservation planning priorities (e.g., recovery plans for federal or state ESA-listed species, BLM RMPs, and conservation priorities developed as part of efforts such as the California Desert Renewable Energy Conservation Plan). The BLM will work with appropriate federal, state, and local agencies and Tribes to develop initial regional mitigation plans that will be presented in the Final Solar PEIS. These initial plans will be subject to continued review and adjustment by the BLM and its partners to ensure conservation goals and objectives are met.

  To the extent that public lands are used to mitigate for the impacts of solar development whether in or out of the SEZs, the BLM will develop strategies

to ensure that any mitigation lands are protected to provide enduring conservation benefits. As part of its site-specific environmental review for future projects, the BLM will evaluate the impacts of any mitigation measures it has applied.

- Developers will be allowed to mitigate biological impacts through funding conservation priorities that are identified in a regional mitigation plan.

Facilitate the Permitting of Needed Transmission to SEZs

- The Final Solar PEIS will include a more detailed evaluation of the transmission needs and impacts for anticipated solar development within the SEZs, which will not only facilitate the permitting of projects, but also will facilitate transmission planning for SEZs (details on the planned additional transmission analyses for SEZs to be included in the Final Solar PEIS are given in Appendix C, Section C.7.1 of this Supplement).

- The BLM will offer incentives to developers willing to build transmission to SEZs (e.g., facilitated permitting of needed transmission and prioritization of key transmission projects).

- The BLM will commit staff from BLM's Renewable Energy Coordination Offices and Teams to engage in ongoing and comprehensive transmission planning efforts to ensure the recognition of SEZs as a priority in transmission development. Transmission planning efforts and BLM involvement will be coordinated through the BLM's National Renewable Energy Coordination Office.

- The BLM will seek to establish cooperative agreements, Memoranda of Understanding and/or Memoranda of Agreement with states, Tribes, and other federal agencies to facilitate state permitting of needed transmission to support SEZ development.

- The lead agencies for the Solar PEIS (BLM and DOE) will seek to have the proposed SEZs reviewed as a case study by the Transmission Expansion Planning Policy Committee (TEPPC) of the Western Electricity Coordinating Council (WECC). The TEPPC analysis process is an existing, formal, biennial process used by WECC to assess system impacts across the interconnection when adding resources and/or transmission. It analyzes system congestion and system performance under reliable system operating criteria. This analysis is expected to provide substantial benefits for projects within proposed SEZs.

Encourage Solar Development on Appropriate Nonfederal Lands

- The DOI will encourage development of renewable energy on appropriate nonfederal lands. For projects proposed jointly on SEZ lands and adjacent private, state, Tribal, or U.S. Department of Defense (DoD) withdrawn lands, DOI's permitting incentives as described for SEZs would apply to the entire project. Note, however, if there is a lack of environmental analysis for adjoining lands, additional effort may be needed.

Provide Economic Incentives for Development in SEZs

- The BLM anticipates lower cost recovery for projects proposed in SEZs because of the BLM's extensive upfront data collection and environmental review through the Solar PEIS.

- The BLM may institute lower MW capacity fees for projects proposed in SEZs, which could effectively reduce the overall cost to operators.

- The BLM may adopt a longer phase-in period for rental payments for projects proposed in SEZs (e.g., 10 years), which could effectively reduce the overall cost to operators.

- The BLM may establish a fixed MW capacity fee rental payment for the life of the authorization for projects in SEZs, which could effectively reduce the overall cost to operators.

- The BLM may require a limited base acreage rental payment for projects proposed in SEZs, which could effectively reduce the overall cost to operators.

- The BLM may restructure bonding requirements for projects proposed in SEZs (e.g., provide credit for salvage value of materials and equipment), which could result in reduced costs to operators.

- The BLM may issue a 30-year fixed term lease with a fixed rental fee, which could reduce uncertainty for operators.

2.2.2.2.4 Proposed Withdrawal for SEZs

As described in the Draft Solar PEIS (Section 1.3.5), as a possible mechanism to support the establishment of priority areas, the Secretary of the Interior may decide to withdraw the public lands encompassed by SEZs from potentially conflicting uses through the issuance of a Public Land Order. If approved, the public lands would be withdrawn, subject to valid existing

rights, from settlement, sale, location, or entry under the general land laws, including the mining laws, as follows:

- Lands could not be appropriated, sold, or exchanged during the term of the withdrawal.

- New mining claims could not be filed on the withdrawn lands; however, valid mining claims filed prior to the withdrawal would take precedence over future solar energy development.

- Withdrawn lands would remain open to mineral leasing, geothermal leasing, and mineral material laws; the BLM could elect to lease the oil, gas, coal, or geothermal steam resources, or to sell common variety mineral materials such as sand and gravel if the authorized officer determined there would be no unacceptable impacts on future solar energy development.

- Withdrawn lands would remain open to ROW authorizations.

On June 30, 2009, the BLM sought and received permission from the Secretary of the Interior to issue a notice of proposed withdrawal for the original 24 identified Solar Energy Study Areas. This *Federal Register* notice (74 FR 31308) segregated the public lands encompassed in the 24 Solar Energy Study Areas (approximately 676,000 acres [2,735.7 km^2]) for up to 2 years from surface entry and mining, while various studies and analyses were conducted to support a final decision on withdrawing the land from conflicting uses. On April 21, 2011, the BLM amended the proposed withdrawal through a notice in the *Federal Register* (76 FR 22414) to reflect acreage adjustments for slope considerations and compatibility (approximately 677,384 acres [2,741 km^2]). The BLM's temporary segregation expired on June 29, 2011.

On June 30, 2011, the BLM applied its new ITFR to the 24 proposed SEZs to avoid a lapse in the existing segregation (see Section 1.8.1 of this Supplement for additional information). On the basis of the application of the ITFR, the terms of the segregation for the 24 proposed SEZs remain unchanged; however, it is now set to expire June 30, 2013.

The BLM held two public meetings in connection with the proposed withdrawal. The first meeting was held on July 6, 2011, in Las Vegas, Nevada; the second meeting was held on July 7, 2011, in Victorville, California. The public was given an opportunity to provide oral and written comments at these meetings, as well as in writing via notification in the *Federal Register*. Public comments have helped inform some of the decisions on the SEZs presented in this Supplement.

The BLM intends to amend its withdrawal proposal to reflect the changes to the proposed SEZs described in this Supplement. The amended withdrawal proposal will include only those lands within SEZs that are proposed to be carried forward through the Final Solar PEIS. The BLM will seek approval to change the proposed withdrawal period from 5 to 20 years. Also by notice in the *Federal Register,* the temporary segregation of lands in SEZs (applied through the

ITFR described above) will be removed for all proposed SEZs and portions of proposed SEZs that have been dropped from further consideration by the BLM.

The required withdrawal studies and analyses will be completed as part of the Final Solar PEIS, including full Mineral Reports that meet the standards set forth in 43 CFR Part 2300 and BLM Manual 3060 (BLM 1994). The Secretary of the Interior's final decision regarding the withdrawal of these lands will be made based on the Solar PEIS. However, the Secretary's ROD pertaining to the withdrawal will likely be made separate from and subsequent to the BLM's ROD for the Solar PEIS.

2.2.2.2.5 Proposed Identification Protocol for New SEZs

The SEZs being carried forward in this Supplement identify approximately 285,000 acres (1,153 km^2) across the 6-state study area. In addition, the BLM has made a commitment to continue processing pending applications. Although this is a strong start in facilitating utility-scale solar energy development on public lands, the BLM intends to identify new SEZs and/or expand existing SEZs on an as-needed basis. The BLM has already initiated efforts to identify new SEZs in the states of California, Arizona, Nevada, and Colorado through ongoing state-based efforts (see Section 2.2.2.2.6 of this Supplement for more information) and anticipates identifying new or expanded SEZs in the remaining states in the near future. The BLM welcomes industry, environmental organizations, government partners, Tribes, and the public to participate in these efforts to identify new SEZs through petitions or participation in ongoing land use planning activities (see Appendix D of this Supplement).

The BLM believes that having a workable process to identify new SEZs is an essential element of its overall approach to solar energy development. The process must be open and transparent, with opportunities for substantial stakeholder involvement, including solar industry and transmission providers. This protocol establishes a process that would be undertaken at the state or field office level as an individual land use planning effort or as part of an ongoing land use plan revision. It is BLM's goal to complete the work to identify new SEZs and amend applicable land use plans within 12 to 18 months of initiating such effort.

New or expanded SEZs should be identified in the context of existing solar market conditions, existing and planned transmission systems, and new state or federal policies affecting the level and location of utility-scale solar energy development. The BLM will assess the need for new or expanded SEZs a minimum of every 5 years in each of the six states covered by the Solar PEIS. The assessment of need may take place as part of on-going state-based planning processes or as a separate effort.

Figure 2.2-1 outlines a step-by-step protocol for identifying new SEZs. This step-by-step protocol is described in detail in Appendix D of this Supplement. To make effective use of ongoing collaborative efforts, the BLM will rely on the California DRECP planning effort, the Arizona RDEP, and the California West Chocolate Mountains Renewable Energy Evaluation Area (REEA) effort to identify new or expanded SEZs in these planning areas in the near term (see Section 2.2.2.2.6 of this Supplement).

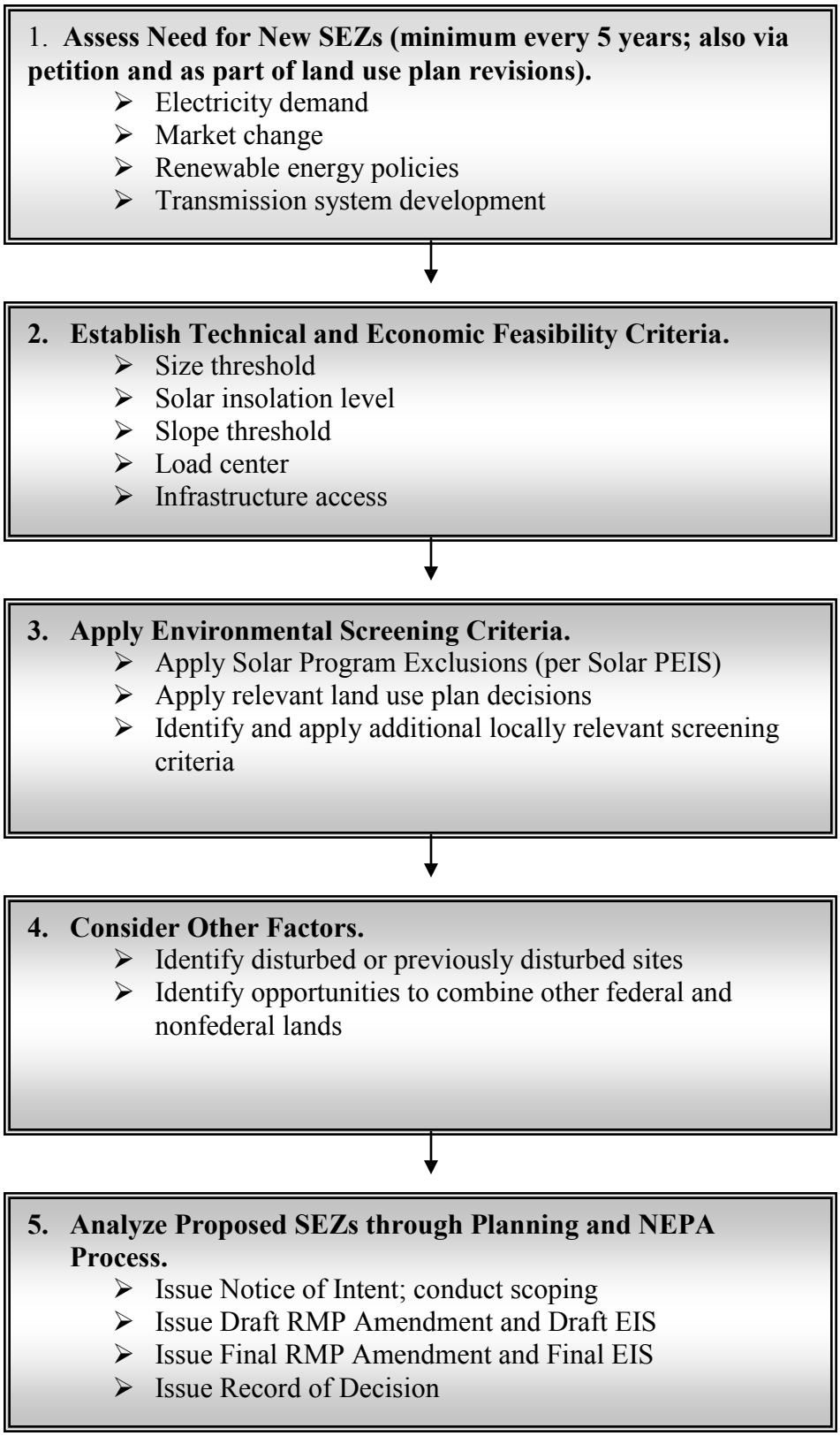

FIGURE 2.2-1 Proposed SEZ Identification Protocol (approximately 12 to 18 months to complete)

2.2.2.2.6 Ongoing Efforts to Analyze New SEZs

On the basis of the reduced number of SEZs being carried forward for consideration in the Final Solar PEIS, the BLM has identified an immediate need for additional SEZs in some states. For example, in Arizona, the RFDS is 2,424 MW, corresponding to approximately 22,000 acres (89 km^2). Changes to proposed SEZs, however, have resulted in only about 6,500 acres (26 km^2) of SEZs being carried forward in Arizona. Market demand in California indicates a similar demand for additional SEZs there. The BLM has initiated efforts to consider identifying new SEZs in these states. Such efforts are taking place outside of the Solar PEIS process but consistent with the principles outlined in the SEZ identification protocol proposed in this Supplement. The BLM believes that the future identification of new SEZs will most appropriately be managed at the BLM state and/or field office levels where there is a better understanding of need and potential resource conflicts.

Ongoing efforts that will result in the identification of new SEZs include Arizona's RDEP, California's DRECP, and California's West Chocolate Mountains REEA planning effort. In addition, the BLM will encourage local land use planning efforts to consider the need for, and identify as appropriate, new SEZs as part of ongoing land use plan revisions. Currently, plan revisions in Nevada and Colorado are pursuing this approach. Ongoing efforts to identify new SEZs and associated time lines are described below. All SEZs identified through these efforts would be analyzed through a planning and NEPA process at a level similar to the analysis in the Solar PEIS to ensure that key issues, such as wildlife, cultural resources, transmission, and cumulative impacts, are fully considered. The authorization of future projects in these SEZs would involve tiered-NEPA analyses as in the case of SEZs to be identified through the Solar PEIS. Projects proposed in SEZs that have been identified and analyzed through state or local land use planning efforts are expected to receive the same incentives as SEZs identified through the Solar PEIS.

Arizona's Restoration Energy Design Project

Arizona's RDEP was chartered in 2009 by the Secretary of the Interior to support the efforts for sustainable energy and to pilot the concept of using disturbed and low-conflict lands for renewable energy. The RDEP is both a state-level step-down to the Solar PEIS decisions and a revision of all land use plans in Arizona to integrate and update them with renewable energy land use allocations. RDEP will analyze and consider the identification of additional lands for renewable energy development (solar and wind) at any scale and in multiple jurisdictions.

The RDEP allows a look across all ownership and jurisdictional management of lands. It addresses the nexus of public lands with renewable energy potential to the generation and transmission system and provides information to policy- and decision-makers in Arizona for siting and development. RDEP will inform logical utility-scale siting (beyond just opportunities on public lands) and determine which public lands fit best.

The RDEP will provide for the integration of all renewable energy planning designations at the local and state level, based on environmental considerations (low resource conflicts), and

will be tailored to fit with the state- wide transmission system and existing generation facilities. In addition to utility-scale opportunities, the RDEP will also offer information to assist in siting of community-level distributed energy generation with diminished transmission requirements.

For utility scale-solar development specifically, the RDEP will serve as a step-down analysis to the Solar PEIS. The RDEP will consider the identification of an additional SEZ, consider increasing the Arizona acreage identified for renewable energy, and may help to streamline the variance process for some of the variance areas potentially identified through the Solar PEIS ROD. The RDEP will consider amending land use plans in Arizona to potentially identify the following:

- One additional SEZ, the Agua Caliente SEZ (22,000 acres [89 km^2]), that will be provided the same level of inventory and analysis as the SEZs in the Solar PEIS;

- Renewable Energy Development Areas (REDAs), areas within the larger utility-scale solar energy variance areas that have been intensively pre-screened and analyzed for suitability for development. It is anticipated that applications proposed in REDAs would comply with the variance process and therefore could qualify for priority processing. This will serve as an additional incentive for developers.

The RDEP Draft EIS is expected to be published in January 2012, the Final EIS in October 2012, and the ROD in December 2012.

California's Desert Renewable Energy Conservation Plan

In 2008 and 2009, BLM California (BLM-CA) and the DOI signed Memoranda of Understanding with the California Governor's Office codifying the Renewable Energy Action Team (REAT), initiating the Renewable Energy Policy Group (REPG), and establishing BLM-CA's role in the DRECP. BLM-CA, the California Energy Commission (CEC), the California Department of Fish and Game (CDFG), and the USFWS form the core of the REAT and REPG, with additional participation from other state and federal agencies. The core REAT agencies are leading the development of the DRECP.

The DRECP is the largest landscape-level planning effort in California, covering approximately 22.5 million acres (91,054 km^2) of federal and nonfederal land in the Mojave and Colorado (Sonoran) Deserts of southern California. The planning area covers all or portions of seven counties, including Kern, Los Angeles, San Bernardino, Inyo, Riverside, Imperial, and San Diego. Approximately 10 million acres (40,469 km^2) of the DRECP are administered by the BLM-CA under the CDCA plan and under the Bishop, Caliente/Bakersfield, and Eastern San Diego County RMPs.

The purpose of the DRECP is to advance state and federal species and ecosystem conservation goals in the deserts of southern California, while also facilitating the timely permitting of renewable energy projects on federal and nonfederal lands.

BLM-CA intends to use the DRECP as the foundation for possible amendments to the CDCA Plan and three RMPs. The DRECP is also being designed as a Habitat Conservation Plan in accordance with the ESA and a Natural Communities Conservation Plan in accordance with the California Natural Communities Conservation Planning Act. Through potential land use plan amendments (CDCA and three RMPs), the DRECP may be used to identify priority areas for renewable energy development (potentially through the identification of additional SEZs) and associated conservation on BLM lands within the DRECP planning area.

The DRECP Draft EIS is expected to be published in May 2012, the Final EIS in November 2012, and the ROD in January 2013.

California's West Chocolate Mountains Renewable Energy Evaluation Area

The BLM is currently engaged in a planning effort within the West Chocolate Mountains near the Salton Sea in Imperial County, California (referred to as the West Chocolate Mountains REEA).Through this effort, the BLM is evaluating the potential environmental impacts associated with renewable energy testing and development on public lands within the West Chocolate Mountains REEA, including solar, wind, and geothermal. The proposed planning area covers approximately 17,900 acres (72 km^2) of BLM-administered public lands.

The West Chocolate Mountains planning effort is expected to result in amendments to the CDCA Plan of 1980 (BLM 1999) to identify sites within the West Chocolate Mountains REEA as suitable and not suitable for solar and wind energy development, and geothermal leasing and development. Some SEZs for renewable energy development, including utility-scale solar energy, may also be identified.

The Draft EIS for the West Chocolate Mountains REEA was published in June 2011. The Final EIS is expected to be published in December 2011, with a ROD expected in April 2012.

Other Planning Efforts

The BLM is engaged in several RMP revisions that are looking at opportunities to identify renewable energy priority areas such as new SEZs. Examples include the Las Vegas-Pahrump RMP revision in Nevada, which has a draft scheduled for release in October 2012, and the Grand Junction RMP revision in Colorado, which has a draft scheduled for release in September 2012.

2.2.2.3 Proposed Variance Areas for Utility-Scale Solar Energy Development

In order to accommodate the flexibility described in the BLM's program objectives, the modified program alternative allows for responsible utility-scale solar development outside of SEZs. The BLM proposes to identify lands outside of proposed exclusion areas and SEZs as variance areas for utility-scale solar energy development. Variance areas would be open to application but would require developers to adhere to the variance process detailed in Section 2.2.2.3.1 of this Supplement.

The proposed variance areas and associated variance process would only apply to utility-scale solar development, which is defined for the purposes of the Solar PEIS as projects capable of generating 20 MW or greater of electricity. All nonutility-scale solar energy projects, including distributed generation, would follow existing management prescriptions in BLM land use plans and be subject to individual site-specific NEPA analyses.

As the BLM continues to refine the list of proposed exclusions under the modified program alternative (see Section 2.2.2.1 of this Supplement), the amount of land in variance areas will likely be reduced. A final proposal for exclusions, and therefore variance areas, will be presented in the Final Solar PEIS.

The variance process presented in the following section replaces components of Appendix A in the Draft Solar PEIS and incorporates applicable elements of BLM Instruction Memoranda in existence or released after the publication of the Draft Solar PEIS.

2.2.2.3.1 Variance Process

The variance process provides an opportunity for developers to propose applications outside of identified SEZs and complements the directed development approach in the modified program alternative. Variances may be needed in the near-term because the lands identified as SEZs might be insufficient to accommodate demand for utility-scale solar development. In addition, there might be market, technological, or site-specific factors that make a project appropriate in a non-SEZ area. The BLM will consider variance applications on a case-by-case basis based on environmental considerations; consultation with appropriate federal, state, and local agencies, and Tribes; and public outreach. All variance applications that the BLM determines to be appropriate for continued processing will subsequently be required to comply with NEPA and all other applicable laws, regulations, and policies at the applicant's expense. Applicants applying for a variance must assume all risk associated with their application and understand that their financial commitments in connection with their applications will not be a determinative factor in BLM's evaluation process.

Pre-application Meeting

The BLM will require prospective applicants to schedule and participate in two pre-application meetings with the BLM before filing a variance application in variance areas

(43 CFR 2804.10(a)). The purpose of the first pre-application meeting is to discuss the status of BLM land use planning in the area, potential land use and siting constraints, potential environmental issues in the area, potential alternative site locations for the project, and the variance process itself, including cost-recovery requirements, application requirements, consultation requirements, public involvement requirements, and associated time lines. The purpose of the second pre-application meeting is to initiate and ensure early coordination with federal (e.g., NPS and USFWS), state, and local government agencies and Tribes as required by the regulations (43 CFR 2804.10(b)). Through pre-application discussions, the BLM and other agencies will identify information that applicants would likely be required to gather to document natural and/or cultural resources present in the area. Note pre-application meetings are not covered by cost-recovery fees under the BLM's ROW program.

Variance Application Process

Applicants seeking to develop projects in variance areas will be required to submit a ROW application to the BLM (Form SF-299, Application for Transportation and Utility Systems and Facilities on Federal Land). In the case of a variance, the POD submitted with an application must be of sufficient detail (as determined by the BLM) to evaluate the suitability of the site for utility-scale solar energy development. Specific information is outlined below.

Applicants applying for a variance must establish a cost-recovery account sufficient to cover all costs associated with accepting, reviewing, and processing a variance application, including, but not limited to conducting environmental review and related consultations; conducting cultural resource inventory and related consultations; and conducting inventories for special status species, lands with wilderness characteristics, or specially designated areas. Cost-recovery fees are collected after a ROW application is submitted and a cost-recovery agreement is established with the applicant (43 CFR 2804.14).

Variance Application/Plan of Development (POD) Factors To Be Considered

The BLM will consider the following factors when evaluating variance applications:

- The financial and technical capability of the applicant, including but not limited to:
  - International or domestic experience with solar projects on federal or nonfederal lands,
  - Sufficient capitalization to carry out development

- The availability of an SEZ served by transmission in the same state as the applicant's proposal.

- If applicable, documentation that the proposed project will be located in an area identified as suitable for solar energy development by another related

process such as the California DRECP or Arizona RDEP. Such an application may be given priority status and processed as though it were in an SEZ.

- Any special circumstances associated with an application such as an expansion or repowering of an existing project or unique federal–nonfederal partnership.

- Documentation that the proposed project will be located in an area with low resource value and where minimal conflict with adjacent lands is likely (e.g., previously contaminated or disturbed lands such as brownfields identified by the U.S. Environmental Protection Agency's RE-Powering America's Land Initiative (http://www.epa.gov/renewableenergyland/); mechanically altered lands such as fallowed agricultural lands; idle or underutilized industrial areas; lands adjacent to urbanized areas and/or load centers; previously reclaimed lands; or areas repeatedly burned and invaded by fire-promoting non-native grasses).

- *Desert Tortoise Variance Process Requirements under Consideration*:

  Desert tortoise conservation areas are excluded from BLM's proposed Solar Energy Program (Figure 2.2-2—note that small areas of overlap will be resolved for the Final Solar PEIS). These areas include, but are not limited to, all critical habitat for desert tortoise and specially designated areas such as National Parks, National Recreation Areas, and National Wildlife Refuges. With respect to evaluation of potential impacts on desert tortoise, the BLM is seeking comments on two Options for applications received in variance areas:

  Option 1:
  No special variance application requirements for desert tortoise. The BLM will consider all variance applications within the range of desert tortoise on a case-by-case basis in coordination with the USFWS.

  Option 2:
  For all applications in variance areas that are within the range of desert tortoise but located outside of proposed connectivity areas (see light blue areas in Figure 2.2-2), the applicant must provide documentation of the following:
  - Project area has less than or equal to 5 tortoises (>160 mm Midline Carapace Length) per square mile.
  - Based on the USFWS pre-project tortoise survey, the point estimate for tortoises needing to be translocated would be less than or equal to 35 tortoise (>160 mm Midline Carapace Length).
  - The project is sited in a manner that maintains at least one 3 mi (5 km) wide, minimally disturbed connectivity corridor to ensure that the project does not isolate or fragment tortoise habitat and populations.

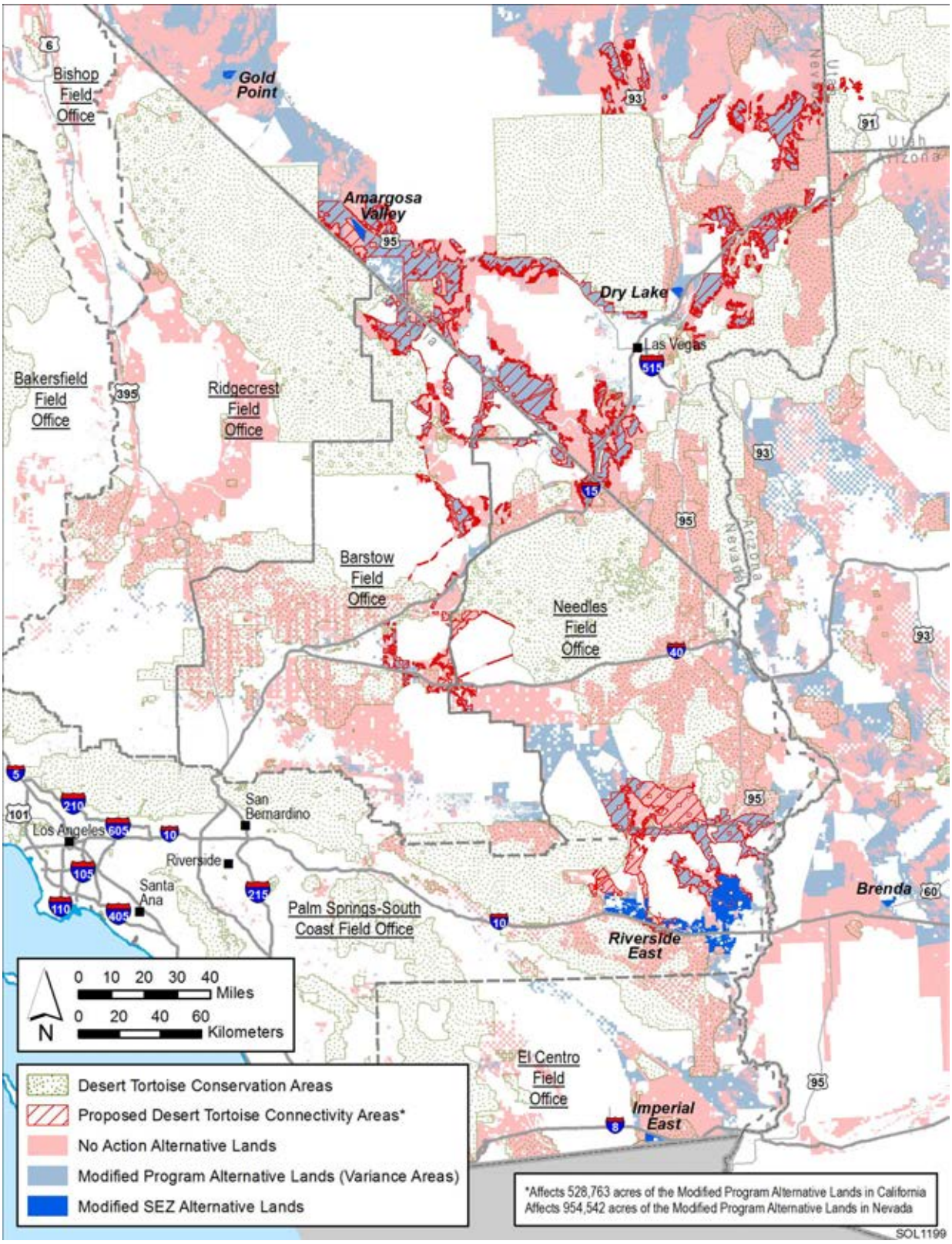

FIGURE 2.2-2 Desert Tortoise Conservation Areas and Proposed Connectivity Areas

For all applications in variance areas within the range of desert tortoise and within proposed connectivity areas (see red hatched areas in Figure 2.2-2), siting will be discouraged given anticipated high conflict. However, if a variance application is submitted in this area, applicants will be subject to the translocation limitations and maintenance of minimally disturbed connectivity corridors as described above. In addition, applicants will work with the BLM and USFWS to survey an area 3 to 4 times larger than the proposed project area in an attempt to find a suitable project location that meets all of the following criteria:

- Projects will be sited in the lowest tortoise density area surveyed and will not exceed 2 tortoise per square mile.
- Projects will be sited in locations where native vegetation communities are degraded or soils are compacted, such that habitat restoration potential is low.
- Mitigation for projects within the tortoise connectivity areas should be prioritized to improve conditions within the connectivity area, and if these options do not exist, mitigation should be applied toward the nearest tortoise conservation area (e.g., Desert Wildlife Management Area [DWMA] or critical habitat).

- *Greater Sage-Grouse Requirements*. For all variance applications within the range of the greater sage-grouse, the applicant must provide documentation of the following:
  - Project is at least 3 mi (5 km) from the nearest lek.
  - Project will not remove preliminary priority habitat.
  - Project will be mitigated through land acquisition or habitat enhancement 1:1 for the impact on sage-grouse habitat.

- Documentation that the proposed project will minimize the need to build new roads and/or transmission infrastructure (e.g., transmission with existing capacity and substations is already available; or minimal additional infrastructure would be needed, such as incremental transmission re-conductoring or upgrades).

- Documentation that the proposed project will make highly efficient use of the land considering the solar resource, the technology to be used, and the proposed project layout.

- Documentation that the proposed project will meet all required design features adopted in the ROD for the Solar PEIS (currently presented in Appendix A of the Draft Solar PEIS).

- Documentation that the proposed project will minimize impacts on water resources.

- For applications in the DRECP planning area, documentation that the proposed project will be consistent with the biological goals and objectives of the plan.

- Documentation that the proposed project will be consistent with priority conservation, restoration, and/or adaptation objectives in best available landscape-scale information (e.g., landscape conservation cooperatives, rapid ecological assessments, and state-level crucial habitat assessment tools).

- Any opportunities to combine federal and nonfederal lands for optimum siting.

BLM Coordination Activities

To assist in the evaluation of variance applications, the BLM will coordinate, as necessary, with appropriate federal, state, and local government agencies; and Tribes. Consideration should be given to the following:

- Consistency with the plans and policies of other government entities.

- Consultation with Tribes. Government-to-government consultation with Tribal staff will provide opportunities for Tribes to identify traditional cultural properties and sacred sites with applications in variance areas. Tribes will be invited to attend pre-application meetings with the applicant and the BLM. On the basis of information and discussions arising from the pre-application meetings, the BLM will determine whether there is a need for new ethnographic research to provide sufficient information to adequately consider the effects of solar development on issues and resources of concern to Tribes. BLM field office cultural staff, including specialists assigned to Renewable Energy Coordination Offices where present, in consultation with their Deputy Preservation Officer, shall recommend to responsible BLM line officers whether new ethnographic data are required for a given solar application. Should new ethnographic research, studies, or interviews be judged necessary, the BLM cultural staff, in consultation with Tribal officials, will recommend to BLM line officers the appropriate scope of the study, provisions for safeguarding data confidentiality, and programs of mitigation.

- Consultation with the SHPO. The BLM, in consultation with the SHPO, will determine what steps will be required to identify historic properties in the area of effect for the variance application. Additional inventories may include Class II and/or Class III surveys. Such inventories of areas of direct and indirect effect must be completed prior to formal submission of a completed application. On the basis of the results of the inventory, determinations of eligibility of sites to the *National Register of Historic Places* (NRHP), and

determinations of effect, programs of mitigation would be approved by the BLM and carried out by the applicant prior to ground disturbance.

- Coordination with the USFWS on any application that would result in impacts on:
  - Desert tortoise connectivity areas,
  - Sage-grouse areas of concern,
  - Golden eagles, and
  - Other trust resource concerns.

- Coordination with state fish and wildlife agencies.

- Consultation with the NPS on any application that would result in impacts on the resources and values of units of the National Park System and other special status areas under NPS and/or BLM administration (e.g., National Historic Trails). The applicant may be required by the NPS to provide documentation of potential project impacts on sensitive park resources, including but not limited to, daytime and night sky views, water sources, air quality, habitats and ecosystems, wilderness areas, and natural sounds.

- Consultation with the NPS and U.S. Forest Service (USFS) administration/ management for National Scenic and Historic Trails.

- Consultation with the DoD.

- For applications in the DRECP planning area, coordination with California REAT agencies (BLM, USFWS, CDFG, and CEC).

- Coordination with state and regional transmission planning efforts (e.g., Western Governors Association, California Renewable Energy Transmission Initiative, Nevada Renewable Energy Transmission Access Advisory Committee, New Mexico Renewable Energy Transmission Authority), transmission coordination authorities (e.g., WECC), state energy offices, and transmission system operators to evaluate transmission access issues in the project area and to maximize coordination with ongoing efforts.

- Communication with any potentially affected grazing permittee/lessee.

- Communication with the owner of any federal mining claims and/or mineral leases located with the boundaries of the proposed project.

Public Meeting

The BLM has the discretion to require a pre-scoping public meeting that falls outside of the NEPA process for variance applications to assist in the identification of potential issues connected with the proposal.

2.2.2.3.2 Variance Process Determination

The BLM has determined that, in appropriate circumstances, it can rely on the broad discretion it has under FLPMA to deny ROW applications without completing the NEPA process. Such decisions must be made with regard for the public interest and be supported by reasoned analysis and an adequate administrative record. Decisions to deny pending applications must be assessed on a case-by-case basis. BLM's denial of an application constitutes a "final agency action" and is therefore subject to administrative appeals to the IBLA.

On the basis of the information provided by the applicant, and the input of federal, state, and local government agencies, Tribes, and the public for a variance, the BLM will determine whether it is appropriate to continue to process the submitted ROW application or to deny the application. Variance evaluations will be conducted at the BLM field and state office levels.

All variance applications that are determined to be appropriate for continued processing will be submitted by the State Director to the BLM Washington Office for the Director's concurrence. The Director also has the discretion to offer lands determined to be appropriate for continued processing under competitive procedures. In making this determination, the Director will consider variables such as public interest, market demand for solar development in the region, expressions of interest from other parties, authorized use and/or ownership of adjoining lands, and the purpose of the project.

All variance applications that the BLM determines to be appropriate for continued processing will subsequently be required to comply with NEPA and all other applicable laws, regulations and policies at the applicant's expense, including but not limited to the ESA, the NHPA, and the NPS Organic Act of 1916. Proposed projects in variance areas will require consideration of alternatives and will likely result in an environmental impact statement level of NEPA documentation. Compliance with applicable laws, regulations, and policies could result in substantial changes to a project proposal or application denial.

2.2.2.4 Land Use Plans To Be Amended

Land use plans in the six-state study area would be amended under the modified program alternative to incorporate the planning components of the proposed Solar Energy Program. Appendix E, Table E-1, of this Supplement lists all of the land use plans to be amended. The amendments would identify (1) lands that would be excluded from utility-scale solar energy development, (2) lands to be included in SEZs, and (3) lands that would be identified as variance areas for utility-scale solar energy development. The plans would also be amended to adopt the

proposed program and SEZ-specific design features described in the Draft Solar PEIS and Supplement.

2.2.3 Modified SEZ Program Alternative

Under the modified SEZ program alternative (referred to as "modified SEZ alternative"), the BLM would restrict utility-scale solar energy development applications to SEZs only, and identify all other lands as exclusion areas for utility-scale solar energy development. The proposed authorization policies described in the modified program alternative would apply to applications in SEZs under the modified SEZ alternative.

2.2.3.1 Proposed Right-of-Way Exclusion Areas

Under the modified SEZ alternative, all areas outside of identified SEZs would be identified as exclusion areas for utility-scale solar energy development. No lands would be identified as variance areas for utility-scale solar energy development.

2.2.3.2 Proposed Solar Energy Zones

The proposed SEZs to be carried forward into the Final Solar PEIS under the modified SEZ alternative are the same as those described under the modified program alternative (see Section 2.2.2.2). The BLM is committed to collecting additional SEZ-specific resource data and conducting additional analysis in order to more effectively facilitate development in SEZs. The BLM has developed individual action plans for SEZs as part of this Supplement that describe data gaps for individual SEZs and propose data sources and methods for the collection of additional data. The action plans are presented in Appendix C of this Supplement. The BLM will prioritize the collection of additional data and analysis in those SEZs that are most likely to be developed in the near-future. Note that additional data and analysis will help facilitate development in SEZs but is not required to identify an area as an SEZ as part of the BLM's Solar Energy Program.

2.2.3.2.1 Solar Energy Zone Policies

The policies presented under the modified program alternative are also applicable to the modified SEZ alternative, including the authorization process for projects in SEZs, incentives for projects in SEZs, the protocol to identify new SEZs, and the proposed withdrawal of SEZs. Also, as described previously, the BLM has initiated efforts to identify new SEZs that are outside of the Solar PEIS but consistent with the principles outlined in this Supplement (see Appendix D of this Supplement).

2.2.3.3 Land Use Plans To Be Amended

Land use plans in the six-state study area would be amended under the modified SEZ alternative to incorporate the planning components of the proposed Solar Energy Program. Appendix E, Table E-1, of this Supplement lists all of the land use plans to be amended. The amendments would identify (1) lands that would be excluded from utility-scale solar energy development and (2) lands to be included in SEZs. Under the modified SEZ alternative, no lands would be identified as variance areas for utility-scale solar energy development (i.e., all lands outside of identified SEZs would be excluded from utility-scale solar development). The land use plans would also be amended to adopt the proposed program and SEZ-specific design features described in the Draft Solar PEIS and this Supplement.

2.3 ANALYSIS OF BLM'S MODIFIED ACTION ALTERNATIVES

This section presents an analysis of the BLM's two modified action alternatives. No change to the no action alternative is being proposed as part of this Supplement; analysis of the no action alternative can be found in the Draft Solar PEIS (Section 6.3). For comparative purposes, however, information on the no action alternative has been presented in summary tables throughout this section.

Table 2.3-1 lists the approximate amount of land that would be available for utility-scale solar ROW application in each state under the no action alternative and the modified action alternatives. Figures 2.3-1 through 2.3-6 show the approximate locations of these lands and of specifically excluded BLM-administered lands.

This section evaluates the modified action alternatives in terms of their effectiveness in meeting the objectives outlined as part of BLM's purpose and need for action (see Section 1.3 of this Supplement). The BLM's objectives include the following:

- Facilitating near-term utility-scale solar energy development on public lands;
- Minimizing potential negative environmental, social, and economic impacts;
- Providing flexibility to consider a variety of solar energy projects (e.g., location, facility size, and technology);
- Optimizing existing transmission infrastructure and corridors; and
- Standardizing and streamlining the authorization process for solar energy development on BLM-administered lands.

This section also evaluates the extent to which the modified action alternatives would assist the BLM in meeting the projected demand for utility-scale solar energy development, as estimated by the RFDS developed for the Draft Solar PEIS (see Section 1.6 of this Supplement). The extent to which each alternative would assist the BLM in meeting the mandates of the

TABLE 2.3-1 Summary of Potentially Developable BLM-Administered Land under the No Action Alternative, the Modified Solar Energy Development Program Alternative, and the Modified SEZ Program Alternative[a]

State	Total State Acreage[b]	BLM-Administered Lands Constituting No Action Alternative (acres)[c]	BLM-Administered Lands Constituting Modified Program Alternative (acres)[c,d]	BLM-Administered Lands Constituting Modified SEZ Alternative (acres)
Arizona	72,700,000	9,181,178 (9,218,009)	3,397,007 (4,485,944)	6,465 (13,735)
California	100,200,000	10,815,285 (11,067,366)	1,354,559 (1,766,543)	153,627 (339,090)
Colorado	66,500,000	7,282,258 (7,282,061)	111,059 (148,072)	16,308 (21,050)
Nevada	70,300,000	40,760,443 (40,794,055)	9,207,288 (9,084,050)	60,395 (171,265)
New Mexico	77,800,000	11,783,665 (12,188,361)	4,292,279 (4,068,324)	29,964 (113,052)
Utah	52,700,000	18,098,240 (18,182,368)	1,962,671 (2,028,222)	18,658 (19,192)
Total	440,200,000	97,921,069 (98,732,220)	20,324,863 (21,581,154)	285,417 (677,384)

[a] Values are reported in number of acres. Acreages in parentheses are values from the Draft Solar PEIS, provided for comparison. To convert acres to km^2, multiply by 0.004047.

[b] From Table 4.2-1 of the Draft Solar PEIS.

[c] The acreage estimates were calculated on the basis of the best available geographic information system (GIS) data. Although no changes from the Draft Solar PEIS were made to the categories of lands included under the no action alternative, updated GIS data for National Landscape Conservation System (NLCS) lands resulted in a small decrease in the estimated acres (less than 1% of total). For the modified development program alternative lands, GIS data were not available for the entire set of exclusions; thus the exact acreage could not be calculated. Exclusions that could not be mapped would be identified during the ROW application process.

[d] As stated in Section 2.2.2.2 of the Draft Solar PEIS, the BLM originally planned to exclude contiguous areas of less than 247 acres (1 km^2) from the lands constituting the development program alternative, but then determined that it would be appropriate to include these smaller parcels. Values shown in this column for the modified program alternative include areas of less than 247 acres (1 km^2). Exclusion of these smaller parcels would result in a total decrease of approximately 1.74 million acres (7,001 km^2) from the modified program alternative across the six-state study area, for a total of approximately 18.6 million acres. This total area of 18.6 million acres is directly comparable to the 22 million acres identified as available under the program alternative in the Draft Solar PEIS (i.e., the area of proposed land available under the program alternative has been decreased by about 3.4 million acres after accounting for the change in treatment of areas less than 247 acres [1 km^2]).

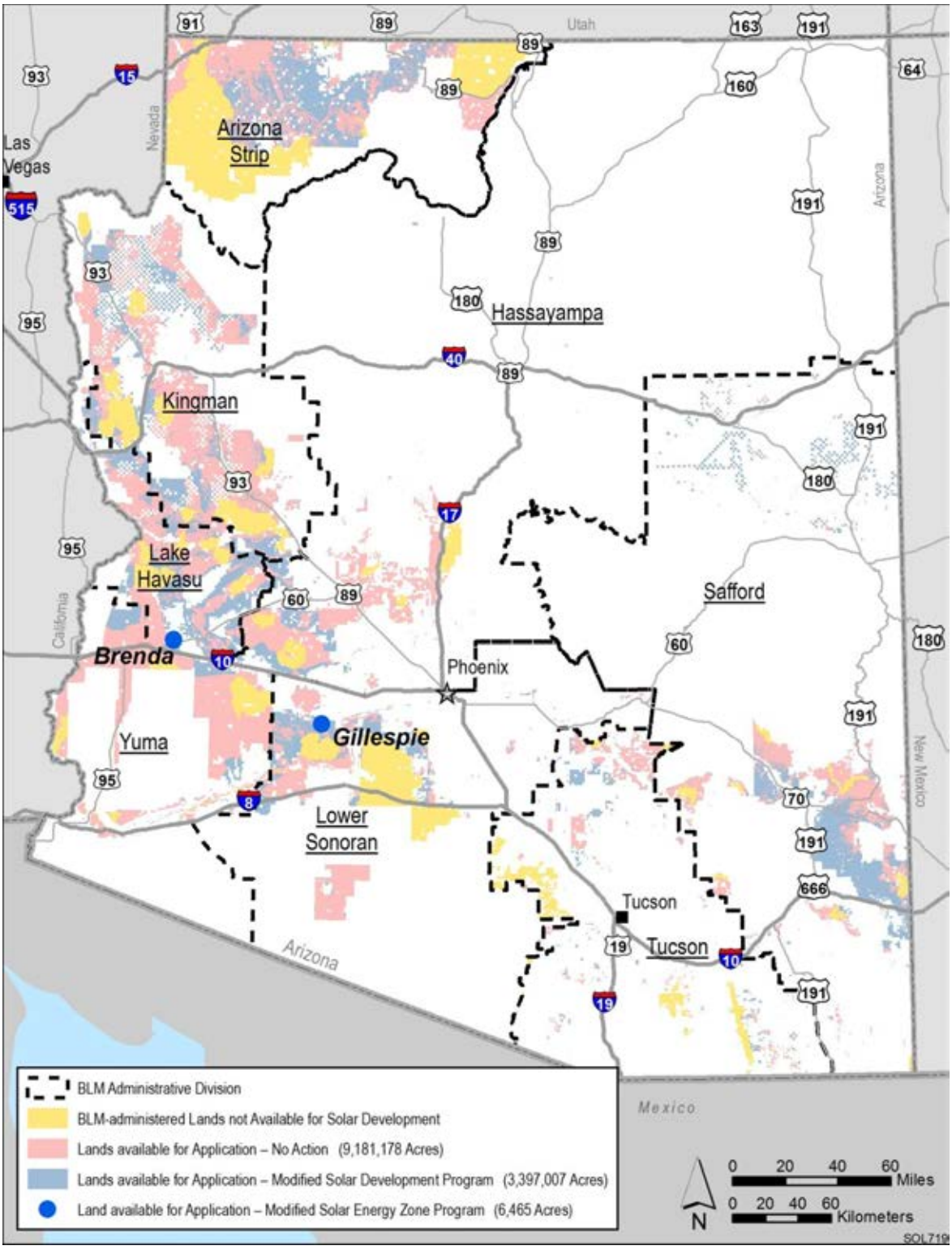

FIGURE 2.3-1 BLM-Administered Lands in Arizona Available for Application for Solar Energy ROW Authorizations under the Modified BLM Alternatives Considered in this Supplement (Note: the lands available under the no action alternative include both the pink and blue shaded areas.)

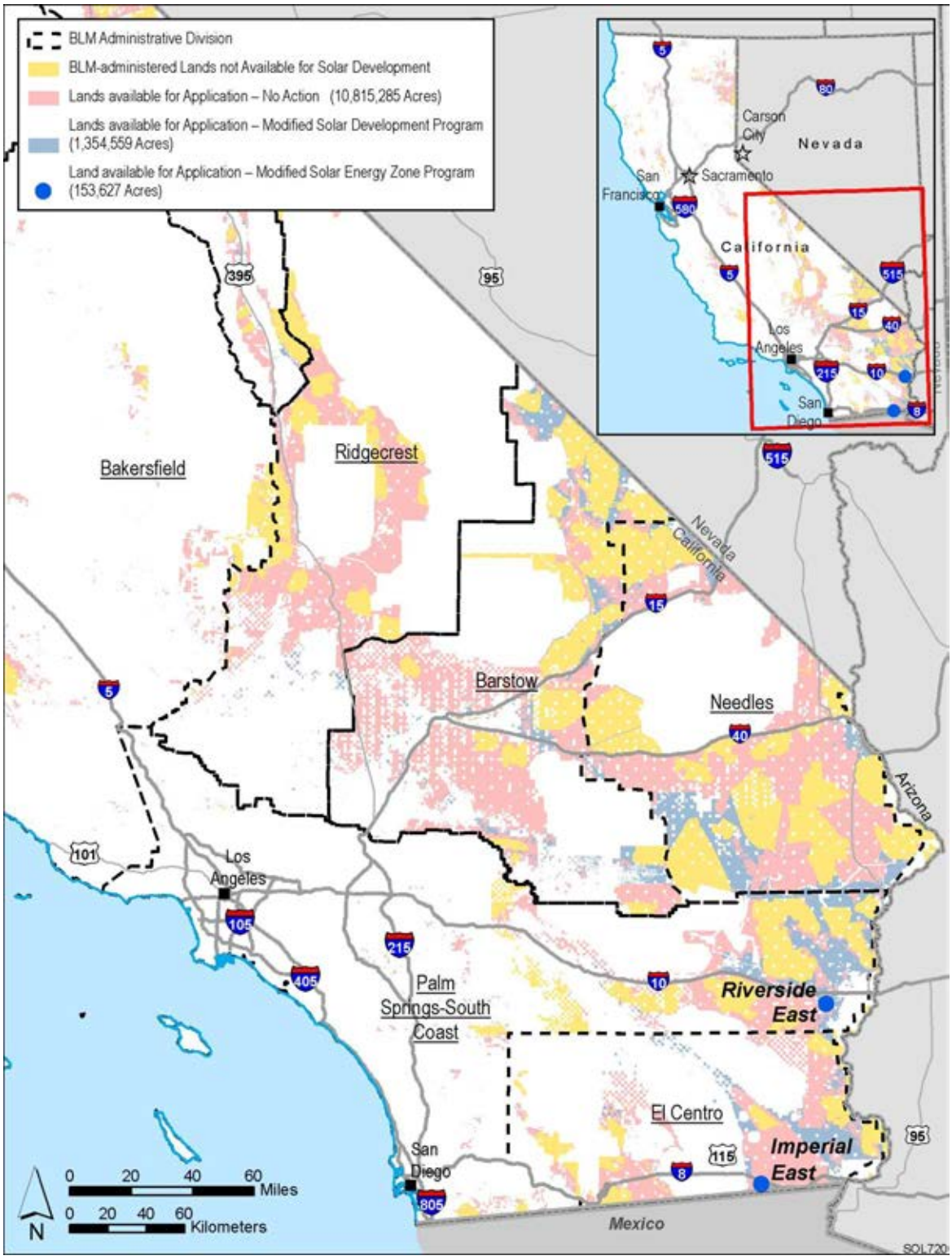

FIGURE 2.3-2 BLM-Administered Lands in California Available for Application for Solar Energy ROW Authorizations under the Modified BLM Alternatives Considered in this Supplement (Note: the lands available under the no action alternative include both the pink and blue shaded areas.)

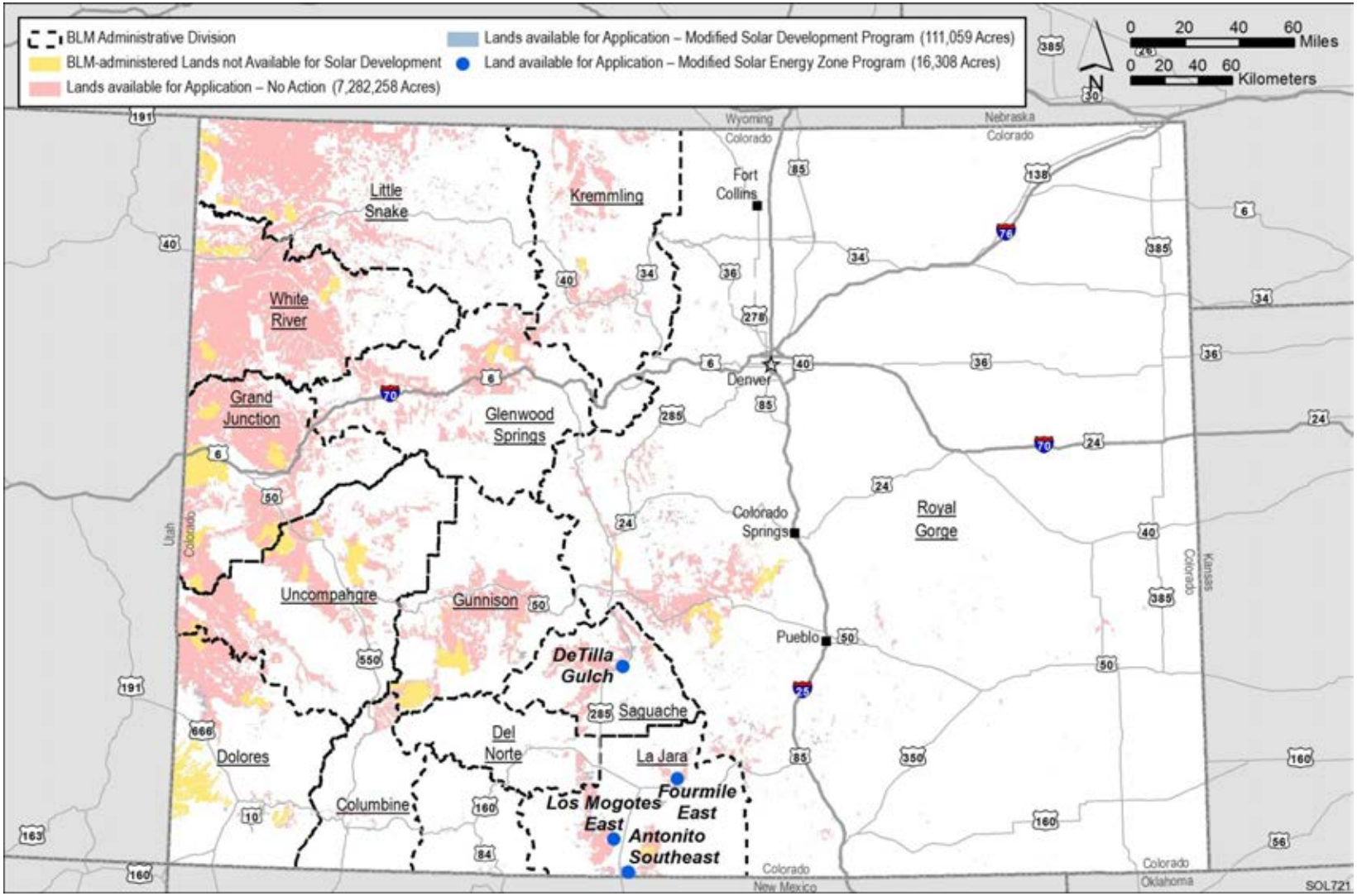

FIGURE 2.3-3 BLM-Administered Lands in Colorado Available for Application for Solar Energy ROW Authorizations under the Modified BLM Alternatives Considered in this Supplement (Note: the lands available under the no action alternative include both the pink and blue shaded areas.)

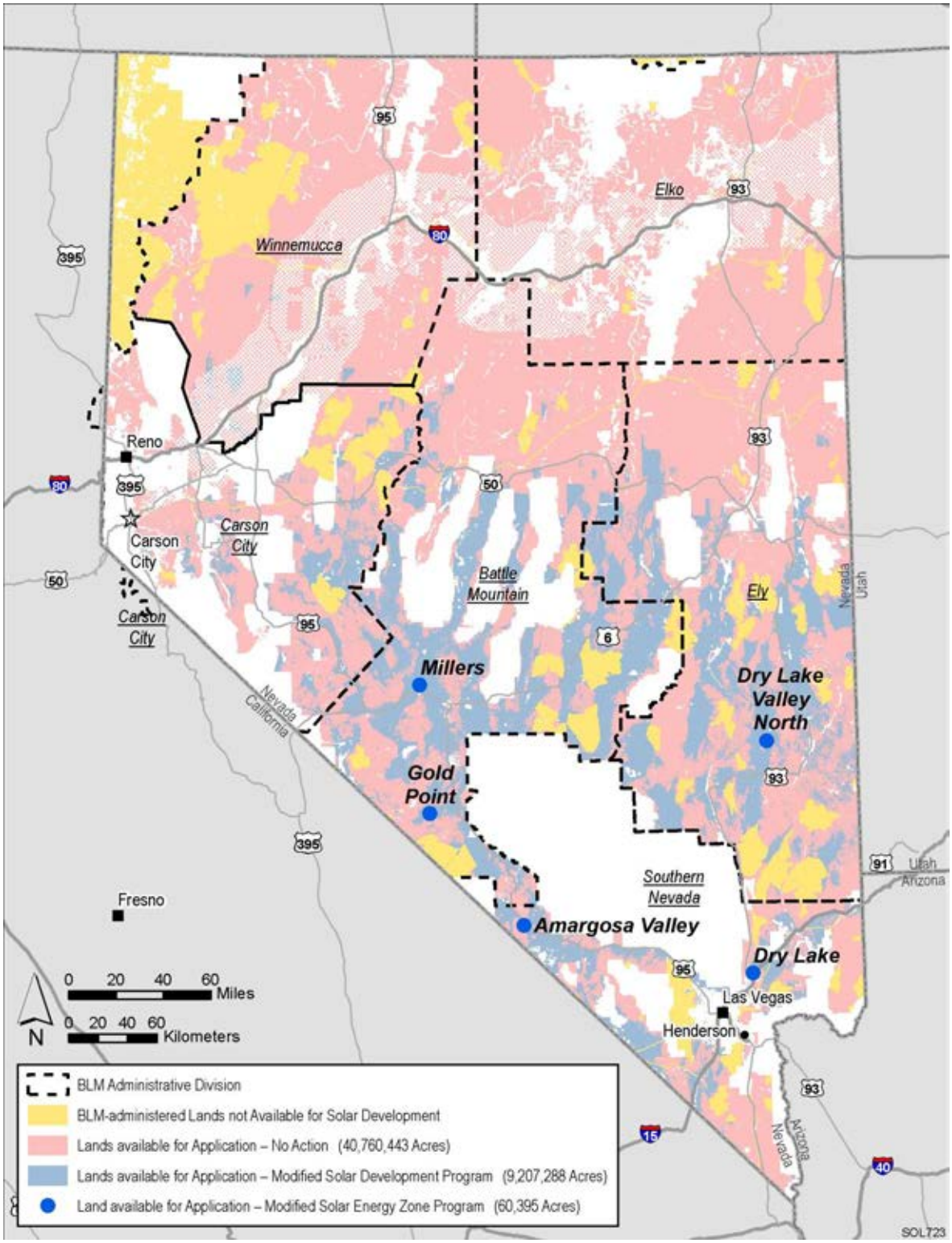

FIGURE 2.3-4 BLM-Administered Lands in Nevada Available for Application for Solar Energy ROW Authorizations under the Modified BLM Alternatives Considered in this Supplement (Note: the lands available under the no action alternative include both the pink and blue shaded areas.)

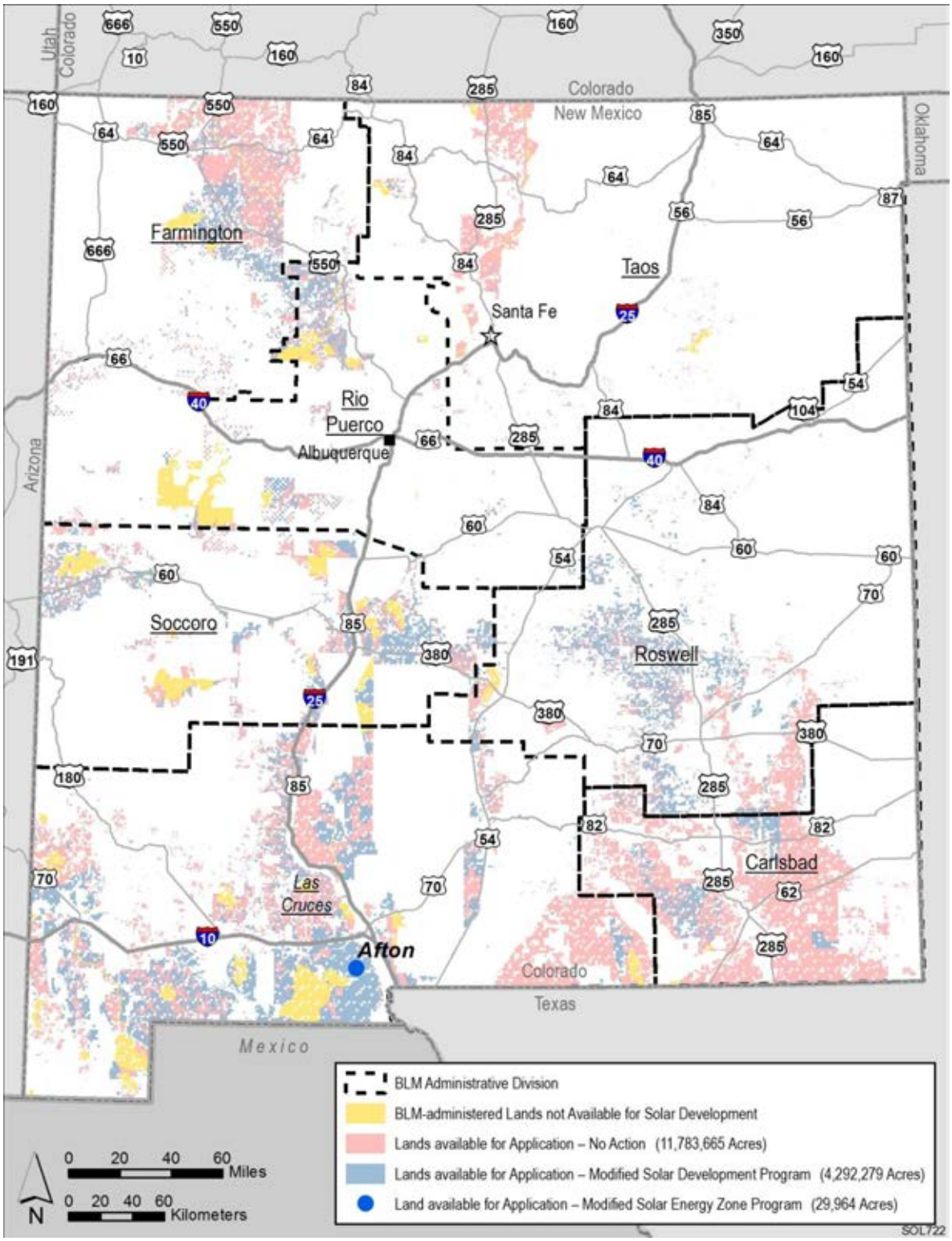

FIGURE 2.3-5 BLM-Administered Lands in New Mexico Available for Application for Solar Energy ROW Authorizations under the Modified BLM Alternatives Considered in this Supplement (Note: the lands available under the no action alternative include both the pink and blue shaded areas.)

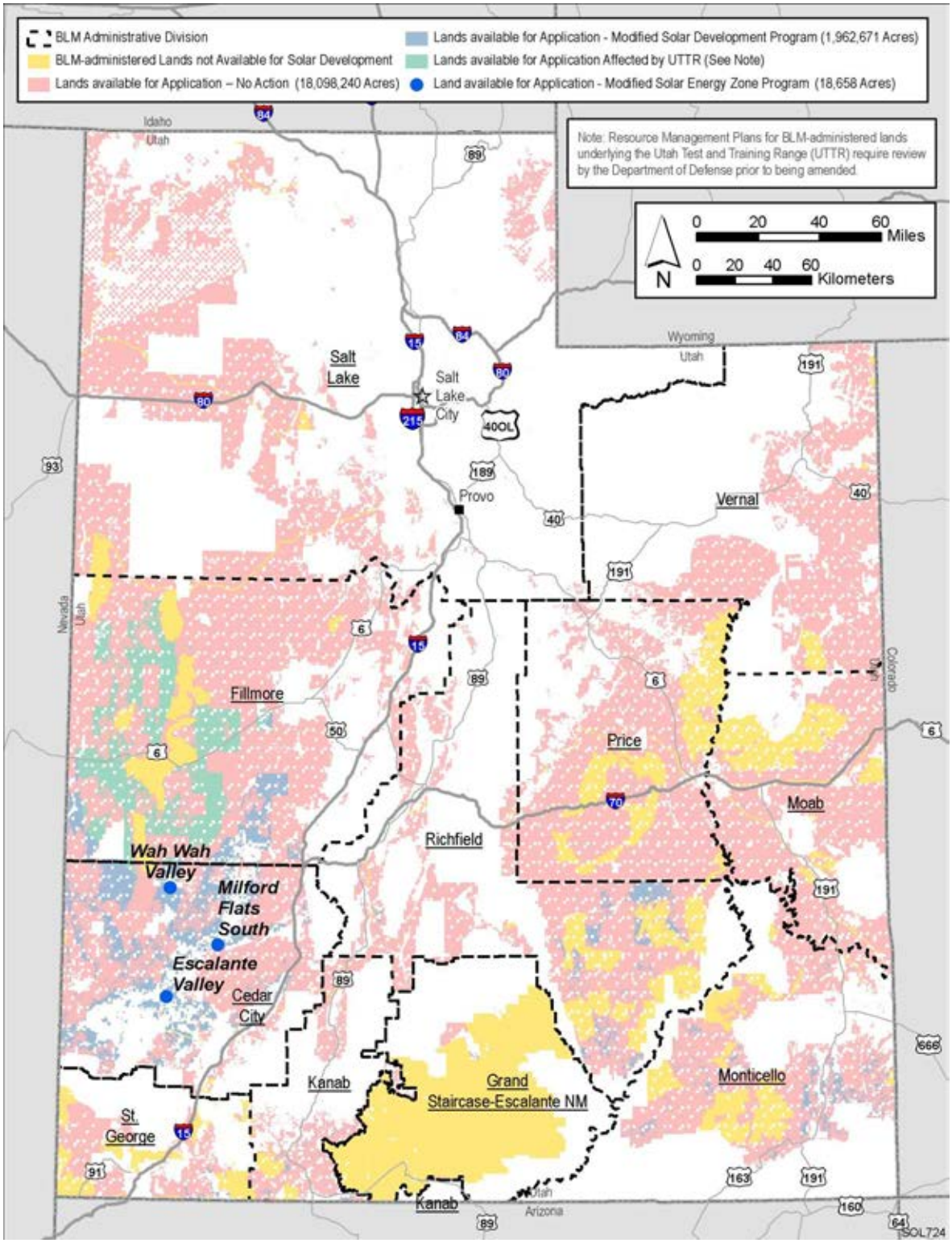

FIGURE 2.3-6 BLM-Administered Lands in Utah Available for Application for Solar Energy ROW Authorizations under the Modified BLM Alternatives Considered in this Supplement (Note: the lands available under the no action alternative include both the pink and blue shaded areas.)

Energy Policy Act of 2005 (Public Law [P.L.] 109-58) and Secretarial Order 3285A1 (Secretary of the Interior 2010) (see Section 1.1 of the Draft Solar PEIS), including, but not limited to, the mandate to identify and prioritize specific locations best-suited for utility-scale solar energy development on public lands, is also assessed.

In this section, summary-level information on the potential direct and indirect impacts on resources and resource uses from solar energy development is provided in the context of how such impacts would vary as a function of the modified action alternatives. Table 2.3-2 provides a summary of the environmental impacts of the modified alternatives. Commensurate with the planning-level decisions to be made (Section 1.5 of this Supplement), the impact summaries are primarily qualitative; however, to the extent practicable, some impacts have been quantified. While the impacts of solar development itself are largely similar across the modified action alternatives, differences between the alternatives are found in the location, pace, and concentration of this development.

The BLM has also revised Appendix J from the Draft Solar PEIS[1] –Special Status Species Associated with BLM's Alternatives in the Six-State Study Area." This document, which provides a comparison of species affected by alternative, can be obtained through the Solar PEIS project Web site (solareis.anl.gov).

This section incorporates by reference the Draft Solar PEIS assessment of the cumulative impacts of developing utility-scale solar energy on BLM-administered lands in the six-state study area over the next 20 years. The scope of the cumulative impact analysis in the Draft Solar PEIS was based on solar energy development at the level projected in the RFDS. As discussed in Section 1.6 of this Supplement, the RFDS remains a valid estimate of potential solar development over the next 20 years in the six-state study area. See Section 2.3.5 below for additional information on cumulative effects.

Discussion of the BLM's selection of a preferred alternative can be found in Section 2.3.4 of this Supplement. The discussion of other NEPA considerations (i.e., unavoidable adverse impacts, short-term uses of the environment and long-term productivity, irreversible and irretrievable commitment of resources, and mitigation of adverse effects) that was presented in the Draft Solar PEIS (Section 6.6) remains applicable to the modified action alternatives and is incorporated by reference from the Draft Solar PEIS.

[1] As described in the Reader's Guide for the Draft Solar PEIS, the need for an expanded species analysis by alternative was identified too late in preparation of the Draft Solar PEIS to be accommodated in the Draft version of the document. The BLM committed to updating Appendix J and making it available between the Draft and Final Solar PEIS. That work was completed and has subsequently been revised based on the changes proposed to the action alternatives through this Supplement. The revised document and additional details can be found at the Solar PEIS project Web site (solareis.anl.gov).

TABLE 2.3-2 Summary-Level Assessment of Potential Environmental Impacts by Alternative[a]

Resource	Modified Program Alternative (approximately 285,000 acres in priority areas) (approximately 20 million acres subject to variance process)	Modified SEZ Alternative (approximately 285,000 acres in priority areas)	No Action Alternative (approximately 98 million acres available for application)
Lands and Realty	Utility-scale solar energy development would preclude other land uses within the project footprint and could alter the character of largely rural areas. Development of supporting infrastructure (e.g., new transmission lines, roads) would also locally affect land use. These impacts potentially could be dispersed across the 20 million acres of variance areas; however, impacts would be minimized due to the required variance process. Design features (e.g., stakeholder coordination/consultation, consolidation of infrastructure) could effectively avoid or minimize many of these impacts.	Same impacts as modified program alternative, except impacts would be concentrated into a smaller, known geographic area.	Same impacts as modified program alternative, except impacts could be potentially more dispersed.
Specially Designated Lands and Lands with Wilderness Characteristics	Specially designated lands and lands with wilderness characteristics could be significantly affected through direct and indirect impacts (e.g., visual impacts, reduced access, noise impacts, fugitive dust) during both the construction and operations phases. Similar impacts potentially could be dispersed across the 20 million acres of variance areas; however, impacts would be minimized due to the required variance process and required design features. All National Landscape Conservation System (NLCS) lands would be excluded. Also excluded would be Areas of Critical Environmental Concern (ACECs), Special Recreation Management Areas (SRMAs) except in Nevada and portions of the Yuma East SRMA in Arizona; Desert Wildlife Management Areas (DWMAs); National Recreation Trails and National Backcountry Byways; National Historic and Scenic Trails, Wild, Scenic, and Recreational Rivers, and segments of rivers determined to be eligible or suitable for Wild and Scenic River status, and lands within the proposed Mojave Trails National Monument.[b] All areas where there is an applicable land use plan decision to protect lands with wilderness characteristics would be excluded	Same impacts as modified program alternative, except impacts would be concentrated into a smaller, known geographic area. This could increase the magnitude of potential impacts but affect a smaller number of areas.	Same impacts as modified program alternative, except that only NLCS lands currently off-limits to solar energy development would be excluded. Impacts could be potentially more dispersed and greater on specially designated lands and lands with wilderness characteristics excluded under the modified action alternatives.

TABLE 2.3-2 (Cont.)

Resource	Modified Program Alternative (approximately 285,000 acres in priority areas) (approximately 20 million acres subject to variance process)	Modified SEZ Alternative (approximately 285,000 acres in priority areas)	No Action Alternative (approximately 98 million acres available for application)
Rangeland Resources	Some livestock grazing allotments may be affected by solar energy development right-of-way (ROW) authorizations through reductions in acreage and/or loss of animal unit months (AUMs). Wild horses and burros also could be affected with animals displaced from the development area; the number of wild horse and burro herd management areas (HMAs) overlapping with or in the vicinity of lands available for ROW application would be less than under the no action alternative. These impacts potentially could be dispersed across the 20 million acres of variance areas; however, impacts would be minimized due to the required variance process and required design features.	Same impacts as modified program alternative, except impacts would be concentrated into a smaller geographic area within a known set of grazing allotments and HMAs.	Same impacts as modified program alternative, except impacts could be potentially more dispersed and there is less certainty about which grazing allotments and HMAs potentially could be affected.
Recreation	Recreational uses would be precluded within lands used for solar energy development. Recreational experiences could be adversely affected in areas proximate to solar energy projects and related transmission. These impacts potentially could be dispersed across the 20 million acres of variance areas; however, impacts would be minimized due to the required variance process and required design features. All SRMAs are excluded from solar energy development (except in Nevada and portions of the Yuma East SRMA in Arizona). Also excluded are developed recreational facilities and special-use permit recreation sites.	Same impacts as modified program alternative, except impacts would be concentrated into a smaller, known geographic area. This could increase the magnitude of potential impacts but affect fewer recreational resources.	Same impacts as modified program alternative, except SRMAs, recreational facilities, and special-use permit recreation sites not excluded. Impacts could be potentially more dispersed and greater on those recreational areas excluded under the action alternatives.

TABLE 2.3-2 (Cont.)

Resource	Modified Program Alternative (approximately 285,000 acres in priority areas) (approximately 20 million acres subject to variance process)	Modified SEZ Alternative (approximately 285,000 acres in priority areas)	No Action Alternative (approximately 98 million acres available for application)
Military and Civilian Aviation	Military and civilian aviation impacts would be identified and adequately mitigated prior to the Bureau of Land Management's (BLM's) issuance of a ROW authorization.	Same impacts as modified program alternative, except impacts would be concentrated into a smaller, known geographic area.	Same impacts as modified program alternative, except impacts could be potentially more dispersed.
Geologic Setting and Soil Resources	Development of large blocks of land for solar energy facilities and related infrastructure would result in impacts on geologic and soil resources in terms of soil compaction and erosion, although these impacts could be effectively mitigated. Impacts on biological soil crusts would be long term and possibly irreversible. These impacts potentially could be dispersed across the 20 million acres of variance areas; however, impacts would be minimized due to the required variance process and required design features.	Same impacts as modified program alternative, except impacts would be concentrated into a smaller, known geographic area.	Same impacts as modified program alternative, except impacts could be potentially more dispersed.
Mineral Resources	Mineral development within the project footprint for utility-scale solar energy development would generally be an incompatible use; however, some resources underlying the project area might be developable (e.g., directional drilling for oil and gas or geothermal resources, underground mining). These impacts potentially could be dispersed across the 20 million acres of variance areas; however, impacts would be minimized due to the required variance process and required design features. Lands within solar energy zones (SEZs) could be withdrawn from location and entry under the mining laws.	Same impacts as modified program alternative, except impacts would be concentrated into a smaller, known geographic area.	Same impacts as modified program alternative, except impacts could be potentially more dispersed. No SEZs would be identified or withdrawn.

TABLE 2.3-2 (Cont.)

Resource	Modified Program Alternative (approximately 285,000 acres in priority areas) (approximately 20 million acres subject to variance process)	Modified SEZ Alternative (approximately 285,000 acres in priority areas)	No Action Alternative (approximately 98 million acres available for application)
Water Resources	Solar thermal energy technologies with wet-cooling systems require large volumes of water, with potentially significant environmental impacts; however, such projects would be limited primarily to locations with ample groundwater supplies where water rights and the approval of water authorities could be obtained. Solar thermal projects with dry-cooling systems require less than one-tenth of the amount of water required for wet-cooling systems. All solar energy facilities require smaller volumes of water for mirror or panel washing and potable water uses, which would result in relatively minor impacts on water supplies. Other potential impacts, including modification of surface and groundwater flow systems, water contamination resulting from chemical leaks or spills, and water quality degradation by runoff or excessive withdrawals, can be effectively mitigated. Design features (e.g., minimizing water use, avoiding floodplains and ephemeral stream channels, measures for drainage and erosion control) could reduce many of these impacts.	Same impacts as modified program alternative, except impacts would be concentrated into a smaller, known geographic area. This could increase the magnitude of potential impacts but affect fewer water resources.	Same impacts as modified program alternative, except impacts could be potentially more dispersed.
Vegetation	Development likely to require total removal of vegetation at most facilities, which could result in significant direct impacts in terms of increased risk of invasive species introduction, changes in species composition and distribution, habitat loss (e.g., dune or riparian areas), and damage to biological soil crusts. Indirect impacts also likely in terms of dust deposition, altered drainage patterns, runoff, and sedimentation. Impacts potentially could be dispersed across the 20 million acres of variance areas; however, impacts would be minimized due to the required variance process.	Same impacts as modified program alternative, except impacts would be concentrated into a smaller, known geographic area. This could increase the magnitude of potential impacts but affect a smaller number of areas.	Same impacts as modified program alternative, except there would be no explicit exclusions to avoid known sensitive vegetation resources.

TABLE 2.3-2 (Cont.)

Resource	Modified Program Alternative (approximately 285,000 acres in priority areas) (approximately 20 million acres subject to variance process)	Modified SEZ Alternative (approximately 285,000 acres in priority areas)	No Action Alternative (approximately 98 million acres available for application)
Vegetation *(Cont.)*	Design features (e.g., invasive species control programs, fugitive dust control, minimizing size of disturbed areas) could significantly reduce impacts. Exclusions would avoid impacts in specific areas, including ACECs, Research Natural Areas, and Old Growth Forest. Less than 14% each of the Central Basin and Range and Chihuahuan Deserts Ecoregions, 11% of the Sonoran Basin and Range Ecoregion, and 5% of the Madrean Archipelago Ecoregion are located within the lands that would be available for application. Other ecoregions coincide with these lands at levels below 5%. The land cover types for the following example species overlap with variance areas available for ROW application by the percentage shown: Joshua tree – less than 7% Saguaro – less than 10%	Of the five ecoregions that coincide with SEZs, 1% or less of each ecoregion would be available for ROW application. Less than 1% of the land cover type for Joshua tree and saguaro species is located within the SEZs.	Impacts could be potentially more dispersed and greater on those vegetation resources excluded under the modified action alternatives. Lands available for ROW application span 22 ecoregions. More than 50% of 2 ecoregions (Central Basin and Range, Northern Basin and Range) would be available for application. The land cover types for the following example species overlap with the lands that would be available for ROW application by the percentage shown: Joshua tree – about 32% Saguaro – about 26%

TABLE 2.3-2 (Cont.)

Resource	Modified Program Alternative (approximately 285,000 acres in priority areas) (approximately 20 million acres subject to variance process)	Modified SEZ Alternative (approximately 285,000 acres in priority areas)	No Action Alternative (approximately 98 million acres available for application)
Wildlife and Aquatic Biota	Numerous wildlife species would be adversely affected by loss of habitat, disturbance, loss of food and prey species, loss of breeding areas, effects on movement and migration, introduction of new species, habitat fragmentation, and changes in water availability. Impacts potentially could be dispersed across the 20 million acres of variance areas; however, impacts would be minimized due to the required variance process. Design features (e.g., limiting land disturbance, conducting pre-disturbance surveys, controlling surface water runoff) could reduce many of these impacts. Exclusions would avoid such impacts in specific areas, including exclusion of ACECs, big game migratory corridors and winter ranges, Research Natural Areas, and lands with seasonal restrictions. The following example species' habitats overlap with variance areas for ROW application by the percentage shown: Western rattlesnake – less than 6% Golden eagle – less than 5% Black-tailed jackrabbit – less than 6% Pronghorn – less than 5% Mule deer – less than 6% Mountain lion – less than 5%	Same impacts as modified program alternative, except the potential area of impact would be limited to a smaller, known geographic area. Less than 1% of the habitats for western rattlesnake, golden eagle, black-tailed jackrabbit, pronghorn, mule deer, and mountain lion are located within the SEZs.	Same impacts modified program alternative, except there would be no explicit exclusions to avoid known sensitive wildlife resources. Impacts could be potentially more dispersed and greater on those wildlife resources excluded under the modified action alternatives. The following species' habitats overlap with the lands that would be available for ROW application by the percentage shown: Western rattlesnake – about 27% Golden eagle – about 23% Black-tailed jackrabbit – about 24% Pronghorn – about 22% Mule deer – about 22% Mountain lion – about 21%

TABLE 2.3-2 (Cont.)

Resource	Modified Program Alternative (approximately 285,000 acres in priority areas) (approximately 20 million acres subject to variance process)	Modified SEZ Alternative (approximately 285,000 acres in priority areas)	No Action Alternative (approximately 98 million acres available for application)
Special Status Species	Special status species and critical habitats would be protected in accordance with Endangered Species Act (ESA) requirements either through avoidance, translocation (plants), or acquisition and protection of compensatory habitat. Impacts potentially could be dispersed across the 20 million acres of variance areas; however, impacts would be minimized due to the required variance process. Critical habitat designated or proposed by the U.S. Fish and Wildlife Service (USFWS) would be excluded. All ACECs designated for habitat would be excluded along with identified Desert Tortoise translocation sites and other areas where the BLM has made a commitment to protect sensitive species (including Mohave ground squirrel and flat-tailed horned lizard habitat in California, greater sage-grouse habitat in California, Nevada, and Utah, and Gunnison's sage-grouse habitat in Utah). Variance areas for ROW application include areas of potentially suitable habitat for special status species (see revision to Appendix J of the Draft Solar PEIS at solareis.anl.gov). For example, the following species' habitats overlap by the percentage shown: Plants: Nevada dune beardtongue – less than 61% White-margined beardtongue – less than 8% Munz's cholla – less than 16% Animals: Desert tortoise – less than 12% Western burrowing owl – less than 8% Greater sage-grouse – less than 8%	Special status species and critical habitats would be protected as under modified program alternative. Lands available for ROW application within SEZs include areas of potentially suitable habitat for special status species (see Appendix J; available at the Solar PEIS project Web site [solareis.anl.gov]). For example, about 1% or less of the habitat for two plant species (Nevada dune beard tongue, white-margined beard tongue) and nine animal species (desert tortoise, western burrowing owl, greater sage-grouse, Gunnison prairie dog, Gunnison sage-grouse, northern aplomado falcon, and southwestern willow flycatcher, Townsend's big-eared bat, and Utah prairie dog) is located within the SEZs; less than 4% of the	Special status species and critical habitats would be protected as under modified program alternative. In some cases, habitat identified by state fish and game agencies would be excluded, as identified through applicable land use plan decisions. Critical habitat, ACECs designated for habitat value, and other areas where the BLM has made a commitment to protect sensitive species would not be excluded. Lands available for ROW application include areas of potentially suitable habitat for special status species (see Appendix J). For example, the following species' habitats overlap by the percentage shown:

TABLE 2.3-2 (Cont.)

Resource	Modified Program Alternative (approximately 285,000 acres in priority areas) (approximately 20 million acres subject to variance process)	Modified SEZ Alternative (approximately 285,000 acres in priority areas)	No Action Alternative (approximately 98 million acres available for application)
Special Status Species *(Cont.)*	Gunnison prairie dog – less than 3% Gunnison sage-grouse – less than 1% Northern aplomado falcon – less than 11% Southwestern willow flycatcher – less than 1% Townsend's big-eared bat – less than 7% Utah prairie dog – less than 12%	plant Munz's cholla habitats is located with the SEZs.	Plants: Nevada dune beardtongue – 66% White-margined beardtongue – 34% Munz's cholla – 45% Animals: Desert tortoise – 29% Western burrowing owl – 27% Greater sage-grouse – 54% Gunnison prairie dog – 15% Gunnison sage-grouse – 24% Northern aplomado falcon – 26% Southwestern willow flycatcher -- 7% Townsend's big-eared bat – 23% Utah prairie dog – 36%

TABLE 2.3-2 (Cont.)

Resource	Modified Program Alternative (approximately 285,000 acres in priority areas) (approximately 20 million acres subject to variance process)	Modified SEZ Alternative (approximately 285,000 acres in priority areas)	No Action Alternative (approximately 98 million acres available for application)
Air Quality and Climate	Air quality would be adversely affected locally and temporarily during construction by fugitive dust and vehicle emissions, although impacts would be relatively minor and could be mitigated (e.g., dust control measures, emissions control devices, and vehicle maintenance). Impacts potentially could be dispersed across the 20 million acres of variance areas; however, impacts would be minimized due to the required variance process and required design features. Operations would result in few air quality impacts. Relatively minor carbon dioxide (CO_2) emissions would be generated by the use of heavy equipment, vehicles, and backup generators. Overall, CO_2 emissions would be reduced if solar energy production offsets fossil fuel energy production.	Same impacts as modified program alternative, except impacts would be concentrated into a smaller, known geographic area. This could increase the magnitude of potential impacts, particularly during construction, but affect a smaller number of areas.	Same impacts as modified program alternative, except impacts could be potentially more dispersed and of smaller magnitude locally. Carbon dioxide emission reductions would occur more slowly if the pace of development is slower.
Visual Resources	Solar energy projects and associated infrastructure introduce strong contrasts in forms, line, colors, and textures of the existing landscape which may be perceived as negative visual impacts. Suitable development sites typically located in basin flats surrounded by elevated lands where sensitive viewing locations exist. Impacts potentially could be dispersed across the 20 million acres of variance areas; however, impacts would be minimized due to the required variance process. Design features could reduce impacts but some large impacts cannot be avoided.	Same impacts as modified program alternative, except the impacts would be concentrated into a smaller, known geographic area. This could increase the magnitude of potential impacts, particularly during construction, but affect a smaller number of areas.	Same impacts as modified program alternative, except that only NLCS lands would be excluded. Impacts could be potentially more dispersed and greater on those areas excluded under the modified action alternatives.

TABLE 2.3-2 (Cont.)

Resource	Modified Program Alternative (approximately 285,000 acres in priority areas) (approximately 20 million acres subject to variance process)	Modified SEZ Alternative (approximately 285,000 acres in priority areas)	No Action Alternative (approximately 98 million acres available for application)
Visual Resources (*Cont.*)	All NLCS lands and ACECs are excluded. All SRMAs are excluded (except in Nevada and portions of the Yuma East SRMA in Arizona). Developed recreational facilities, special-use permit recreation sites, National Recreation Trails, and National Backcountry Byways are excluded. Less than 902 potentially sensitive visual resource areas (not including ACECs) are located in or within 25 mi (40 km) of the lands available for ROW viewsheds.	SEZs are visible from less than 149 potentially sensitive visual resource areas (not including ACECs) within 25 mi.	About 1,510 potentially sensitive visual resource areas (not including ACECs) are located in or within 25 mi of the lands available for ROW application and could be affected by solar development within their viewsheds.
Acoustic Environment	Construction-related noise could adversely affect nearby residents and/or wildlife, and would be greatest for concentrating solar power projects requiring power block construction. Operations-related noise impacts would generally be less significant than construction related noise impacts but could still be significant for some receptors located near power block or dish engine facilities. Impacts potentially could be dispersed across the 20 million acres of variance areas; however, impacts would be minimized due to the required variance process. Design features (e.g., siting, engineering controls) would significantly reduce impacts in some circumstances.	Same impacts as modified program alternative, except impacts would be concentrated into a smaller, known geographic area. This could increase the magnitude of potential impacts, particularly during construction, but affect a smaller number of areas.	Same impacts as modified program alternative, except impacts could be potentially more dispersed.
Paleonto-logical Resources	Paleontological resources subject to loss during construction, but impacts also possible during operations. Impacts potentially could be dispersed across the 20 million acres of variance areas; however, impacts would be minimized due to the required variance process. Design features would significantly reduce impacts.	Same impacts as modified program alternative, except impacts would be concentrated into a smaller, known geographic area.	Same impacts as modified program alternative, except impacts could be potentially more dispersed.

TABLE 2.3-2 (Cont.)

Resource	Modified Program Alternative (approximately 285,000 acres in priority areas) (approximately 20 million acres subject to variance process)	Modified SEZ Alternative (approximately 285,000 acres in priority areas)	No Action Alternative (approximately 98 million acres available for application)
Cultural Resources and Native American Concerns	Cultural resources subject to loss during construction, but impacts also possible during operations. Impacts potentially could be dispersed across the 20 million acres of variance areas; however, impacts would be minimized due to the required variance process. Design features (e.g., minimizing land disturbance, consultation and records searches, and training and education programs) would significantly reduce some impacts.	Same impacts as modified program alternative, except impacts would be concentrated into a smaller, known geographic area.	Same impacts as modified program alternative, except there would be no explicit exclusions to avoid known sensitive cultural resources.
	ACECs designated for cultural or historic resource values, National Historic and Scenic Trails, National Historic and Natural Landmarks, properties designated or eligible for the *National Register of Historic Places,* and areas with important cultural and archaeological resources would be excluded.	Same exclusions as modified program alternative	Impacts could be potentially more dispersed and greater on those cultural resources excluded under the modified action alternatives.
Transportation	Local road systems and traffic flow could be adversely affected during construction. Impacts during operations would be minor. Impacts potentially could be dispersed across the 20 million acres of variance areas; however, impacts would be minimized due to the required variance process. Design features (e.g., road improvements, ride-sharing programs, staggered work schedules, and traffic control measures) would significantly reduce impacts.	Same impacts as modified program alternative, except impacts would be concentrated into a smaller, known geographic area. This could increase the magnitude of potential impacts, particularly during construction, but affect a smaller number of areas.	Same impacts as modified program alternative, except impacts could be potentially more dispersed.

[a] The precise habitat overlap values (percentage) for the modified program alternative and modified SEZ alternative lands with specific habitats will be presented in the Final Solar PEIS. The lands composing the no action alternative have not changed significantly since release of the Draft Solar PEIS; thus the habitat overlap values (percentage) presented remain valid. To convert acres to km^2, multiply by 0.004047; to convert mi to km, multiply by 1.609.

[b] The acreage estimates were calculated on the basis of the best available geographic information system (GIS) data. GIS data were not available for the entire set of exclusions, and therefore, the acreages cannot be quantified at this time.

2.3.1 Impacts of the Modified Solar Energy Development Program Alternative

As discussed, all BLM-administered lands are not appropriate for solar energy development. Under the modified solar energy development program alternative (referred to as "modified program alternative"), certain categories of land that are known or believed to be unsuitable for utility-scale solar development would be excluded from development to guide solar energy developers to areas where there are fewer resource conflicts and potential controversy. Changes in proposed exclusions are presented in this Supplement. These changes reflect new information and comments received on the Draft Solar PEIS. The changes in exclusions are presented in Table 2.2-1 of this Supplement. On the basis of these exclusions, approximately 78 million acres (315,655 km^2) of BLM-administered lands that would otherwise be eligible for utility-scale solar energy development would be excluded from such development under this alternative. A subset of the remaining modified program alternative lands, approximately 285,000 acres (1,153 km^2), would be identified as SEZs where the agency would prioritize solar energy and associated transmission infrastructure development.[2]

Under the modified program alternative, all remaining BLM-administered lands outside of exclusion areas and SEZs would be identified as variance areas for utility-scale solar energy development. Variance areas would be open to application but would require developers to adhere to the variance process detailed in this Supplement (see Section 2.2.2.3.1).

The modified program alternative would also establish comprehensive program administration and authorization policies and design features to be applied to utility-scale solar energy projects that are issued ROWs on BLM-administered lands in the six-state study area. The proposed program administration and authorization policies have been updated as part of this Supplement. Proposed design features are presented in Section A.2 of Appendix A of the Draft Solar PEIS and will be modified, as necessary, in the Final Solar PEIS. As part of this alternative, the BLM would also establish SEZ-specific design features to address SEZ-specific resource conflicts. These SEZ-specific design features are based on the in-depth analyses of SEZs being conducted as part of the Solar PEIS. The elements of the BLM's new program under this alternative would be implemented through the amendment of the land use plans within the six-state study area and other applicable policy making tools.[3]

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[2] As discussed in Section 2.2.2.2, in the future, the BLM will conduct periodic assessment of need related to SEZs and may decide to expand SEZs, add SEZs, or remove or reduce SEZs. Changes to SEZs would have to go through a land use planning process, which would be subject to the appropriate environmental analysis.

[3] Under this alternative, most of the land use plans in the six-state study area would be amended. Section 2815(d) of the National Defense Authorization Act for Fiscal Year 2000 (P.L. 106-65) placed a moratorium on planning efforts on BLM-administered lands "adjacent to, or near the Utah Test and Training Range (UTTR) and Dugway Proving Grounds or beneath Military Operating Areas, Restricted Areas, and airspace that make up the UTTR" (NDAA § 2815(a), 113 Stat. 512, 852 [1999]). This area encompasses a portion of the lands within the boundaries of the Box Elder, Pony Express, House Range, Warm Springs, and Pinyon land use plans. Within these areas, decisions related to whether lands would be available for ROW application, and adoption of the policies and design features of the PEIS, cannot be implemented via land use plan amendments at this time. Solar energy development ROW applications would be deferred until such time when plan amendments or new land use plan(s) address solar energy development. No SEZs are located within the UTTR affected areas.

Under the modified program alternative, individual ROW applications would continue to be evaluated on a project-by-project basis; however, the BLM proposes that these evaluations would tier to the programmatic analyses presented in the Solar PEIS and the decisions implemented in the resultant ROD and land use plan amendments to the extent appropriate. Site- and project-specific data would be assessed in the individual project reviews, and impacts not adequately mitigated by the program's administration and authorization policies and design features would be addressed through the implementation of additional mitigation requirements incorporated into the project POD and ROW authorization stipulations. Analysis of an application may result in a decision to deny the application.

As an element of the proposed program, the BLM would implement an adaptive management and monitoring plan for solar energy development developed in coordination with potentially affected natural resource management agencies, to ensure that new data and lessons learned about the impacts of solar energy projects would be reviewed and, as appropriate, incorporated into the program through revised policies and design features (see Section 2.2.1.2 of this Supplement). Changes to the BLM's Solar Energy Program will be subject to appropriate environmental analysis and land use planning.

The following subsections discuss the effectiveness of the modified program alternative in meeting the BLM's established program objectives and describe the potential environmental impacts of the alternative.

2.3.1.1 Facilitate Near-Term Solar Energy Development (Pace of Development)

Under the modified program alternative, the BLM would establish a set of programmatic administration and authorization policies and design features that would facilitate development by establishing a clear, consistent, and unambiguous process and set of conditions for utility-scale solar energy development on BLM-administered lands. A number of program elements would contribute to these efficiencies, as follows:

- By excluding lands with known sensitive resources, resource uses, and special designations, the agency would accept ROW applications for utility-scale solar energy development only where such development may be expected to encounter fewer potential resource conflicts. Time and effort would be directed to those projects that have a greater chance of success. Review of projects proposed within any of the proposed SEZs would be further streamlined, because these areas have undergone intensive site-specific analyses as part of the Solar PEIS and mitigation has been proposed for identified resource conflicts.

- The identification of variance areas for utility-scale solar energy development and the associated variance process detailed in this Supplement is expected to help applicants formulate projects outside of SEZs that have a greater chance for success. Evaluation of projects through the proposed variance process will require upfront effort on the part of the BLM and applicants. BLM staff will

be required to coordinate with federal, state, Tribal, and local stakeholders and evaluate site-specific resource conflicts as part of the variance application analysis process.

- To the extent that decisions about future solar energy projects could be tiered to the analyses in the Solar PEIS or decisions in the resultant ROD, project review and approval time lines would be shortened. The proposed program administration and authorization policies and design features are comprehensive and address the majority of operational and design requirements for most projects. The universe of issues that would be evaluated in detail at the project level would be reduced to site-specific and species-specific issues and concerns. For some of the SEZs, it is expected that with the additional data collection proposed in this Supplement and the implementation of required design features, development could proceed with limited additional environmental analysis.[4]

- Amending the land use plans within the six-state study area to implement the new program would facilitate individual project approvals and would ensure that multiple individual plan amendments would not be required.

It is anticipated that these program elements would collectively reduce the amount of time and resources required to obtain ROW authorizations and would speed up the pace of utility-scale solar energy development in the six-state study area without compromising the level of protection for natural and cultural resources. Shortened development time lines, particularly for projects proposed within SEZs, would reduce the cost to the government, developers, and stakeholders. These outcomes would likely increase the agency's ability to meet the mandates of the Energy Policy Act of 2005 and Secretarial Order 3285A1 (Secretary of the Interior 2010).

2.3.1.2 Minimize Environmental Impacts

Utility-scale solar energy facilities are industrial facilities that require large tracts of land and can cause substantial impacts on a variety of natural and cultural resources. Proper consultation, siting and design, and application of mitigation measures can avoid, minimize, or mitigate many of these impacts. The proposed program administration and authorization policies updated as part of this Supplement and the required design features under the modified program alternative would ensure that potential environmental impacts are addressed thoroughly and consistently for all utility-scale solar energy projects on BLM-administered lands. Specific program elements have been developed to address the many aspects of managing environmental impacts, as follows:

- The proposed program administration and authorization policies establish requirements for coordination and/or consultation with other federal and state

[4] For all proposed SEZs, government-to-government consultation and interagency consultation are still ongoing and could result in the identification of additional concerns.

agencies and for government-to-government consultation, and establish requirements for public involvement. Collectively, these policies ensure that all projects are thoroughly reviewed; input is collected from all potentially affected federal, state, Tribal, and local stakeholders; and any project proposals that are anticipated to result in unacceptable adverse impacts are eliminated early in the application process.

- The proposed ROW exclusions would avoid impacts of utility-scale solar energy development on known sensitive resources, resource uses, and specially designated areas. Projects on variance areas would be thoroughly reviewed through the proposed variance process to ensure that only the most appropriate applications are processed. BLM staff will be required to coordinate with federal, state, Tribal, and local stakeholders and evaluate site-specific resource conflicts as part of the variance application analysis process. Analysis of an application may result in a decision to deny the application.

- By restricting utility-scale development to lands with slopes less than or equal to 5%, the BLM would effectively limit development to those BLM-administered lands currently assumed to be the best suited with respect to technology limitations. By restricting development to lands with solar insolation levels greater than or equal to 6.5 kWh/m^2/day, the BLM would be making available those lands where utility-scale development is assumed to be most economically viable. These proposed restrictions will facilitate the efficient use of BLM-administered lands and enhance the BLM's ability to fulfill the multiple-use mandate of FLPMA by reserving for other uses lands that are not well suited for solar energy development.

- The proposed design features, developed on the basis of extensive impact analyses conducted in the Solar PEIS, address the full array of potential impacts associated with each phase of development (i.e., site evaluation, construction, operation, and decommissioning). For many project locations, the majority of potential impacts would be addressed by these requirements. Individual project environmental reviews would be required to address any additional site-specific and species-specific issues and concerns.

- The proposed variance process would provide flexibility to industry to request utility-scale solar development projects outside of SEZs in areas determined to be economically and technically viable. However, the variance process has been designed to ensure that only those applications that can demonstrate that environmental impacts are minimized will be processed by the BLM.

- By allowing appropriate development in variance areas, the BLM would provide opportunities to site solar energy projects on lands that have been previously disturbed.

- The prioritization of development in SEZs could limit some environmental impacts. These areas were selected as lands well suited for utility-scale solar development (i.e., lands with fewer potential resource conflicts). Although some potentially significant resource and resource use conflicts have been discovered for some SEZs, SEZ-specific design features have been identified to address those potential impacts. The concentration of development in the SEZs could also allow for the consolidation of related infrastructure (e.g., roads, transmission lines) and less total land disturbance.

- Forthcoming adaptive management and monitoring strategies would ensure that new data and lessons learned about the impacts of solar energy development are incorporated into future programmatic and project-specific requirements. At the project level, developers would be required to develop monitoring programs in coordination with the BLM to evaluate the environmental conditions at the site through all phases of development, to establish metrics against which monitoring observations could be measured, to identify potential mitigation measures, and to establish protocols for incorporating monitoring observations and new mitigation measures into standard operating procedures.

- Implementing a comprehensive program would allow the BLM to better assess potential cumulative impacts of solar energy development across the six-state study area over time.

- A program that would facilitate solar energy development on BLM-administered lands (as compared to private lands) would ensure that the development would be subjected to rigorous environmental review, including a thorough public involvement process.

Table 2.3-2 includes a summary of the environmental impacts associated with solar energy development under this alternative and the ways in which the impacts would be mitigated by the programmatic exclusions, policies, and design features. As reflected in that table, for several resource and impact areas, implementation of the proposed design features is expected to ensure that impacts would be negligible or minor. For certain resource areas (e.g., hazardous materials and waste, health and safety), there are few, if any, unique site- or project-specific issues that would not be fully addressed by the programmatic requirements. For other resource areas (e.g., lands and realty, rangeland resources, military and civilian aviation, geologic setting and soils, mineral resources, air quality, acoustic environment, paleontological resources, and transportation), the programmatic requirements are comprehensive and broad enough to address most issues even though there could be some site- and project-specific variables. For example, although paleontological resources vary in occurrence and density by site, impacts on these resources can be mitigated and the design feature requiring a paleontological resources management plan would ensure that potential impacts are identified and addressed. Similarly, although traffic patterns and local road use vary by location, the design features requiring development of a transportation plan and traffic management plan would ensure that local issues are identified and addressed.

For other resource and impact areas, the full effectiveness of the proposed design features intended to reduce potential impacts can be assessed only through the additional project-specific analyses that would be required under the proposed program. These areas include specially designated areas and lands with wilderness characteristics, recreation, water resources, vegetation, wildlife and aquatic biota, special status species, visual resources, cultural resources, Native American concerns, and environmental justice. For example, the magnitude of potential impacts of a given project on water resources would depend on project-specific parameters and site-specific conditions. The water requirements would depend on the size of the project and the technology used (e.g., concentrating solar power versus PV, wet cooling versus dry cooling systems). The nature of the impacts would depend on the amount of locally and regionally available water resources; the source of water supply; and other water uses, including requirements to support sensitive species and/or their critical habitats. These types of impacts cannot be assessed fully until project and site specific information is known.

BLM's intent in identifying SEZs has been to find areas well suited to utility-scale solar energy production, with few impediments to solar facility construction and operation, where the BLM would prioritize solar energy and associated transmission infrastructure development. In identifying the SEZs evaluated in the Draft Solar PEIS, the BLM targeted areas with low slope, near existing transmission or designated corridors and near existing roads, and with a minimum area of 2,500 acres (10 km^2). The BLM also excluded from the SEZs National Landscape Conservation System (NLCS) lands and other sensitive classes of lands (e.g., critical and sensitive habitat, Areas of Critical Environmental Concern (ACECs), no surface occupancy areas, wilderness characteristic areas, ROW exclusion and avoidance areas from applicable land use plans, National Historic and Scenic Trails, areas of Tribal concern, and the like).[5]

Through the in-depth SEZ analyses completed as part of the Draft Solar PEIS and additional evaluation performed for this Supplement, the BLM has discovered some potentially significant impacts on various resources and resource uses that could result from solar energy development in the SEZs as proposed in the Draft Solar PEIS. This information was used to eliminate some of the SEZs, reduce the area of some other SEZs, and identify non-development areas within some SEZs under the modified program alternative described in this Supplement (see Section 2.2.2.2 and Appendix C of this Supplement). In addition, the implementation of programmatic policies and design features required as part of the modified program alternative would help to minimize environmental impacts in the SEZs. The BLM has also proposed SEZ-specific design features that would further avoid and/or minimize potential impacts in these areas. These additional requirements could result in more reductions in the amount of developable land within some SEZs that would be identified during project-specific investigations.

Utility-scale solar energy development could result in reduced emissions of greenhouse gases (GHGs) and combustion-related pollutants, if the development offsets electricity

[5] Although these classes of lands should have been excluded from the proposed SEZs, some may not have been because of incomplete information on the locations of these areas and incomplete GIS data. Additional applicable non-developable areas of SEZs may be identified during project-specific investigations when additional data have been collected.

generation by fossil fuel power plants. As discussed in Section 2.3.1.1, the pace of solar energy development is expected to be faster under this alternative, compared to the current pace, and therefore the potential beneficial impacts of reduced GHG emissions may be realized at a faster rate.

As a result of these considerations, the BLM anticipates that by implementing the proposed program administration and authorization policies and design features, the agency would maximize its ability to effectively identify and avoid, mitigate, or minimize potential adverse environmental impacts.

2.3.1.3 Minimize Social and Economic Impacts

Utility-scale solar energy development under this alternative is expected to result primarily in economic benefits in terms of both jobs and income created. These benefits would occur as both direct impacts, resulting from the wages and salaries, procurement of goods and services, and collection of state sales and income taxes, and indirect impacts, resulting from new jobs, income, expenditures, and tax revenues subsequently created as the direct impacts circulate through the economy. These benefits occur during both the construction and operations phases, with the construction phase benefits being temporary and the operations phase benefits being more long term. The specific benefits vary by technology, because some technologies generate more jobs than other technologies. For example, a 100-MW parabolic trough facility would create 350 new direct construction jobs and 43 new direct operations jobs, whereas a PV facility of comparable generation capacity would create 30 new direct construction jobs and very few direct operations jobs (see Tables 5.17.2-1 through 5.17.2-4 in the Draft Solar PEIS for detailed information about the economic impacts of construction and operation of solar energy facilities by technology type).[6] The benefits in terms of indirect jobs and total income also vary by state, because the extent of in-state spending and economic multiplier effects vary by state.

Because utility-scale solar energy development would be accompanied by transmission system development and new access road construction in many locations, potential economic benefits also result from the direct and indirect jobs associated with this infrastructure construction. These impacts are discussed in Section 5.17.1.2 of the Draft Solar PEIS.

The BLM would incur agency-related costs associated with developing, implementing, and managing solar energy development on BLM-administered lands. However, under the BLM's ROW program, which is a cost-recovery program, a substantial portion of the costs for processing ROW applications, including environmental review requirements, would be paid for by developers. In addition, the federal government will collect income from ROW rental payments, which include an acreage component and capacity fee component. As discussed in Section 2.2.2.2.1 in this Supplement, the BLM has confirmed that it will offer lands within SEZs through a competitive process. This would result in increased revenue to the federal government. A competitive process, however, could increase costs for developers of solar facilities.

6 The estimate provided in the text here for number of PV construction jobs is based on an extrapolation of data in Table 5.17.2-4 of the Draft Solar PEIS.

As discussed in Section 5.17.1.1 of the Draft Solar PEIS, there would be some adverse economic impacts on displaced public land users associated with solar development (e.g., loss of grazing allotments). There may also be adverse social impacts resulting from changes in recreation, property values, and environmental amenities (e.g., environmental quality, rural community values, or cultural values). There could also be beneficial social impacts associated with solar development resulting from economic growth and a positive reception to the presence of a renewable energy industry. At the programmatic level, it is difficult to quantify these impacts.

2.3.1.4 Provide Flexibility to Solar Industry

As compared to the modified SEZ alternative, the modified program alternative provides a great degree of flexibility to developers in identifying appropriate locations for utility-scale development (i.e., economically attractive locations with minimal environmental or cultural resource conflicts), by identifying lands outside of exclusion areas and SEZs as variance areas with an associated variance process.

Concerns exist that by excluding lands with slopes greater than 5% and with solar insolation levels below 6.5 kWh/m^2/day, the BLM could be removing lands that some developers may find both technically and economically feasible to pursue in the future. The BLM's proposed SEZ identification protocol takes this concern into account and would allow future SEZs to be located in these excluded areas if factors have changed such that these areas become technologically and economically viable for utility-scale solar energy development, and provided that the areas are otherwise well suited for development (see Appendix D, Sections D.2.2 and D.2.3).

2.3.1.5 Optimize Existing Transmission Infrastructure and Corridors

The proposed variance process will allow developers to identify and propose projects that utilize existing transmission infrastructure and designated transmission corridors. Further, the BLM's proposed SEZ identification protocol (see Appendix D, Section D.2.5, of this Supplement) will consider proximity to existing infrastructure such as transmission lines and corridors. The BLM will catalog the existing and proposed transmission lines in relation to the power generation from a proposed SEZ location. The BLM will also consult with state and regional transmission planning and coordination authorities, state energy offices, and transmission system operators to evaluate available capacity on the existing and proposed lines and whether transmission access issues might create barriers to development in a specific area.

Although it is likely that most new utility-scale solar energy development will require new transmission capacity, projects that can be located near existing transmission lines would likely result in fewer environmental impacts associated with connecting to and upgrading the existing lines. Similarly, solar projects that utilize existing corridors would result in reduced environmental impacts, assuming the corridor designation process factored potential

environmental and other siting concerns into the corridor alignment. The use of existing transmission infrastructure and corridors could also reduce cost, time, and controversy.

2.3.1.6 Standardize and Streamline the Authorization Process

The modified program alternative would standardize requirements and reduce uncertainty for project applications. It would streamline project review and approval processes, and ensure consistency in the way utility-scale ROW applications are managed. Individual ROW applications would continue to be evaluated on a project-by-project basis; however, the BLM proposes that these evaluations would tier to the programmatic analyses presented in the Solar PEIS and the decisions implemented in the resultant ROD and land use plan amendments to the extent appropriate.

2.3.1.7 Meet Projected Demand for Solar Energy Development

On the basis of the RFDS for solar energy development (which is assumed to be the same for each alternative), the estimated amount of solar energy generation on BLM-administered lands in the study area over the 20-year study period (through approximately 2030) is about 24,000 MW, with a corresponding dedicated use of about 214,000 acres (866 km^2) of BLM-administered lands. The comparison of the area projected to be needed for solar development under the RFDS with the revised lands available for application under the two BLM action alternatives is presented in Table 2.3-3. Under the modified program alternative, the land area needed to meet the estimated RFDS for solar development (about 214,000 acres [866 km^2]) would be only about 1% of the land area available for application (about 20 million acres [82,964 km^2] of variance lands) and about 75% of the land area available for development within SEZs (285,000 acres [1,153 km^2]). Thus, the modified program alternative meets the projected demand for solar energy development.

2.3.2 Impacts of the Modified SEZ Program Alternative

Under the modified SEZ program alternative (referred to as ~~"~~modified SEZ alternative"), the BLM would adopt the same set of standard program administration and authorization policies and design features for utility-scale solar energy development as proposed under the modified program alternative, but would authorize such solar energy development only in SEZs. Unlike the modified program alternative, lands outside of SEZs would be excluded from utility-scale solar energy ROW applications. Under this alternative, about 285,000 acres (1,153 km^2) of BLM-administered lands would be available for ROW applications. As part of this Supplement, the BLM has proposed a protocol to identify new SEZs (see Appendix D). Per the proposed protocol, new SEZs would be relatively large areas that provide highly suitable locations for utility-scale solar development: locations where solar development is economically and technically feasible, where there is good potential for connecting new electricity-generating plants to the transmission distribution system, and where there is generally low resource conflict. The identification of new SEZs would have to go through a land use planning process and would be subject to the appropriate environmental analysis.

TABLE 2.3-3 Percentage of Available Lands Developed under BLM Modified Action Alternatives Based on Estimated Acres Developed under the RFDS[a]

State	Estimated Acres[b] Developed under RFDS[c]	Modified Program Alternative: Total Proposed Acres Available[d]	Modified Program Alternative: Percentage Developed under RFDS	Modified SEZ Alternative: Total Proposed Acres Available[e]	Modified SEZ Alternative: Percentage Developed under RFDS
Arizona	21,816	3,397,007 (4,485,944)	0.6 (0.5)	6,465 (13,735)	100[f] (100)
California	138,789	1,354,559 (1,766,543)	10.0 (7.9)	153,627 (339,090)	90.3 (40.9)
Colorado	19,746	111,059 (148,072)	17.8 (13.3)	16,308 (21,050)	100[f] (93.8)
Nevada	15,309	9,207,288 (9,084,050)	0.2 (0.2)	60,395 (171,265)	25.4 (8.9)
New Mexico	7,497	4,292,279 (4,068,324)	0.2 (0.2)	29,964 (113,052)	25.0 (6.6)
Utah	10,971	1,962,671 (2,028,222)	0.6 (0.6)	18,658 (19,192)	58.8 (57.2)
Total	214,128	20,324,863 (21,581,154)	1.1 (1.0)	285,417 (677,384)	75.0 (31.6)

[a] Values in parentheses are values from the Draft Solar PEIS, provided for comparison.

[b] To convert acres to km^2, multiply by 0.004047.

[c] See Table 2.4-1 of the Draft Solar PEIS for the basis for these estimates.

[d] See Section 2.2.2.2 of the Draft Solar PEIS for the basis for these estimates.

[e] See Section 2.2.2.3 of the Draft Solar PEIS for the basis for these estimates. For the purpose of the RFDS estimates of development, the entire acreage is used in the calculation of percentage developed; however, some portion will not be developable because of various restrictions.

[f] The estimated number of acres developed based on the RFDS projection exceeds the acreage proposed to be available in Arizona and Colorado under the modified SEZ alternative; thus it is assumed that 100% of the SEZs would be developed over the 20-year time line assessed in the Solar PEIS.

Under the modified SEZ alternative, the management of solar energy development on BLM-administered lands would be the same as described for the modified program alternative. The BLM would establish comprehensive program administration and authorization policies and design features as part of this alternative. The elements of the BLM's new program under this alternative would be implemented through amendment of the land use plans within the six-state study area and other applicable policy-making tools.

The following subsections discuss the effectiveness of the modified SEZ alternative in meeting the BLM's established program objectives and describe the potential environmental impacts of the alternative.

2.3.2.1 Facilitate Near-Term Solar Energy Development (Pace of Development)

The impacts on the pace of development under the modified SEZ alternative would be much the same as those described for the modified program alternative in Section 2.3.1.1; although it is possible that the modified SEZ alternative could speed up the pace of development even further. Elements of the authorization process and incentives for projects in SEZs described in this Supplement (Section 2.2.2.2) would reduce the amount of time and resources required to obtain ROW authorizations, which would translate into reduced costs to government, developers, and stakeholders. As with the modified program alternative, these outcomes would likely increase the agency's ability to meet the mandates of the Energy Policy Act of 2005 and Secretarial Order 3285A1 (Secretary of the Interior 2010).

2.3.2.2 Minimize Environmental Impacts

Similar to the modified program alternative, environmental impacts under the modified SEZ alternative would be minimized in the following ways:

- Government-to-government consultation and public input would ensure thorough review of the proposed locations of development within SEZs.

- Because the developable land area for utility-scale solar energy development would be restricted to SEZs, known sensitive resources would be avoided for the most part, SEZ-specific design features would protect any sensitive resources identified in SEZs, and uncertainty of the distribution of impacts, including possible fragmentation of habitat, would be reduced.

- The proposed program design features and SEZ-specific design features would address the full array of potential impacts associated with each phase of development.

- The concentration of development in the SEZs could allow for the consolidation of related infrastructure (e.g., roads, transmission lines) and less total land disturbance.

- The requirement to implement adaptive management and monitoring strategies would ensure that mitigation measures would be implemented if unforeseen impacts were identified during project planning, construction, or operations.

- Because of the proximity of solar development projects that could occur under the SEZ program alternative, cumulative impacts for some resources (e.g., water, visual, and socioeconomics) in localized areas around the SEZs could be high; however the certainty of this location may allow these impacts to be more easily addressed. An analysis of the potential cumulative impacts for each SEZ was included in Chapters 8 through 13 of the Draft Solar PEIS and will be updated as necessary for the Final Solar PEIS.

By making only about 285,000 acres (1,153 km^2) of land available for ROW application, the BLM would limit opportunities to site solar energy projects on lands that have been previously disturbed. However, the BLM's proposed protocol to identify new SEZs emphasizes the use of disturbed or previously disturbed areas, including partnerships with nonfederal landowners or administrators (see Appendix D of this Supplement).

Table 2.3-2 summarizes the environmental impacts that might be associated with solar energy development under the modified SEZ alternative and the extent to which the impacts would be mitigated by the programmatic exclusions, policies, and design features. As reflected in that table, it is not possible to fully assess the impacts on some resources (e.g., specially designated areas and lands with wilderness characteristics, recreation, military aviation, water resources, vegetation, wildlife and aquatic biota, special status species, visual resources, cultural resources, Native American concerns, and environmental justice), because they are dependent on specific project details not defined at the programmatic level. However, this type of analysis would be conducted thoroughly through additional project-specific analyses that would be required under the proposed program.

Through the SEZ-specific analyses completed as part of the Draft Solar PEIS and additional evaluation performed for this Supplement, the BLM has discovered some potentially significant impacts on various resources and resource uses that could result from solar energy development in the SEZs as proposed in the Draft Solar PEIS. The modifications to the SEZs under the modified SEZ alternative proposed in this Supplement (i.e., dropping SEZs from further consideration, reducing the area of other SEZs, and identifying non-development areas within SEZs), along with implementation of program administration and authorization policies and design features as part of this alternative, would minimize environmental impacts of development in the SEZs. The BLM has also proposed SEZ-specific design features that would further avoid and/or minimize potential impacts in these areas. These additional requirements could result in more reductions in the amount of developable land within some SEZs that would be identified during project-specific investigations.

The BLM anticipates that by implementing the proposed policies and design features identified in the Solar PEIS, the agency would maximize its ability to effectively identify and avoid, mitigate, or minimize potential adverse environmental impacts.

2.3.2.3 Minimize Social and Economic Impacts

The potential socioeconomic impacts of the modified SEZ alternative would be similar to those described for the modified program alternative; however, both the economic benefits and the potential adverse economic and social impacts would be concentrated solely in the vicinity of the SEZs.

The BLM's efforts to oversee utility-scale solar energy development in the six-state study area would be streamlined under the SEZ program alternative by virtue of the smaller geographic area and the opportunities for tiering to the SEZ-specific analyses provided in the Solar PEIS. In addition to receiving ROW rental payments, the BLM has confirmed that it will offer lands within SEZs through a competitive process (see Section 2.2.2.2.1 of this Supplement). This would result in increased revenue to the federal government. A competitive process, however, could increase costs for developers of solar facilities.

2.3.2.4 Provide Flexibility to Solar Industry

By making fewer BLM-administered lands available for utility-scale solar energy development as compared to the modified program alternative, the modified SEZ alternative could reduce the flexibility of both the agency and developers in terms of identifying appropriate locations for utility-scale development. There are likely to be economically attractive sites for solar energy development outside of the SEZs that can meet the environmental protection measures outlined in the Solar PEIS. It is important to note, however, that the BLM is committed to evaluating the need for new or expanded zones in each of the six states at least every 5 years as described in the proposed SEZ identification protocol (see Appendix D of this Supplement). The BLM will also allow petitions for new SEZs to consider solar energy development in specific areas of interest to industry. The BLM could also decide to amend individual land use plans to accommodate individual solar energy development projects if warranted.

2.3.2.5 Optimize Existing Transmission Infrastructure and Corridors

All of the SEZs are located near existing transmission lines and/or corridors, and development in the SEZs would optimize the use of these transmission facilities. In addition, the BLM is proposing to undertake a variety of activities that will help steer future utility-scale solar energy development to the SEZs (see Section 2.2.2.2.3). These include more detailed evaluation of the transmission needs and impacts for anticipated solar development within SEZs and commitments to engage in ongoing and comprehensive transmission planning efforts to ensure the recognition of SEZs as a priority in transmission development. The BLM will also offer incentives to developers willing to build transmission to SEZs.

There may be potentially suitable development areas for utility-scale solar outside the SEZs that are proximate to existing transmission infrastructure, and these lands would not be available for development under this alternative. The BLM's proposed SEZ identification protocol, however, takes into account proximity to existing transmission infrastructure

(see Appendix D, Section D.2.5). Further, the BLM will also allow petitions for new SEZs to consider solar energy development in specific areas of interest to industry such as in proximity to new foundational transmission lines.

2.3.2.6 Standardize and Streamline the Authorization Process

The modified SEZ program alternative would standardize requirements and reduce uncertainty for project applicants. It would streamline project review and approval processes and ensure consistency in the way utility-scale ROW applications are managed. Because the modified SEZ alternative would limit utility-scale development to those areas most intensively studied in the Solar PEIS, it is likely that BLM staff efforts to review and approve ROW applications would be most efficient under this alternative (due to providing the opportunity for extensive tiering to the analyses presented in the Solar PEIS and the decisions implemented in the resultant ROD and land use plan amendments).

2.3.2.7 Meet Projected Demand for Solar Energy Development

Assuming that all the lands identified as developable within the SEZs are eventually developed, the amount of land available for development under the modified SEZ alternative is about 285,000 acres [1,153 km^2]). Across all six states, the lands available within the SEZs would exceed the amount of land required to support the RFDS projected development of 24,000 MW (corresponding to about 214,000 acres [866 km^2]) by about 71,000 acres (287 km^2). However, as shown in Table 2.3-3, in two states (Arizona and Colorado), the amount of land that would be available for ROW application would not be enough to support the total state-specific development projected in the RFDS. Specifically, in Arizona, the RFDS development would require 21,816 acres (88.3 km^2), which exceeds the 6,465 acres (26 km^2) that would be available under the modified SEZ alternative. In Colorado, 19,746 acres (80 km^2) would be developed under the RFDS, which exceeds the 16,308 acres (66 km^2) that would be available under the modified SEZ alternative. In addition, in California, 138,789 acres (562 km^2) would be developed under the RFDS, which constitutes 90% of the 153,627 acres (622 km^2) acres that would be available.

Constraints on development within some SEZ areas are known to exist; these constraints are summarized in Table 6.1-3 in the Draft Solar PEIS and discussed in greater detail in each of the SEZ-specific analyses presented in Chapters 8 through 13 of the Draft Solar PEIS (this information will be updated as necessary in the Final Solar PEIS). The SEZ-specific analyses identified distinct areas within many of the SEZs that either should not be developed or should have development restrictions (e.g., areas with ephemeral stream channels or floodplains, areas with military flight restrictions for facilities with tall structures, areas with potential visual resource conflicts, and areas close to residences for noisy technologies). The modifications to SEZs identified in this Supplement address many of the constraints on development that were identified in the Draft Solar PEIS. However, it is recognized that some SEZ areas will likely require additional exclusions or restrictions, the extent of which may not be known until site- and project-specific environmental analyses can be completed. Given these factors, it is possible that,

even in states other than Arizona and Colorado, the amount of lands that would be available under the modified SEZ alternative might not be enough to support full development.

Because this alternative may not make an adequate amount of lands available to support the RFDS projections, at least in some states, it is possible that the total amount of utility-scale solar energy developed on BLM-administered lands over the 20-year study period could be constrained unless the BLM identified additional SEZs.

2.3.3 Impacts of the No Action Alternative

No change to the no action alternative is being proposed as part of this Supplement. Analysis of the no action alternative can be found in the Draft Solar PEIS Chapter 6, Section 6.3. For comparison, information on the no action alternative is presented in Tables 2.3-1 and 2.3-2 of this Supplement. Although no changes from the Draft Solar PEIS were made to the categories of lands included under the no action alternative, updated GIS data for NLCS lands resulted in a decrease in the estimated acres (see Table 2.3-1).

2.3.4 Comparison of Alternatives and Selection of Preferred Alternative

This section provides a comparison of the modified alternatives evaluated in this Supplement on the basis of the evaluations presented in Sections 2.3.1 through 2.3.3. The comparison is included to support the BLM's decision regarding which alternative presents the best management approach to utility-scale solar energy development on BLM-administered lands based on the stated objectives. Table 2.3-4 provides a summary-level comparison of the management alternatives with respect to the objectives established for the action and the extent to which each alternative would assist the BLM in meeting the projected demands for solar energy development as estimated by the RFDS.

The BLM has selected the modified program alternative as the preferred alternative for the purposes of this Supplement. On the basis of the comparisons presented in Table 2.3-4, it appears that the modified program alternative would best meet the BLM's objectives for managing utility-scale solar energy development on BLM-administered lands. It would likely result in the highest pace of development at the lowest cost to the government, developers, and stakeholders. Simultaneously, it would provide a comprehensive approach for ensuring that potential adverse impacts would be minimized to the greatest extent possible. The expected increased pace of development would accelerate the rate at which the economic benefits would be realized at the local, state, and regional levels. This alternative would make an adequate amount of suitable lands available to support the level of development projected in the RFDS and would provide a great deal of flexibility in siting both solar energy facilities and associated transmission infrastructure. In addition, the modified program alternative would be very effective at facilitating development on BLM-administered lands in accordance with the mandates of the Energy Policy Act of 2005 and Secretarial Order 3285A1 (Secretary of the Interior 2010).

TABLE 2.3-4 Comparison of the No Action Alternative and the Modified Action Alternatives with Respect to the BLM's Solar Energy Program Objectives

Objective	Modified Program Alternative	Modified SEZ Alternative	No Action Alternative
Facilitate near-term utility-scale development on public land	Increased pace of development Development in the prioritized SEZs likely to occur at an even faster pace Reduced costs to the government, developers, and stakeholders Effective in assisting the BLM in meeting its mandates[a]	Increased pace of development likely due to detailed analyses of SEZs Reduced costs to the government, developers, and stakeholders Effective in assisting the BLM in meeting its mandates[a]	No discernible effect on pace of development Development could shift toward nonfederal lands, making it more difficult for the BLM to achieve its mandates[a]
Minimize potential environmental impacts	Comprehensive program to identify and avoid, mitigate, or minimize potential adverse impacts Protection of resources, resource uses, and special designations through combination of exclusions, variance areas and associated variance process, and mitigation Prioritization of development in SEZs, which were identified as lands well-suited for solar energy development where potential resource conflicts have been identified and appropriate mitigation has been suggested Potentially would allow a greater degree of development on previously disturbed lands	Comprehensive program to identify and avoid, mitigate, or minimize potential adverse impacts Development limited to the SEZs, protecting more resources, resource uses, and special designations Additional mitigation required in SEZs Limits possibilities for focusing development to previously disturbed lands outside SEZs; will be given consideration in the identification of new SEZs, however	Environmental impacts evaluated project-by-project with potential for inconsistencies in the type and degree of required mitigation If development shifts to nonfederal lands, it would be subject to less federal environmental oversight and public involvement Potentially would allow a greater degree of development on previously disturbed lands

TABLE 2.3-4 (Cont.)

Objective	Modified Program Alternative	Modified SEZ Alternative	No Action Alternative
Minimize potential social and economic impacts	Economic benefits in terms of (1) direct and indirect jobs and income created and (2) ROW rental payments to the federal government Prioritization of development in the SEZs, could concentrate benefits in a smaller number of local economies Potential adverse and beneficial social impacts	Economic benefits in terms of (1) direct and indirect jobs and income created and (2) ROW rental payments to the federal government With development limited to the SEZs, benefits would be concentrated in a smaller number of local economies Potential adverse and beneficial social impacts	Potential economic benefits essentially the same as under the action alternatives, although realized at a slower rate if pace of development is slower Less potential for these benefits to be concentrated in specific areas
Provide flexibility to solar industry	A great degree of flexibility in identifying appropriate locations for utility-scale development	Limited flexibility in identifying appropriate locations for utility-scale development	Maximum degree of flexibility in identifying appropriate locations for utility-scale development Limited guidance to developers on which lands and projects would ultimately be approvable
Optimize existing transmission infrastructure and corridors	Greater opportunities for developers to identify and propose projects that utilize existing transmission infrastructure and/or designated corridors	Opportunities for developers to identify and propose projects that utilize existing transmission infrastructure and/or designated corridors limited to SEZs Proximity to existing transmission infrastructure and corridors will be given consideration in the identification of new SEZs Opportunities to consolidate infrastructure required for new solar facilities	Maximum opportunities for developers to identify and propose projects that utilize existing transmission infrastructure and/or designated corridors

TABLE 2.3-4 (Cont.)

Objective	Modified Program Alternative	Modified SEZ Alternative	No Action Alternative
Standardize and streamline authorization process	Streamlining of project review and approval processes; more consistent management of ROW applications With prioritization of development in the SEZs, additional streamlining of opportunities over development on other available lands	Streamlining of project review and approval processes; more consistent management of ROW applications	No discernible effect in terms of standardizing and streamlining the authorization process
Meet projected demand for solar energy development as estimated by the RFDS	About 20 million acres[b] available for ROW application, which is more than adequate to support the RFDS projected level of development	About 285,000 acres available for ROW application, which may not be enough land to support the RFDS projected level of development in some states BLM identification of additional SEZs in the future would make additional land available but would require additional environmental review and land use plan amendments	About 98 million acres available for ROW application, which is more than adequate to support the RFDS projected level of development

[a] These mandates are established by the Energy Policy Act of 2005 (P.L. 109-58) and Secretarial Order 3285A1 (Secretary of the Interior 2010) (see Section 1.1 of Draft Solar PEIS).

[b] To convert acres to km^2, multiply by 0.004047.

2.3.5 Cumulative Impacts

This section incorporates by reference the assessment of cumulative impacts of developing utility-scale solar energy on BLM-administered lands in the six-state study area over the next 20 years from the Draft Solar PEIS (Section 6.5 of the Draft Solar PEIS). The scope of the cumulative impact analysis in the Draft Solar PEIS was based on solar energy development at the level projected in the RFDS. As discussed in Section 1.6 of this Supplement, the RFDS remains a valid estimate of potential solar development over the next 20 years in the six-state study area.

It is assumed that overall solar development in the six-state study area would be approximately 24,000 MW on BLM-administered lands. This level of development would require a corresponding dedicated use of about 214,000 acres (866 km^2) of BLM-administered lands. As discussed in the Draft Solar PEIS (Section 6.5), the RFDS is considered generally applicable to solar development occurring under all of the alternatives evaluated and represents an appropriate upper bound for the cumulative effects analysis.

Because of the uncertain nature of future projects in terms of size, number, location, and the types of technology that would be employed, the cumulative effects are discussed qualitatively or semi-quantitatively, with ranges given as appropriate. Detailed cumulative impact analyses are provided for individual SEZs in Chapters 8 through 13 of the Draft Solar PEIS and will be updated for the Final Solar PEIS. More detailed analyses of cumulative impacts would be performed in the environmental reviews for specific projects in relation to all other existing and proposed projects in the relevant geographic area.

Modifications to the BLM's action alternatives as presented in this Supplement are expected to result in fewer direct and indirect impacts as compared to the action alternatives analyzed in the Draft Solar PEIS. The BLM has removed from further consideration SEZs that had substantive resource conflicts. The BLM has also established more robust exclusion areas for utility-scale solar energy development and is proposing to identify all remaining lands as variance areas where only the most appropriate development will be allowed to proceed. While the qualitative discussion of cumulative effects in the Draft Solar PEIS remains applicable, readers should note that overall, the BLM expects direct and indirect impacts, and therefore cumulative impacts, to be less in magnitude than contemplated in the Draft Solar PEIS.

By restricting and/or prioritizing development in the SEZs under the two modified action alternatives, cumulative impacts may be more concentrated and/or severe within individual SEZs than described in the Draft Solar PEIS. On the other hand, the concentration of development in the SEZs may also allow for the consolidation of related infrastructure (e.g., roads, transmission lines) and less total land disturbance.

An overview of ongoing and reasonably foreseeable future activities in the six-state study area is presented in Section 6.5.1 of the Draft Solar PEIS, including energy production and distribution, and other activities such as recreation, mineral production, military operations, grazing and rangeland management, fire management, forestry, transportation, and industrial development. General trends in population growth, energy demand, water availability, and

climate change are discussed in Section 6.5.1.2.2 of the Draft Solar PEIS. The BLM will revisit and update information on ongoing and reasonably foreseeable activities and general trends in resources as appropriate in the Final Solar PEIS.

2.3.6 Other NEPA Considerations

The discussion of other NEPA considerations, including unavoidable adverse impacts, short-term uses of the environment and long-term productivity, irreversible and irretrievable commitment of resources, and mitigation of adverse effects are incorporated by reference from the Draft Solar PEIS (Section 6.6). The analysis in these sections remains applicable to the modified action alternatives as presented in this Supplement.

2.4 STATUS OF CONSULTATION UNDER OTHER LAWS AND REGULATIONS

2.4.1 Endangered Species Consultation

As stated in Section 2.2.2.2.2, the BLM will complete ESA consultation on the Solar PEIS with the USFWS under Sections 7(a)(1) and 7(a)(2) of the ESA. The BLM, in consultation with the USFWS, will complete a conservation review under Section 7(a)(1) of the ESA of the overall solar program, including the amendment of 89 land use plans and associated conservation measures. This consultation on the overarching program will provide guidance for subsequent solar projects by ensuring that the appropriate conservation measures for listed species are incorporated into project-level actions. The BLM will also consult with the USFWS on the identification of specific SEZs under Section 7(a)(2) of the ESA; a Biological Assessment will include appropriate mitigation, minimization, and avoidance measures intended to address any effects on listed (endangered and/or threatened) species and designated critical habitat. Further Section 7(a)(2) consultation will occur as necessary at the level of individual projects and will benefit from preceding program- and SEZ-level consultation.

2.4.2 National Historic Preservation Act

As discussed in Section 2.2.2.2.2, the BLM‘s proposed Solar Energy Program represents an interstate undertaking that could have direct and adverse effects upon National Historic landmarks or National Register-eligible properties of national significance. For these reasons and because development of the program is controversial, the BLM requested review and involvement of the ACHP to resolve potential adverse effects of solar energy development under terms of the BLM‘s national PA. The BLM prepared a draft Solar PA describing actions it will follow to take into account the effects of solar energy development on historic properties under Section 106 of the NHPA.

The agency sent this draft Solar PA to the SHPOs in the six states affected, the ACHP, interested parties such as the National Trust for Historic Preservation, and to Indian Tribes in all

six states in early 2011. The draft Solar PA has been revised based on feedback given to the BLM and will be sent to all parties again for comment in the fall of 2011. Negotiations will continue, and the BLM expects to have an executed Solar PA prior to release of the Final Solar PEIS.

The agreement will specify procedures the BLM will take to continue consultation with Tribes regarding historic preservation issues. Steps for the identification of historic properties, evaluations of significance, determinations of effect, and treatment will be articulated. Other actions the agency will follow to achieve transparency and accounting, including training and reporting, are included.

2.4.3 Tribal Consultation

Processes under way will build upon government-to-government consultation undertaken between the BLM and Indian Tribes regarding the Draft Solar PEIS. The BLM expects these actions will continue through completion of the Solar PEIS, signing of the ROD, and beyond, as the agency considers project-specific solar applications to be reviewed under the policies established by the national solar program.

First, results from an ethnographic study focused on Nevada and Utah are now available. The study included interviews with Tribal members and provides insight into Indian activities in the landscapes in and around proposed SEZs. Information shared regarding traditional uses of plants and animals, trails, and sacred sites will enable the BLM to minimize impacts on those areas of highest concern from future solar development. The BLM will contact other Tribes not included in the ethnographic study prior to preparation of the Final Solar PEIS so that they may have the opportunity to share similar knowledge or concerns regarding sacred sites, historic properties, or traditional uses in lands to which they have cultural ties.

Second, as part of the process for distributing this Supplement, the BLM will contact all Tribes with historical or cultural ties to areas that could be affected by solar development in the revised set of SEZs or in lands available for a variance. The agency will again ask Tribes for further government-to-government consultation and feedback regarding the revisions proposed in the document. For those Tribes that provided detailed comments on the Draft Solar PEIS, the BLM will offer to meet face-to-face to discuss concerns expressed and agency strategies to address those issues.

Third, based on all Tribal feedback received, the BLM will write to all Tribes to inform them how their input was taken into account in reaching final decisions documented in the Final Solar PEIS. The agency will explain how government-to-government consultation will continue when new solar applications are received.