WATER, WORK, WILDLIFE, AND WILDERNESS: THE COLLABORATIVE FEDERAL PUBLIC LANDS PLANNING FRAMEWORK FOR UTILITY-SCALE SOLAR ENERGY DEVELOPMENT IN THE DESERT SOUTHWEST

By

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Federal and state energy policies have recently emphasized increased renewable energy development, including large utility-scale solar energy projects in the desert southwest. Many of the prime solar development sites in the region are on public land, which is administered primarily by the United States Bureau of Land Management (BLM). Federal public lands policy has therefore been confronted with a rush of project development proposals seeking federal Rights-of-Way (ROWs) from BLM. State permits and licenses, together with compliance with other federal regulatory requirements (especially under the National Environmental Policy Act and the Endangered Species Act) must be coordinated with the BLM ROW grant process. This Article describes the BLM ROW process; describes and evaluates the BLM review for three utility-scale solar energy projects undergoing fast-track permitting under the American Recovery and Reinvestment Act of 2009 in Nevada, Arizona, and California; and evaluates how the BLM's Draft Programmatic Environmental Impact Statement (PEIS) for solar development in the six-state region of Utah, Colorado, New Mexico, Arizona, Nevada, and California could improve the BLM ROW process in order to reduce conflicts between renewable energy development goals and policy concerns about water, work, wildlife, and wilderness in the desert southwest. The Article concludes with recommendations for improving the collaborative federal public lands planning framework for utility-scale solar energy development in

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the desert southwest. In particular, we recommend policy changes for the PEIS and all BLM ROW grant reviews that will incorporate the best practices of the fast-tracked projects we have analyzed.

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I. INTRODUCTION

The Plan recognizes that the public lands of the California Desert belong to all of the United States, that these lands are not isolated but are spread out among or are adjacent to lands managed by other agencies of Federal, State, and local government.... The Plan is based on a "good neighbor" concept and will treat considerately the needs and concerns of other landowners and jurisdictions in the Desert.¹

Overall, United States citizens support developing renewable energy and "[f]ully 87% favor including a provision in comprehensive energy legislation to require utilities to produce more energy from wind, solar or

¹ U.S. BUREAU OF LAND MGMT., DEP'T OF THE INTERIOR, THE CALIFORNIA DESERT: CONSERVATION AREA PLAN 1980 AS AMENDED 6–7 (reprt. 1999) (1980).

other renewable sources."² In fact, current legislation, enacted by both federal and state governments, already reflects this national consensus. Furthermore, this overwhelming statistical majority represents a broad base of constituent support and suggests that renewable energy development presents diverse opportunities, appealing to a wide array of stakeholders. For example, Arizona's Renewable Energy Standard and Tariff (RES&T)³ requires in-state utilities to generate 15% of total energy from renewable technologies by 2025.⁴ This measure garnered support from groups with dissimilar missions, ranging from industry interests, represented by firms, including the Southwest Gas Corporation and supermarket megalith, Kroger Co.; federal executive agencies, including the United States Department of Agriculture Forest Service; numerous land trusts; public interest and education groups, including the Arizona Public Interest Research Group Education Fund and the Union of Concerned Scientists; and traditional environmental advocacy groups, such as the Grand Canyon Chapter of the Sierra Club and Arizona Trout Unlimited.⁵ Renewable energy's broad appeal arises from a synthesis between two equally compelling, but often competing, goals-fostering a healthy, pollutant-free environment and spurring economic growth and security. Thus, for many nontraditional allies, renewable energy development has become a shared enthusiasm and a unique source of common ground.

Siting renewable energy projects not only inspires, but also requires, a similar collaborative spirit.⁶ In response to the national desire to increase renewable energy development, the Energy Policy Act of 2005 (EPAct)⁷ provides that the Secretary of the Department of the Interior (DOI) should seek to approve renewable energy projects located on federal, public lands before the end of 2015.⁸ Although federal lands occupy a separate legal jurisdiction, the corporeal terra firma itself remains physically interconnected across federal, state, regional, and local geographic bounds.

² Press Release, Pew Research Ctr. for the People & the Press, Public Remains of Two Minds on Energy Policy (June 14, 2010), http://people-press.org/report/622/ (last visited Nov. 12, 2011) (explaining polling results of public attitude towards energy policy from the Pew Research/National Journal Congressional Connection Poll conducted on June 10–13, 2010).

 $^{^3\,}$ Ariz. Admin. Code §§ R14-2-1801 to -1816 (2011).

⁴ *Id.* § R14-2-1804(B); Press Release, Ariz. Corp. Comm'n, Commissioners Approve Rules Requiring 15 Percent of Energy from Renewables by 2025 (Nov. 1, 2006), http:// www.cc.state.az.us/divisions/administration/news/pr11-01-06.asp (last visited Nov. 12, 2011).

⁵ Proposed Rulemaking for the Renewable Energy Standard and Tariff Rules, Docket No. RE-00000C-05-0030 ¶ 12 (Ariz. Corp. Comm'n Nov. 14, 2006), *available at* http://www.azcc.gov/divisions/utilities/electric/res.pdf.

⁶ See Uma Outka, Siting Renewable Energy: Land Use and Regulatory Context, 37 ECOLOGY L.Q. 1041, 1070 (2010) (noting that renewable energy efforts in Florida required state and local cooperation); see also Hannah Wiseman, *Expanding Regional Renewable Governance*, 35 HARV. ENVTL. L. REV. 477, 514–15 (2011) (discussing institutional alternatives for improving collaboration among key stakeholders when addressing regional renewable energy facility siting conflicts).

 $^{^7}$ Energy Policy Act of 2005, Pub. L. No. 109-58, 119 Stat. 594 (codified primarily in scattered sections of 42 U.S.C.).

⁸ *Id.* § 211, 119 Stat. at 660.

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Accordingly, effects arising from siting decisions on federal land impact the natural ecosystems, human populous, and economies throughout these jurisdictions. Moreover, although federal land management agencies possess experience siting transmission towers on public lands,⁹ traditionally, state public utility commissions have exercised primary jurisdiction to site and regulate transmission and electric generation facilities.¹⁰

DOI's Bureau of Land Management (BLM) is currently conducting two, parallel tracked efforts to site renewable energy generation facilities on federal lands, predominantly in the desert southwest. These efforts are driven by the EPAct, executive orders, and secretarial orders intended to expedite environmentally sound energy development, and loan incentives and grants authorized for renewable development by the American Recovery and Reinvestment Act of 2009 (ARRA).¹¹ First, BLM is attempting to permit a select group of "fast-track" projects in order to facilitate numerous renewable generation project groundbreakings before the statutory deadline expires for receipt of incentivizing loans from the Department of Energy (DOE).¹² Second, BLM intends to develop a systematic program to permit and authorize future, ongoing renewable development on public lands.¹³ Under both initiatives, proposed projects must comply with applicable public land management laws and must complete environmental impact statements (EISs) according to the National Environmental Policy Act of 1969 (NEPA).¹⁴ Specifically, DOI, in coordination with the DOE, is conducting a Solar Programmatic Environmental Impact Statement (Solar PEIS) to support a "Bureau-wide solar energy development program" and to consider whether "to amend land use plans in the six-state study area to adopt the new program."¹⁵ In addition, state public utility agencies must

 15 See U.S. DEP'T of Energy & DEP'T of the Interior, Solar Energy Development Programmatic Environmental Impact Statement, available at http://solareis.anl.gov/

 $^{^9}$ Telephone Interview with Lane Cowger, Project Manager, Ariz. Bureau of Land Mgmt. (Nov. 8, 2010).

¹⁰ See, e.g., Public Utility Act of 1935, Pub. L. No. 74-333, § 1(b)(2), 49 Stat. 803, 848; Piedmont Envtl. Council v. Fed. Energy Regulatory Comm'n, 558 F.3d 304, 310 (4th Cir. 2009) ("The states have traditionally assumed all jurisdiction to approve or deny permits for the siting and construction of electric transmission facilities.").

¹¹ See Exec. Order No. 13212, 66 Fed. Reg. 28,357 (May 22, 2001), *amended by* Exec. Order No. 13286, 68 Fed. Reg. 10619 (Mar. 5, 2003) and Exec. Order No. 13302, 68 Fed. Reg. 27429 (May 20, 2003). See generally American Recovery and Reinvestment Act of 2009, 42 U.S.C. § 16516(a) (Supp. III 2009); Energy Policy Act of 2005, Pub. L. No. 109-58, 119 Stat. 594.

¹² 42 U.S.C. § 16516(a) (Supp. III 2009); *see also* U.S. Bureau of Land Mgmt., Dep't of the Interior, *2011 Renewable Energy Priority Projects*, http://www.blm.gov/wo/st/en/prog/energy/renewable_energy/fast-track_renewable.html (last visited Nov. 12, 2011) (mentioning continuing efforts and 18 specific projects—consisting of solar, wind, and geothermal—receiving priority status as of the Bureau's website update on August 25, 2011).

¹³ See Solar Energy Development Programmatic EIS Information Center, http://solareis.anl.gov/ (last visited Nov. 12, 2011) (click on "Home" tab to view background information subpart discussing the need for "developing and implementing agency-specific programs or guidance that would establish environmental policies and mitigation strategies for solar energy development").

¹⁴ See National Environmental Policy Act of 1969, 42 U.S.C. §§ 4321–4347 (2006).

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approve individual projects based on state siting regulations and associated environmental review processes, as well as any additional state or local permits necessary to begin construction.¹⁶

This Article explores collaborative relationships between federal and state agencies in the solar facility siting process. Part II provides an overview of federal and state programs, mandates, and incentives to develop renewable energy. We review specific examples of collaborative efforts by comparing the individual fast-track EIS from one solar energy utility project permitted on public lands in each of three states: Nevada, California, and Arizona. The Article frames this comparison by focusing on two case studies which reflect the impact and scope of these relationships. The first will examine an issue of pressing concern for the southwest region: water resource allocation. The second will consider the national, economic interest in renewable energy development's impact on labor and employment. Part III describes currently available utility-scale solar technologies and provides an overview of water resource and labor concerns regarding renewable energy generation. Part IV outlines applicable federal statutes governing electrical facility siting and environmental review, and Part V outlines applicable state statutes. Part VI then examines and compares the individual, fast-track projects in Nevada, Arizona, and California. Finally, Part VII explores these relationships and planning mechanisms in an alternative context by analyzing the recently completed Solar PEIS. Part VIII offers conclusions and policy recommendations from our analysis of both the permitting system and the case studies in the three states.

II. A CONSENSUS ON RENEWABLE ENERGY DEVELOPMENT

A. A National Priority

President George W. Bush signed Executive Order 13212 in 2001, compelling "[t]he increased production and transmission of energy in a safe and environmentally sound manner."¹⁷ The order does not explicitly mandate an increase in renewable energy development, but the order does require federal agencies to "expedite their review of permits or take other actions as necessary to accelerate the completion of such projects."¹⁸ "Fast-track" EIS and Solar PEIS efforts cite this order as a national directive to efficiently promulgate renewable energy development.¹⁹

documents/docs/SolarEnergyPEISFactSheet.pdf (giving background information on the solar PEIS and comment submittal in fact sheet).

¹⁶ See, e.g., NEV. REV. STAT. § 704.865 (2009); see also ARIZ. REV. STAT. ANN. § 30-123 (2002); CAL. PUB. RES. CODE § 25500 (2007).

¹⁷ Exec. Order No. 13212, 66 Fed. Reg. 28,357, 28,357 (May 22, 2001).

¹⁸ Id.

¹⁹ See, e.g., U.S. BUREAU OF LAND MGMT., U.S. DEP'T OF THE INTERIOR, PLAN AMENDMENT/FINAL EIS FOR THE GENESIS SOLAR ENERGY PROJECT, at ES-2 (Aug. 2010), available at

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Subsequently, Congress explicitly underscored the national need for reliable, renewable energy sources in the EPAct. Specifically, the Act aims "[t]o ensure jobs for our future with secure, affordable, and reliable energy."²⁰ To achieve this goal, the Act states that DOI should seek to approve renewable energy projects located on public lands before the end of 2015.²¹ In addition, appropriations under the Act total more than \$50 billion for DOE authorized loan guarantees, intended to "pave[] the way for federal support of clean energy projects that use innovative technologies, and spur[] further investment in these advanced technologies."²² Guarantees may equal as much as 80% of the project cost of a facility.²³ However, the Act only provided for loan grants to "early commercial use of innovative technologies," which do not necessarily include utility-scale facilities that opt to employ traditional renewable technologies.²⁴

ARRA extended these loan guarantees to traditional renewable energy systems, including utility-scale electrical facilities.²⁵ These credit subsidies also complemented the \$50 billion appropriations authorized by the EPAct by authorizing an additional \$6 billion to support loan guarantees and approximately \$21 billion in tax incentives.²⁶ In addition to extending and increasing loan grants, ARRA places one critical restriction on loan grants: a looming deadline. To qualify for grants, companies pursuing renewable energy projects must break ground before September 30, 2011 (extended in late 2010 to December 31, 2011).²⁷ As of July 2010, BLM held 188 applications pending for solar energy projects on federal lands.²⁸ The rush is on to strike it rich by mining federal dollars and translating golden sunrays into major profits.

http://www.blm.gov/pgdata/etc/medialib/blm/ca/pdf/palmsprings/genesis.Par.62082.File.tmp/Genesis%20FEIS%20exec%20sum.pdf (citing Executive Order 13212 as a legal source of authority).

²⁰ Energy Policy Act of 2005, Pub. L. No. 109-58, pmbl., 119 Stat. 594, 594.

²¹ *Id.* § 211, 119 Stat. at 660.

²² Energy Policy Act of 2005, 42 U.S.C. § 16513 (2006); Omnibus Appropriations Act of 2009, H.R. 1105, 111th Cong. (2009) (capping appropriations at \$47 billion); Revised Continuing Appropriations Resolution of 2007, H.R.J. Res. 20, 110th Cong. § 20320 (2007) (appropriating \$4 billion); U.S. Dep't of Energy, *Fact Sheet: The Department of Energy's Loan Programs*, http:// energy.gov/articles/fact-sheet-department-energys-loan-programs (last visited Nov. 12, 2011).

²³ 42 U.S.C. § 16512(c) (2006).

 $^{^{24}}$ See Loan Guarantees for Projects that Employ Innovative Technologies, 72 Fed. Reg. 27,471, 27,476 (May 16, 2007) (codified at 10 C.F.R. pt. 609).

²⁵ 42 U.S.C. § 16516(a) (Supp. III 2009).

²⁶ CONG. RESEARCH SERV., R40412, ENERGY PROVISIONS IN THE AMERICAN RECOVERY AND REINVESTMENT ACT OF 2009 (P.L. 111-5) 3, 10 (2009), *available at* http://www.energy.ca.gov/recovery/documents/2009-03-03_CRS.pdf; *see supra* note 22 and accompanying text.

²⁷ 42 U.S.C. § 16516(a) (Supp. III 2009); RENEWABLE ENERGY ACTION TEAM, MILESTONES TO PERMIT CALIFORNIA RENEWABLE PORTFOLIO STANDARD ENERGY PROJECTS BY DECEMBER, 2011, at 1 (2011), *available at* http://www.blm.gov/pgdata/etc/medialib/blm/ca/pdf/pa/ energy.Par.68898.File.dat/2011%20REAT%20Milestones.pdf.

²⁸ U.S. BUREAU OF LAND MGMT., DEP'T OF THE INTERIOR, BLM FACT SHEET: RENEWABLE ENERGY AND THE BLM: SOLAR (2010), *available at* http://www.blm.gov/pgdata/etc/medialib/blm/ wo/MINERALS_REALTY_AND_RESOURCE_PROTECTION_/energy/solar_and_wind.Par.993 27.File.dat/10factsheet_Solar_072210.pdf.

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B. Nevada's Electric Restructuring Legislation and Renewable Portfolio Standard

In 2001, the Nevada state legislature enacted regulations to require each state electricity provider to "generate, acquire or save electricity from portfolio energy systems or efficiency measures."29 Nevada's Renewable Portfolio Standard (RPS) mandates a gradual increase in contributed renewable power from 6% in 2005 and 2006 to the statute's ultimate goal, 25% by 2025.³⁰ In addition, the RPS insists that providers "generate, acquire or save" 5% of electricity between 2009 and 2015 exclusively by employing solar energy systems.³¹ After 2016, providers must demonstrate an additional 6% of electrical gains from solar energy systems.³² If a provider does not meet portfolio standards for any calendar year, the Public Utilities Commission of Nevada (PUCN) requires the provider to carry forward the deficiency to future years and may also impose an administrative fine based on each kilowatt-hour the provider failed to contribute to the required renewable standard.³³

C. Arizona's Renewable Energy Standard and Tariff

On November 14, 2006, the Arizona Corporation Commission (ACC) approved Arizona's RES&T Rules.³⁴ ACC requires utilities to "satisfy an Annual Renewable Energy Requirement by obtaining Renewable Energy Credits from Eligible Renewable Energy Resources."35 Statutes define "Eligible Renewable Energy Resource" as an identified renewable technology generator that displaces "Conventional Energy Resources" which would otherwise be used.³⁶ Solar electric generators qualify as an "Eligible Renewable Energy Resource."³⁷ A provider obtains one Renewable Energy Credit for each kilowatt-hour derived from an Eligible Renewable Energy Resource.³⁸ Similar to Nevada's gradual increase in required portfolio standards, Arizona mandates that a utility's annual renewable energy quotient increase by a certain percentage each calendar year.³⁹ In 2006, the portfolio standard required utilities to derive 1.25% of production from renewables.⁴⁰ By 2025, the state aims to mandate an RPS that demonstrates

37 Id. § R14-2-1802(A)(10).

²⁹ NEV. REV. STAT. § 704.7821(1) (2009).

³⁰ Id. § 704.7821(1)(a).

³¹ Id. § 704.7821(1), (2)(a)(1).

³² Id. § 704.7821(2)(a)(2).

³³ Id. § 704.7828(3)–(4)(a).

³⁴ Proposed Rulemaking for the Renewable Energy Standard and Tariff Rules, Docket No. RE-00000C-05-0030 ll. 17-21 (Ariz. Corp. Comm'n Nov. 14, 2006), available at http://www.azcc.gov/divisions/utilities/electric/res.pdf.

³⁵ ARIZ. ADMIN. CODE § R14-2-1804(A) (2010).

³⁶ Id. § R14-2-1802(A).

³⁸ Id. § R14-2-1803(A).

³⁹ Id. § R14-2-1804(B).

⁴⁰ *Id.*

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15% renewable production.⁴¹ Since July 1, 2007, the Commission has required each utility to file an approval plan describing how the utility intends to comply with the portfolio standard for the upcoming year.⁴²

D. California's Renewables Portfolio Standard

In 2002, California enacted legislation to increase California's reliance on renewable energy resources to "promote stable electricity prices, protect public health, improve environmental quality, stimulate sustainable economic development, create new employment opportunities, and reduce reliance on imported fuels."43 The California Public Utilities Commission (CPUC) implements annual procurement targets for each retail electricity provider (the 2002 legislation applied only to Investor-Owned Utilities (IOUs); Publicly Owned Utilities (POUs) are not regulated by the CPUC).⁴⁴ Generally, the CPUC has required each provider to increase its total procurement by 1% of retail sales per year "so that 20 percent of its retail sales are procured from eligible renewable energy resources no later than December 31, 2017."⁴⁵ Each electrical corporation must prepare periodic renewable portfolio plans to satisfy obligations under the state standard.⁴⁶ California's IOUs reported that they met 17.9% of their load from RPSeligible generation in 2010, which was an increase from 15.4% in 2009.⁴⁷ Overall, California utilities (including POUs not under CPUC jurisdiction) met 11.6% of their needs from renewables in 2009 while large hydropower plants (which do not qualify under the RPS standard) met 9.2% of the state's annual demand.48

Governor Arnold Schwarzenegger issued an executive order in November 2008 increasing this target to 33% by 2020.⁴⁹ This higher target the highest in the United States—was then reinforced and given new legal authority through the adoption of a 33% Renewable Electricity Standard (RES) by the California Air Resources Board (CARB) in its Scoping Plan and implementing regulations for AB 32, the California Global Warming

⁴¹ Id.

⁴² *Id.* § R14-2-1813(A).

⁴³ CAL. PUB. UTIL. CODE § 399.11(b) (West 2004).

 $^{^{44}}$ Id. \$ 399.15(a); see id. \$ 399.12(b)(4)(C) ("'Retail seller' does not include . . . [a] local publicly owned electrical utility.").

⁴⁵ *Id.* § 399.15(b)(1).

⁴⁶ *Id.* § 399.14(a).

⁴⁷ CAL. PUB. UTILS. COMM'N, RENEWABLES PORTFOLIO STANDARD QUARTERLY REPORT: 1ST QUARTER 2011, at 2 (2011), *available at* http://www.cpuc.ca.gov/NR/rdonlyres/62B4B596-1CE1-47C9-AB53-2DEF1BF52770/0/Q12011RPSReporttotheLegislatureFINAL.pdf.

⁴⁸ Cal. Energy Comm'n, *California Renewable Energy Overview and Programs*, http://www.energy.ca.gov/renewables/ (last visited Nov. 12, 2011) (describing percentage of California's energy generated from renewable resources and large hydro plants, respectively, in 2009).

⁴⁹ Cal. Exec. Order S-14-08 (Nov. 17, 2008), http://gov.ca.gov/news.php?id=11072 (last visited Nov. 12, 2011).

Solutions Act of 2006.⁵⁰ Finally, the California legislature codified the 33% RES target by 2020 with the passage of SB 2x1, which was signed into law in April 2011 by Governor Jerry Brown, Jr.⁵¹ The higher California standard is therefore not subject to rescission by a new executive order by a future Governor. "Instead of just taking oil from thousands of miles away," said the Governor, "we're taking the sun and converting it."⁵² United States Secretary of Energy Steven Chu, who attended the signing ceremony, said that the bill "would be a game-changer for us" by increasing demand for renewable power technologies that DOE is simultaneously encouraging through loan guarantees and direct investment in research and development.⁵³ The new 33% RES goal also applies to the state's POUs (including the Los Angeles Department of Water and Power, the Sacramento Municipal Utility District, and many smaller POUs).⁵⁴ California's game-changing increase in its renewable portfolio standard ensures that there will be continuing demand for solar-generated power throughout the rest of this decade in the desert southwest.⁵⁵

⁵¹ S.B. 2, 2011–2012, Reg. Sess. §§ 1, 4 (Cal. 2011), *available at* http://leginfo.ca.gov/pub/11-12/bill/sen/sb_0001-0050/sbx1_2_bill_20110412_chaptered.pdf. The bill was introduced February 1, 2011; passed the Senate on February 25, 2011; passed the Assembly on March 15, 2011; and was signed into law by Governor Brown on April 12, 2011. Cal. Legislative Counsel, *Comlete Bill History: S.B. No. 2 (1st Ex. Sess.)*, http://www.leginfo.ca.gov/pub/11-12/bill/sen/sb_0001-0050/ sbx1_2_bill_20110412_history.html (last visited Nov. 12, 2011).

⁵⁰ See Cal. Air Res. BD., Climate Change Scoping Plan: A Framework for Change 44–46 (2008), available at http://www.arb.ca.gov/cc/scopingplan/document/scopingplandocument.htm; CAL. ENVTL. PROT. AGENCY, STATUS OF SCOPING PLAN RECOMMENDED MEASURES 2 (2008), available at http://www.arb.ca.gov/cc/scopingplan/status_of_scoping_plan_measures.pdf; Sarah McBride, California OKs Tougher Renewables Target, REUTERS, Sept. 23, 2010, http://www.reuters.com/ article/2010/09/24/us-renewable-idUSTRE68N0AX20100924 (last visited Nov. 12, 2011). The California Global Warming Solutions Act of 2006 charges CARB with adopting a Scoping Plan for implementation (adopted in December of 2008) and adopting implementing regulations (adopted by CARB on December 16, 2010). California Global Warming Solutions Act of 2006, CAL. HEALTH & SAFETY CODE §§ 38501, 38561-62 (West 2011); CAL. AIR RES. BD., supra, at ES-1, 1; CAL. AIR RES. BD., CAP-AND-TRADE PROGRAM RESOLUTION 10-42, at 1-5, 10 (2010). The implementing regulations are now being challenged in court. Rocky Mountain Farmers Union v. Goldstene, 719 F. Supp. 2d 1170, 1173, 1197 (E.D. Cal. 2010). For more details on various aspects of the CARB climate change program, see generally Cal. Envtl. Prot. Agency Air Res. Bd., Climate Change Program, http://www.arb.ca.gov/cc/cc.htm (last visited Nov. 12, 2011) (displaying main webpage for the climate change program which provides various links to more in-depth analyses of the plan).

⁵² Adam Weintraub, *California Renewable Energy: Brown to Sign Most Aggressive' Mandate in the U.S.*, HUFFINGTON POST, April 12, 2011, http://www.huffingtonpost.com/2011/04/12/ california-renewable-energy_n_848083.html (last visited Nov. 12, 2011).

⁵³ *Id.*

 $^{^{54}}$ $See\, {\rm S.B.}$ 2 § 4.

⁵⁵ California's policy initiatives in the renewables arena are arguably more important now than international negotiations for a climate change treaty, Congressional debates over national legislation, or implementation of greenhouse gas emissions regulations by the United States Environmental Protection Agency under the federal Clean Air Act. *See generally* Timothy P. Duane, *Greening the Grid: Implementing Climate Change Policy Through Energy Efficiency, Renewable Portfolio Standards, and Strategic Transmission System Investments*, 34 VT. L. REV. 711 (2010).

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III. SOLAR TECHNOLOGIES: ENVIRONMENTAL AND SOCIAL CONCERNS

A. Commercially Available Solar Technologies

Solar energy can be captured and converted to useful work through a wide range of technologies. The simplest technologies, which take solar insolation and convert it to thermal energy, have been adopted for domestic hot water heating, residential and commercial pool heating, and building heating through passive solar input and storage through local mass.⁵⁶ Electric generating technologies are more complex and can be through either photoelectrical means or through the conversion of thermal energy to electrical energy via some kind of turbine process.⁵⁷

Photovoltaic (PV) cells directly convert solar insolation into electrical current by exploiting the photoelectrical properties of materials.⁵⁸ These cells have a wide range of efficiencies and costs, as different companies emphasize different underlying materials and manufacturing techniques.⁵⁹ The least-efficient PV cells are also generally the least expensive; more efficient concentrating technologies generally cost more.⁶⁰ Without concentration, efficiency is directly correlated with the total area of solar insolation required to be collected in order to yield a given level of electrical output: if a technology is three times as efficient, for example, it will generally require only one-third the total area of PV cells to achieve the same electrical output.⁶¹ The cost per kilowatt-hour of electrical generation—in both direct economic and environmental terms—is therefore a function of technology choice, efficiency, and production costs. Costs of PV technology have generally been decreasing rapidly through dramatic increases in the scale of PV manufacturing and through international competition from lower-cost suppliers.⁶² PV cells can be deployed either through "distributed

⁵⁶ Nat'l Renewable Energy Lab., *Learning About Renewable Energy: Solar Energy Basics*, http://www.nrel.gov/learning/re_solar.html (last visited Nov. 12, 2011) (noting the most common solar technologies used are solar water heating, passive solar design for space temperature control, and solar photovoltaics for electricity generation).

⁵⁷ Nat'l Renewable Energy Lab., *Learning About Renewable Energy: Solar Photovoltaic Technology*, http://www.nrel.gov/learning/re_photovoltaics.html (last visited Nov. 12, 2011) [hereinafter *Solar Photovoltaic Technology*] (describing different types of photovoltaic cells and functioning); Nat'l Renewable Energy Lab., *Learning About Renewable Energy: Concentrating Solar Power*, http://www.nrel.gov/learning/re_csp.html (last visited Nov. 12, 2011).

⁵⁸ Solar Photovoltaic Technology, supra note 57.

⁵⁹ Id.

⁶⁰ Research at Caltech May Provide Clues to Improving Solar Cell Efficiency, GREEN ECONOMETRICS, Sept. 26, 2007, http://greenecon.net/research-at-caltech-may-provide-clues-to-improving-solar-cell-efficiency/energy_economics.html (last visited Nov. 12, 2011) (noting the tradeoff between efficiency and price and assigning a cost per watt price range based on efficiency per square meter).

⁶¹ See U.S. Dep't of Energy, *Energy Savers: Sizing Your Small Solar Electric System*, http://www.energysavers.gov/your_home/electricity/index.cfm/mytopic=10840 (last visited Nov. 12, 2011).

⁶² See Low-Cost Solar Power the Focus of Manufacturers, INT'L BUS. TIMES, Aug. 2, 2011, http://www.ibtimes.com/articles/190697/20110802/low-cost-solar-power-the-focus-of-

generation" strategies (e.g., on residential, commercial, and industrial rooftops or over parking lots) or through centralized, utility-scale generation projects.⁶³ This Article focuses on the latter.⁶⁴

The other class of utility-scale solar generation projects is described as either Concentrating Solar Power (CSP) or Concentrating Solar Thermal (CST) projects.⁶⁵ CSP/CST projects concentrate the solar insolation onto a tube, tower, or external combustion engine through a parabolic trough, parabolic dish, or collection of mirrors with a focal point that increases the temperature of the receiver to very high temperatures.⁶⁶ The receiver has a fluid in it that then transfers the solar energy to a turbine—either through direct thermomechanical means or by heating water through a heat exchanger to generate steam.⁶⁷ The steam then turns a turbine as in fossilfired or nuclear generation, which produces electricity for the grid.⁶⁸ These CSP/CST projects generally require larger-scale mirror fields to generate the high temperatures necessary for the most efficient generation of electricity.⁶⁰ They are therefore typically utility-scale and are not readily amenable to siting in a distributed generation mode.⁷⁰

Both PV and CSP/CST technologies are evolving rapidly: there is fierce competition now among solar technology companies to demonstrate their technologies, drive costs per kilowatt-hour down, and gain market share by deploying large-scale projects to meet the RPS goals of the states.⁷¹ High

⁶⁷ Id.

⁶⁸ Id.

⁷⁰ See id.

⁷¹ See Ucilia Wang, *The Rise of Concentrating Solar Thermal Power*, RENEWABLEENERGYWORLD.COM, June 6, 2011, http://www.renewableenergyworld.com/rea/news/article/2011/06/the-rise-of-concentrating-solar-thermal-power (last visited Nov. 12, 2011).

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manufacturers.htm (last visited Nov. 12, 2011) (discussing the success of Chinese and Taiwanese manufactures at driving down the cost of photovoltaic production).

⁶³ Pew Ctr. on Global Climate Change, *Solar Power*, http://www.pewclimate.org/technology/ factsheet/solar (last visited Nov. 12, 2011).

⁶⁴ Some critics of utility-scale solar generation projects argue that distributed generation would achieve comparable levels of solar generation with much less economic and environmental cost because 1) such projects would not need to be sited on undeveloped "greenfield" sites where other natural resource values may be compromised—e.g., public BLM lands in the desert southwest—and 2) such projects would be located near electric demand, thereby reducing the need for high-voltage transmission lines to transmit the power from remote locations to demand centers. *See* SOLAR DONE RIGHT, US PUBLIC LANDS SOLAR POLICY: WRONG FROM THE START, at v (2011), *available at* http://solardoneright.org/images/uploads/WrongFromTheStart.pdf.

⁶⁵ See Rob Bradley, Concentrating Solar Thermal Power: Clean Energy for the United States, WORLD RES. INST., July 20, 2009, http://www.wri.org/stories/2009/07/ concentrating-solar-thermal-power-clean-energy-united-states (last visited Nov. 12, 2011) (discussing CST technology); Nat'l Renewable Energy Lab., Learning About Renewable Energy: Concentrating Solar Power, http://www.nrel.gov/learning/re_csp.html (last visited Nov. 12, 2011).

⁶⁶ Nat'l Renewable Energy Lab., *supra* note 65.

 $^{^{69}}$ U.S. BUREAU OF LAND MGMT., DEP'T OF THE INTERIOR & U.S. DEP'T OF ENERGY, DES 10-59, DOE/EIS-0403, DRAFT PROGRAMMATIC ENVIRONMENTAL IMPACT STATEMENT FOR SOLAR ENERGY DEVELOPMENT IN SIX SOUTHWESTERN STATES 3-11 tbl.3.1-1, 3-12 (2010), available at http://solareis.anl.gov/documents/dpeis/Solar_DPEIS_Chapter_3.pdf.

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levels of solar insolation, coupled with high demand due to California's RPS requirements, have focused this frontier battle for solar technology market dominance in the desert southwest.⁷² Much (but certainly not all) of the most desirable (and potentially least expensive) land on which such projects can be located is publicly owned and managed by the federal BLM. Our focus here is therefore on utility-scale solar projects proposed for federal BLM lands in the desert southwestern states of Arizona, Nevada, and California.

B. Environmental Concerns: Water Resources in the Desert Southwest

Situated in a region that is characterized by arid landscapes, dry air, sunshine, and high evaporation rates,⁷³ the western United States has long grappled with water supply constraints.⁷⁴ Statewide average annual precipitation rates from 1971 to 2000 equaled 13.59 inches in Arizona, 22.18 inches in California, and 9.50 in Nevada.⁷⁵ Of course, there is enormous variation between the redwood forests of the northwestern California coast—38.10 inches per year in Eureka—and the deserts of southeastern California—4.33 inches per year in Barstow.⁷⁶ In comparison, the Boston metro area from 1949 to 2006 averaged 43.13 inches of precipitation a year.⁷⁷ Despite these natural limitations, Americans have been "big water users, profligate users even" and westerners are "the biggest by far."⁷⁸ For example:

In 1900, the total amount of water used across the country for all purposes was 40 billion gallons a day; by 1975, the amount was 393 billion gallons, tens times more, though the population had only tripled in size.... Beyond the hundredth meridian, per capita rates of withdrawal and consumption much exceeded even those extravagant American levels.... [In 1975, t]he national average for direct personal use was 90 gallons a day, but in Tucson, it was 140 gallons, in Denver, 230, and in Sacramento, 280.⁷⁹

⁷⁷ W. Reg'l Climate Ctr., *Annual Precipitation Summary (Inches): Values Calculated by Calendar Year*, http://wrcc.dri.edu/htmlfiles/citycomppt.html (last visited Nov. 12, 2011).

⁷² Id.

⁷³ See, e.g., W. Reg'l Climate Ctr., *Climate of Arizona*, http://wrcc.dri.edu/narratives/ ARIZONA.htm (last visited Nov. 12, 2011); W. Reg'l Climate Ctr., *Climate of California*, http://wrcc.dri.edu/narratives/CALIFORNIA.htm (last visited Nov. 12, 2011); W. Reg'l Climate Ctr., *Climate of Nevada*, http://wrcc.dri.edu/narratives/NEVADA.htm (last visited Nov. 12, 2011).

⁷⁴ See generally WATER IN THE WEST: A HIGH COUNTRY NEWS READER (Char Miller ed., 2000) (collecting essays and articles on the politics, ecology, and law of western water appropriation from the newspaper HIGH COUNTRY NEWS); DONALD WORSTER, RIVERS OF EMPIRE: WATER, ARIDITY, AND THE GROWTH OF THE AMERICAN WEST (1985) (arguing that the West is a "culture and society built on, and absolutely dependent on, a sharply alienating, intensely managerial relationship with nature").

⁷⁵ W. Reg'l Climate Ctr., Average Statewide Precipitation for Western U.S. States, http://wrcc.dri.edu/htmlfiles/avgstate.ppt.html (last visited Nov. 12, 2011).

⁷⁶ Nat'l Climatic Data Ctr., U.S. Dep't of Commerce, *State Inventory*, http://cdo.ncdc.noaa.gov/climatenormals/clim81/CAnorm.txt (last visited Nov. 12, 2011).

⁷⁸ WORSTER, *supra* note 74, at 312.

⁷⁹ *Id.* Notably, Sacramento has only recently begun the process of installing water meters. Hugh Biggar, *The Thirst: Can the Region Shift its Long-Standing Thinking About How to Handle*

Reflective of the nation's excessive water use, surface waters and groundwater basins are overcommitted throughout the southwestern states.⁸⁰ Accordingly, the negative impacts from dwindling water resources can be seen in land subsidence, loss of species habitat, detriment to riparian ecosystems, and increased strains on community resources.⁸¹

Energy production accounts for a significant amount of water consumption in the southwest. To generate electricity, conventional energy facilities may utilize as much as 200 gallons (coal and natural gas) to 720 gallons (nuclear) to 1400 gallons (geothermal) of water per megawatt-hour generated.⁸² Solar energy may place a similar strain on water resources. CSP systems, including solar trough and solar tower technology, may utilize as much as 750 to 920 gallons of water per megawatt-hour generated.⁸³ Although less water intensive solar technologies exist, including dish engine and photovoltaic technologies, these technologies are not currently as efficient at generating energy, and therefore are not as cost effective as more water intensive, CSP technologies.⁸⁴ Thus, "[w]ater management by the majority of solar developers is largely focused on securing access to greater supplies of water rather than looking at more water-efficient ways to produce energy.⁷⁸⁵

Furthermore, the University of Arizona and a federal legislator, Senator Jon Kyl, have recently produced publications that draw attention to the "water–energy nexus," a title for the cyclical use of energy to pump water to make energy.⁸⁶ Senator Kyl's report, *Deploying Solar Power in the State of Arizona: A Brief Overview of the Solar–Water Nexus*, describes the Sisyphean nature of this problem: "The more groundwater that is depleted, the more electricity is needed to obtain the supply and deliver the water."⁸⁷

A congressional research report, *Water Issues of Concentrating Solar Power (CSP) Electricity in the U.S. Southwest*, highlights the conflict

⁸¹ See WORSTER, *supra* note 74, at 311–13, 317 (describing various consequences of overtaxing and draining western water bodies); Steve Stuebner, *No More Ignoring the Obvious: Idaho Sucks Itself Dry, in* WATER IN THE WEST, *supra* note 74, at 327–28 (detailing environmental and economic consequences from draining the Big Lost River's aquifer).

⁸² OFFICE OF SEN. JON KYL, WATER POLICY CONSIDERATIONS: DEPLOYING SOLAR POWER IN THE STATE OF ARIZONA: A BRIEF OVERVIEW OF THE SOLAR–WATER NEXUS 7 tbl.2 (2010), *available at* http://www.kyl.senate.gov/solar-water.pdf.

⁸³ Id.

Water?, NEWSREVIEW.COM, Aug. 4, 2011, http://www.newsreview.com/sacramento/thirst/ content?oid=3083806 (last visited Nov. 12, 2011).

⁸⁰ *Cf.* Melissa Lamberton et al., *The Water–Energy Nexus*, ARROYO (Univ. of Ariz. Water Res. Research Ctr., Tuscon, Ariz.), 2010, at 2, 4, *available at* http://ag.arizona.edu/azwater/arroyo/Arroyo_2010.pdf (noting that groundwater depletion is a problem in many regions of Arizona and that "[e]xtended droughts and groundwater overdraft necessarily raise costs and reduce supplies of groundwater and surface water").

⁸⁴ Lamberton et al., *supra* note 80, at 7; U.S. DEP'T OF ENERGY, CONCENTRATING SOLAR POWER COMMERCIAL APPLICATION STUDY: REDUCING WATER CONSUMPTION OF CONCENTRATING SOLAR POWER ELECTRICITY GENERATION 10–11 (2009), *available at* http://www1.eere.energy.gov/solar/ pdfs/csp_water_study.pdf.

⁸⁵ Office of Sen. Jon Kyl, *supra* note 82, at 12.

⁸⁶ *Id.* at 2; Lamberton et al., *supra* note 80, at 1.

⁸⁷ Office of Sen. John Kyl, *supra* note 82, at 14.

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between solar energy development and water conservation by citing the susceptibility of United States counties to the Water Constraint Index developed by the Electric Power Research Institute (EPRI).⁸⁸ The EPRI notes significant overlap between areas projected for CSP deployment by 2050 and counties highly susceptible to water constraint, particularly in Arizona and California.⁸⁹ The report identifies that federal, state, and local governments, as well as businesses and private individuals, are trying to wring each and every drop into often mutually exclusive uses. Indeed, "agricultural water needs can be in direct conflict with urban needs, as well as with water for thermoelectric cooling, threatened and endangered species, recreation, and scenic enjoyment... [and d]eployment of CSP would add an additional demand to existing freshwater competition in the Southwest."⁹⁰

Accordingly, the question arises as to how this scarce resource will be divided and to whom it shall be allocated. States traditionally oversee water resource allocation and can often be jealous guards of the limited supplies within their borders. For example, Arizona has expressed concerns that "a considerable amount of the power produced ... in Arizona would be exported to other states, effectively resulting in the exportation of Arizona's limited water supply to the rest of the country."⁰¹ California has implemented a policy to reject solar facility projects that do not employ water efficient, dry-cooled technology,⁹² and Arizona has urged its lawmakers to follow in California's footsteps.⁸³ The debate not only raises questions regarding state versus federal policy making, but also creates tensions between government departments and divisions. For example, the United States National Park Service has raised concerns that solar energy production in Nevada could detract from limited water resources that are needed to maintain the iconic landscapes found in Death Valley and other national monuments.⁸⁴

C. Socioeconomic Concerns: Green Jobs and Solar Employment Projections

"Green jobs" are defined as "employment that contributes to protecting the environment and reducing humanity's carbon footprint."⁹⁵ Alongside

⁸⁸ NICOLE T. CARTER & RICHARD J. CAMPBELL, CONG. RESEARCH SERV., R40631, WATER ISSUES OF CONCENTRATING SOLAR POWER (CSP) ELECTRICITY IN THE U.S. SOUTHWEST 4–5 (2009); ELEC. POWER RESEARCH INST., A SURVEY OF WATER USE AND SUSTAINABILITY IN THE UNITED STATES WITH A FOCUS ON POWER GENERATION 1-1, 4-3 (2003).

⁸⁹ CARTER & CAMPBELL, *supra* note 88, at 4–5.

⁹⁰ Id. at 12.

⁹¹ Office of Sen. John Kyl, *supra* note 82, at 2.

⁹² Bob Moser, US Regulation: Short, Sharp Shock Treatment for Developers?, CSP TODAY, Jan. 28, 2010, http://social.csptoday.com/industry-insight/us-regulation-short-sharp-shock-treatment-developers (last visited Nov. 12, 2011).

⁹³ OFFICE OF SEN. JOHN KYL, *supra* note 82, at 16.

⁹⁴ Scott Streater, *Renewable Energy: Ariz. Solar Plants Must Seek Alternative Cooling Technologies: Policy Report*, LAND LETTER, July 1, 2010, http://www.eenews.net/Landletter/2010/07/01/4?page_type=archive&terms=Ariz.+solar+plant+must+seek+alternative+cooling+technol ogies+ (last visited Nov. 12, 2011).

 $^{^{95}\,}$ Michael Renner et al., Worldwatch Report No. 177, Green Jobs: Working for People and the Environment 5 (2008).

investing in renewable energy development, the shared keystone featured in both the EPAct and ARRA is the creation and preservation of employment for the American workforce.⁹⁶ By itself, electricity generation does not account for a large percentage of jobs in the overall world labor market.⁹⁷ However, green jobs span across diverse occupations and employ a wide array of skills and educational backgrounds.⁹⁸ In addition, green jobs have the potential to "radiate" substantial environmental and employment benefits across many labor fields and geographic reaches.⁹⁹ For example, operation, construction, and maintenance efforts for renewable facilities provide mostly localized positions, while "induced jobs," supported by consumer spending directly or indirectly related to renewables, may develop locally, regionally, or globally.¹⁰⁰ The United Nations Environment Programme (UNEP) forecasts that direct employment from the manufacture and installation of PV modules alone may grow from a \$15.6 billion industry in 2006 to a \$69.3 billion industry by 2016.¹⁰¹ Moreover, renewables may employ greater workforces than conventional sources.¹⁰² In addition, labor employment by conventional energy sources may disappear as these nonrenewable resources deplete.¹⁰³

In this manner, the shift to green jobs provides an excellent opportunity for workers, governments, and communities to consider the labor practices and policies that they envision as part of a sustainable future. Conventional construction, manufacturing, and traditional blue collar labor has traditionally been divided between "low road" non-union employers and "high road" high salary union employers, and has historically tended to

⁹⁶ See American Recovery and Reinvestment Act of 2009, Pub. L. No. 111-5, pmbl., 123 Stat. 115, 115; Energy Policy Act of 2005, Pub. L. No. 109-58, pmbl., 119 Stat. 594, 594.

⁹⁷ U.N. Env't Programme, *Green Jobs: Towards Decent Work in a Sustainable, Low-Carbon World*, 38 (2008), *available at* http://www.unep.org/labour_environment/PDFs/Greenjobs/UNEP-Green-Jobs-Report.pdf.

⁹⁸ Id.

⁹⁹ *Id.*

¹⁰⁰ *Id.* at 45.

¹⁰¹ Id. at 93.

 $^{^{102}}$ See id. at 35–37 (noting that studies generally anticipate a positive change in total employment, but that "different approaches result in findings that cannot simply be aggregated or extrapolated").

¹⁰³ RENNER ET AL., *supra* note 95, at 7, 9. More difficult to capture conventional sources of energy could actually require higher levels of employment per unit of energy resource captured due to the higher marginal costs of production. *See* Kristie M. Engemann & Michael T. Owyang, *Unconventional Oil Production: Stuck in a Rock and a Hard Place*, THE REG. ECONOMIST, July 2010, at 14, *available at* http://research.stlouisfed.org/publications/regional/10/07/oil.pdf (discussing the more labor-intensive process and subsequent cost of alternative sources of oil shale and oil sands). For many resources, however, higher capital costs (which in turn employ labor) are likely to substitute. *See generally* ECONORTHWEST, THE ECONOMIC BENEFITS OF RENEWABLE ENERGY AND COST-EFFECTIVE ENERGY PRODUCTION 5 (2001), *available at* http:// www.alaskacoalition.org/PDFs/ECONorthwest%20Final%20Report.pdf (comparing economic benefits and environmental impacts of drilling in the Arctic to developing renewable sources of energy).

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overlook women and minorities as potential employees.¹⁰⁴ Indeed, fair labor practices can often become mired in a "complex labyrinth of legal and contractual requirements, customs, practices, entities, politics and interpersonal relationships that characterize the high road unionized construction trades."¹⁰⁵

UNEP advocates that green jobs "also need to be good jobs that meet longstanding demands and goals of the labor movement, i.e., adequate wages, safe working conditions, and worker rights, including the right to organize labor unions."106 To this end, current legal structures establish thresholds for fair labor practices on federal and state funded projects. For example, the Davis-Bacon Act¹⁰⁷ requires employers to pay prevailing wages to workers employed by federally funded projects, and California imposes a similar standard for state-funded efforts.¹⁰⁸ In addition, labor unions are keenly aware of the prospective transition from the conventional labor market to a green economy. For example, in 2006, the United Steelworkers partnered with the Sierra Club to form the BlueGreen Alliance, "a national, strategic partnership between labor unions and environmental organizations dedicated to expanding the number and quality of jobs in the green economy."¹⁰⁹ Additional working models have been developed and implemented in Los Angeles and Oakland, California, by community members, labor organizations, construction employers, and local officials.¹¹⁰ These programs utilize traditional project labor agreements to combat local unemployment by requiring publicly funded projects to employ a certain percentage of workers from the area directly impacted by these projects.¹¹¹

Scholars, international policy organizations, fair labor advocates, and environmental coalitions agree that the labor rights perspective must be incorporated into future policies related to the green economy and climate change transitions.¹¹² Ultimately, this perspective will provide indispensible insight because "[p]eople's livelihoods, rights, and sense of dignity are bound

¹⁰⁴ Benjamin S. Beach, Using Government Policy to Create Middle Class Green Construction Careers, 18 J.L. & POLY 1, 7–8 (2009).

¹⁰⁵ *Id.* at 8–9.

¹⁰⁶ U.N. Env't Programme, *supra* note 97, at 36.

 $^{^{107}\,}$ 40 U.S.C. §§ 3141–3144, 3146, 3147 (2006).

¹⁰⁸ Id. § 3142; CAL. LAB. CODE §§ 1770–1771 (West 2011).

¹⁰⁹ BlueGreen Alliance, *About the BlueGreen Alliance*, http://www.bluegreenalliance.org/ about_us (last visited Nov. 12, 2011).

¹¹⁰ Beach, *supra* note 104, at 16.

¹¹¹ Id.

¹¹² See U.N. Env't Programme, *supra* note 97, at 39; *see also* Katherine H. Regan, *The Case for Enhancing Climate Change Negotiations with a Labor Rights Perspective*, 35 COLUM. J. ENVTL. L. 249, 276–77 (2010) (explaining that policies that connect labor rights to climate change and sustainable development will help the labor movement adapt to international economic changes, and will promote the growth of a global economy "founded on principles of environmental and economic sustainability" (quoting Jeremy Brecher et al., Labor's War on Global Warming, THE NATION, Mar. 10, 2008, http://www.thenation.com/article/labors-war-global-warming (last visited Nov. 12, 2011))).

up tightly with their jobs; jobs need to provide equal hope for the environment and the jobholder." $^{\!\!\!^{113}}$

IV. SITING SOLAR FACILITIES ON FEDERAL LANDS

Prospective solar energy providers must receive approval from BLM to site solar energy facilities on federal lands.¹¹⁴ To grant a permit, BLM must comply with the multistepped, time-consuming statutory and regulatory processes mandated by federal law.¹¹⁵ Applicable statutes and regulations establish a legal framework that layers agency review of proposed land uses.¹¹⁶ This framework narrows the agency's scope of review by increments, from broad guidance principles ensuring adherence to national, multiple-use mandates to detailed analyses, identifying and assessing project specific impacts.¹¹⁷ Moreover, this framework not only accounts for diverse environmental concerns by employing a vertical analysis of federal land use priorities, but also applies a horizontal reach to address regional concerns.¹¹⁸ To this end, federal statutes and regulations consistently mandate coordination with state, local, and tribal governments throughout the permit process.¹¹⁹ In addition, public participation provisions create avenues to assess the public's land use concerns.¹²⁰

A. BLM Process for Siting Solar Facilities

To site an electrical generation facility on BLM managed public lands, a service provider must receive BLM's approval for a right-of-way (ROW) pursuant to the guidelines and requirements mandated by the Federal Land Policy and Management Act of 1976 (FLPMA).¹²¹ In addition, the use proposed by an applicant must be permissible under BLM's most recent resource management plan or land use planning document (RMP/LUP).¹²² Lastly, if granting the ROW for the proposed use constitutes a "major Federal action[] significantly affecting the quality of the human environment" under NEPA, BLM must complete an EIS before granting the proposed ROW.¹²³ The following Part discusses this federal statutory and regulatory framework and outlines the interlocking legal schemes that facilitate the collaborative process introduced above.

¹¹³ U.N. Env't Programme, *supra* note 97, at 39.

¹¹⁴ See infra note 121 and accompanying text.

¹¹⁵ See infra Part IV.B.

¹¹⁶ See infra Parts IV.C-D.

¹¹⁷ See discussion *infra* Parts IV.B–D.

¹¹⁸ See infra text accompanying notes 136–40.

¹¹⁹ See infra notes 143-53 and accompanying text.

¹²⁰ See discussion *infra* notes 134–35, 154–60.

 $^{^{121}}$ 43 U.S.C. §§ 1701–1785 (2006). The siting requirements are provided at 43 U.S.C. § 1761(a)(4) (2006).

¹²² See 43 C.F.R. § 1610.5-3(a) (2010).

¹²³ National Environmental Policy Act of 1969, 42 U.S.C. § 4332(C) (2006).

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B. The Federal Land Policy and Management Act of 1976 and Rights-of-Way

FLPMA's statutory mandates and attendant ROW regulations strive to balance use and conservation of federal, BLM-managed public lands. In 1976, Congress enacted FLPMA to ensure that "goals and objectives be established by law as guidelines for public land use planning, and that management be on the basis of multiple use and sustained yield."124 However, FLPMA requires that BLM manage public lands to ensure that this use is tempered, in order to "protect the quality of scientific, scenic, historical, ecological, environmental, air and atmospheric, water resource, and archeological values."¹²⁵ For example, when authorizing an ROW, FLPMA requires BLM to include terms and conditions in the final permit that ensure environmental protection by "minimiz[ing] damage to scenic and esthetic values and fish and wildlife habitat and otherwise protect the environment."¹²⁶ Regulations also emphasize that protecting natural resources and preventing undue degradation to public lands are paramount objectives of BLM's ROW program.¹²⁷ Thus, FLPMA's statutory mandates and pursuant regulations seek to facilitate projects that will embody this multi-faceted mission by harmonizing multiple-use and conservation-oriented objectives.

When determining whether or not a particular use fits this balance, FLPMA requires BLM to honor state laws and to coordinate with state authorities. BLM must guarantee that uses meet state standards by publishing terms and conditions that "require compliance with applicable air and water quality standards established by or pursuant to applicable Federal or State law... [and] with State standards for ... siting, construction, operation, and maintenance of or for [ROWs] for similar purposes if those standards are more stringent than applicable Federal standards."¹²⁸ In addition, BLM must consult with other governmental entities to process an application.¹²⁹ Furthermore, regulations enacted pursuant to FLPMA emphasize that BLM's duty to coordinate extends beyond simply respecting a state's strictly mandatory legal standards.¹³⁰ In fact, BLM lists coordinating "to the fullest extent possible" with state and local government as a principle guiding goal when authorizing ROWs.¹³¹ To this end, FLPMA regulations provide mechanisms to facilitate this collaborative policy. For example, regulations state that BLM should encourage ROW applicants to conduct pre-application meetings with BLM field officers in order to discern potential routes and constraints for projects.¹³² BLM may share pre-application

¹³⁰ See id. §§ 2801.2(d), 2802.11(b), 2804.25.

¹²⁴ 43 U.S.C. § 1701(a)(7) (2006).

¹²⁵ Id. § 1701(a)(8).

¹²⁶ Id. § 1765(a)(ii).

¹²⁷ 43 C.F.R. § 2801.2(a)–(b) (2010).

¹²⁸ 43 U.S.C. § 1765(a)(iii)–(iv) (2006).

¹²⁹ 43 C.F.R. § 2804.25(d)(4) (2010).

¹³¹ Id. § 2801.2(d).

¹³² Id. § 2804.10(a).

information with state or local government agencies "to ensure . . . effective coordinated planning as soon as possible." 133

FLPMA and implementing regulations also mandate opportunities for public participation, which allow additional opportunity for diverse parties to voice regional and local land management concerns and contribute to BLM's ROW decision-making process. FLPMA expressly enumerates that, "in administering public land statutes and exercising discretionary authority granted by them," BLM must "establish comprehensive rules and regulations after considering the views of the general public ... assur[ing] adequate third party participation."¹³⁴ If sufficient public interest exists, BLM must hold a public meeting.¹³⁵

Therefore, to the extent necessary to comply with state laws, FLPMA mandates that BLM coordinate with state and local governments when authorizing ROW grants on public lands. In addition, besides mandating coordinated legal compliance among jurisdictions, FLPMA encourages collaboration and cooperation with state and local government, as well as the general public.

C. BLM Resource Management Plans/Land Use Plans

The RMP/LUP serves as the primary mechanism to ensure BLM acts according to the mission set forth in FLPMA: to balance multiple-use and conservation goals when managing public lands.¹³⁶ An RMP/LUP reflects an inventory of public lands within certain geographic areas and assesses the resources and other values within these geographic bounds.¹³⁷ These plans should reflect changes in conditions and should seek to identify new and emerging resources or other values.¹³⁸ An RMP/LUP functions by identifying primary issues within a specific BLM region and dictating objectives and directives necessary to provide sustained resource use, while ensuring longterm conservation.¹³⁹ BLM officials must conduct both public and internal "scoping" to brainstorm regional planning issues.¹⁴⁰ Planning issues are "disputes or controversies about existing and potential land and resource allocations, levels of resource use, production, and related management practices" and may stem from new or changed circumstances or uses, such as renewable energy development.¹⁴¹ For each selected issue, BLM then promulgates "goals," broad statements that express desired outcomes, and

¹³³ Id. § 2804.10(b)(2).

¹³⁴ Federal Land Policy and Management Act of 1976, 43 U.S.C. § 1701(a)(5) (2006).

¹³⁵ 43 C.F.R. § 2804.25(d)(5) (2010).

¹³⁶ U.S. BUREAU OF LAND MGMT., DEP'T OF THE INTERIOR, H-1601-1, LAND USE PLANNING HANDBOOK 1 (2005), *available at* http://www.blm.gov/pgdata/etc/medialib/blm/ak/aktest/planning/planning_general.Par.65225.File.dat/blm_lup_handbook.pdf.

 $^{^{137}}$ Id. at 11.

¹³⁸ Id.

¹³⁹ See id.; 43 C.F.R. § 1610.4-1 (2010).

¹⁴⁰ U.S. BUREAU OF LAND MGMT., supra note 136, at 19.

¹⁴¹ Id. at 19.

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directives that specify authorized or prohibited uses and actions to achieve these goals. $^{\scriptscriptstyle 142}$

The RMP/LUP drafting process encourages coordination between BLM and state and local government. Criteria for developing RMP/LUPs require compliance with applicable state pollution laws and insist, "to the extent consistent with the laws governing the administration of the public lands," that BLM coordinate with "the States and local governments within which the lands are located" and consider approved state resource management programs.¹⁴³ BLM must identify issues at the outset of the planning process to give state and local governments "an opportunity to suggest concerns, needs, and resource use, development, and protection opportunities."144 Moreover, BLM should draft RMP/LUPs to be consistent with state and local plans to the "maximum extent" possible within federal law and the purposes of FLPMA.¹⁴⁵ To this end, BLM should stay apprised of state and local land use plans and should assist to resolve inconsistencies between federal and non-federal government plans.¹⁴⁶ The BLM Land Use Planning Handbook, a document which recommends best practices to BLM employees for establishing and implementing RMP/LUPs, impresses on BLM managers that "[c]ooperation goes beyond the coordination requirement of FLPMA," and suggests BLM invite state and local governments to be involved as formal cooperating agencies.¹⁴⁷ Some states possess federal lands or policy liaisons, and best practices recommend that these "officials should be actively engaged from the beginning of the planning effort."¹⁴⁸ These relationships and related roles should be clearly described and formalized through an agreement or Memorandum of Understanding (MOU).¹⁴⁹ When effective, a desirable division of knowledge and labor hopefully arises between governmental entities:

While the ultimate responsibility regarding land use plan decisions on BLMadministered lands rests with BLM officials, it is recognized that individuals, communities, and governments working together toward commonly understood objectives yields a significant improvement in the stewardship of public lands. Benefits of building collaborative partnerships include improving communication, developing a greater understanding of different perspectives, and finding solutions to issues and problems.

¹⁴² See id. at 12–13.

 $^{^{143}\,}$ Federal Land Policy and Management Act of 1976, 43 U.S.C. § 1712(c)(9) (2006).

¹⁴⁴ 43 C.F.R. § 1610.4-1 (2010).

¹⁴⁵ 43 U.S.C. § 1712(c)(9) (2006).

¹⁴⁶ Id.

¹⁴⁷ U.S. BUREAU OF LAND MGMT., *supra* note 136, at 3–8 (emphasis removed).

¹⁴⁸ *Id.* at 6.

¹⁴⁹ *Id.* at 8.

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A collaborative approach to planning entails BLM working with [] state, and local governments . . . from the earliest stages and continuing throughout the planning process, to address common needs and goals within the planning area.¹⁵⁰

Benefits from these relationships include avoiding duplicated efforts, "incorporating local knowledge of economic, social, and political conditions," and "enhancing the local credibility of the review process."¹⁵¹ State and local government officials are explicitly authorized by statute to provide advice on proposed plans.¹⁵² The governor of the state(s) in which the BLM planning region is located also receives sixty days to review and recommend changes on the draft RMP/LUP.¹⁵³

The RMP/LUP drafting process also emphasizes the importance of public participation. Indeed, the RMP/LUP's authorizing statute expresses, first and foremost, that "[t]he Secretary shall, with public involvement" develop land use plans providing for the use of public lands.¹⁵⁴ The BLM Land Use Planning Handbook also lists, initially, that the drafting "process will involve public participation" and further states that "[p]lanning is inherently a public process."¹⁵⁵ Regulations mandate that BLM provide opportunities for public involvement and consider "the impact on local economies and uses of adjacent or nearby non-Federal lands" when developing plans.¹⁵⁶ The Handbook further explains that the RMP/LUP should consider socioeconomic factors because "the American public is increasingly aware of the importance of the public lands to its well-being and is demanding a larger voice in resource management decisions. Given these realities, the planning process can represent a constant balancing of competing needs, interests, and values."157 Therefore, the Handbook recommends employing social science to understand and reconcile different perspectives.¹⁵⁸ More specifically, social sciences provide a window into "how people interact with the landscape" and manage "sense-of-place issues."¹⁵⁹ Regulations require extensive notice, hearing, and public comment provisions in order to best facilitate public "opportunities to meaningfully participate in and comment on the preparation of plans."160

In theory, the collaborative measures between BLM and state and local government and public participation opportunities, mandated by statute and recommended by BLM best management practices, should produce a wellreasoned guiding document that reflects a balance of interests between these constituencies. Because BLM may only authorize ROWs that comply

 $^{^{150}\,}$ Id. at 4.

¹⁵¹ *Id.* at 7.

¹⁵² Federal Land Policy and Management Act of 1976, 43 U.S.C. § 1712(c)(9) (2006).

¹⁵³ 43 C.F.R. § 1610.3-2(e) (2010).

¹⁵⁴ 43 U.S.C. § 1712(a) (2006) (emphasis added).

 $^{^{155}\,}$ U.S. Bureau of Land Mgmt., supra note 136, at 2.

¹⁵⁶ 43 C.F.R. § 1601.0-8 (2010).

¹⁵⁷ U.S. BUREAU OF LAND MGMT., *supra* note 136, at app. D, at 1.

¹⁵⁸ Id.

¹⁵⁹ Id.

¹⁶⁰ 43 C.F.R. § 1610.2(a) (2010).

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with a regional RMP/LUP,¹⁶¹ projects should reflect the mutual consensus articulated in the RMP/LUP's planning objectives.

D. The National Environmental Policy Act of 1969 and Environmental Impact Statements

In addition to ROW and RMP/LUP mandates to coordinate planning efforts, NEPA requires BLM to collaborate with state and local governments to conduct an EIS, an additional environmental review of a proposed project. A federal agency must produce an EIS when the agency undertakes a major action significantly affecting the quality of the human environment.¹⁶² Almost universally, an ROW permitting a solar generation facility on public lands will constitute a major BLM action significantly affecting the quality of the human environment. An EIS provides "full and fair discussion of significant environmental impacts and shall inform decisionmakers and the public of the reasonable alternatives which would avoid or minimize adverse impacts or enhance the quality of the human environment."¹⁶³

The Council on Environmental Quality (CEQ) has authored regulations guiding federal agency efforts to conduct EIS review.¹⁶⁴ Similar to statutory and regulatory requirements imposed by FLPMA for ROWs and RMP/LUPs, these regulations stress collaborative processes. For example, federal agencies must implement procedures to make the NEPA process more useful to the public and must encourage and facilitate public involvement in decision making efforts.¹⁶⁵ The CEQ also considers the pragmatic benefits received through coordination, including eliminating duplicating state and local procedures by conducting joint environmental reviews.¹⁶⁶ State and local agencies may also jointly lead EIS preparation alongside a lead federal agency.¹⁶⁷ At the very least, the draft and final EIS should include all possible conflicts between the proposed action and objectives of regional, state, and local land use plans, policies, and controls for the area concerned.¹⁶⁸ In this manner, BLM must at least consider these conflicts before proceeding with any final action.

The CEQ encourages public participation through "scoping process[es]" to determine and identify the significant issues that an EIS must address for the proposed action.¹⁶⁹ This process spotlights public involvement, but also includes state and local government participation.¹⁷⁰ The BLM NEPA Handbook, a document that recommends best practices to BLM employees

¹⁶¹ *Id.* § 1610.5-3(a).

¹⁶² National Environmental Policy Act of 1969, 42 U.S.C. § 4332(C) (2006).

¹⁶³ 40 C.F.R. § 1502.1 (2011).

¹⁶⁴ Id. §§ 1502.1–1502.25.

¹⁶⁵ *Id.* § 1500.2(b).

¹⁶⁶ Id. § 1500.4(n).

¹⁶⁷ Id. § 1501.5(b).

¹⁶⁸ Id. § 1502.16(c).

¹⁶⁹ *Id.* § 1501.7.

¹⁷⁰ Id. § 1501.7(a)(1).

for conducting NEPA review, describes the benefits of scoping as serving "to build agency credibility and promote constructive dialogue and relations with . . . local governments and the public."¹⁷¹ The Handbook stresses public involvement as a means to ensure that all interested parties are aware of BLM's proposed actions.¹⁷² Furthermore, BLM should also possess knowledge of the community, as this is "the first step" in identifying interested parties.¹⁷³ BLM should also reach out to those not actively engaged in the NEPA process.¹⁷⁴

The legal framework throughout the BLM land use planning process mandates and encourages intergovernmental cooperation and public participation. These constituencies may first participate in shaping and drafting the BLM RMP/LUP governing their regional landscape. While this RMP/LUP guides the future actions taken on federal public lands, state and local governments and the public have additional opportunities to collaborate when BLM undergoes the process to permit a project specific ROW, both through the ROW granting process and NEPA EIS review. The legal framework presents these collaborative opportunities; throughout each of these land use planning steps statutes and regulations recommend, guide, and, to a certain degree, mandate BLM to consider and coordinate with these groups.

E. From Theory to Practice in Collaborative Planning and Ecosystem-Based Management

The theoretical benefits of collaborative planning have been subject to much attention in academic literature in recent decades, with a call for "communicative action"¹⁷⁵ as the basis for "discursive democracy"¹⁷⁶ that could reduce social and political conflict over complex land use, natural resources, and environmental decisions while reducing the risk of costly project delays through litigation.¹⁷⁷ The legal framework supports this collaborative orientation, and ecosystem-based management initiatives have highlighted the need to collaborate and coordinate across jurisdictional boundaries to address the ecosystem processes that transcend both private

¹⁷¹ U.S. BUREAU OF LAND MGMT., DEP'T OF THE INTERIOR, H-1790-1, NATIONAL ENVIRONMENTAL POLICY ACT 39 (2008), *available at* http://www.blm.gov/pgdata/etc/medialib/blm/ak/aktest/planning/planning_general.Par.2116.File.dat/Handbook.NEPA.H-1790-1.2k8.01.30%5B1%5D.pdf.

 $^{^{172}}$ Id. at 63.

¹⁷³ Id.

¹⁷⁴ Id.

¹⁷⁵ See Judith E. Innes, *Planning Theory's Emerging Paradigm: Communicative Action and Interactive Practice*, 14 J. PLAN. EDUC. & RES. 183, 183–84 (1995); Judith E. Innes, *Planning Through Consensus Building: A New View of the Comprehensive Planning Ideal*, 62 J. AM. PLAN. Ass'N 460, 461 (1996).

¹⁷⁶ See John S. Dryzek, Discursive Democracy: Politics, Policy, and Political Science 19–22 (1990).

¹⁷⁷ See generally JULIA M. WONDOLLECK & STEVEN L. YAFFEE, MAKING COLLABORATION WORK: LESSONS FROM INNOVATION IN NATURAL RESOURCE MANAGEMENT (2000) (offering insight for practitioners seeking to understand and navigate collaborative roles within resource and environmental management).

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and public lands, as well as public lands subject to a wide range of conflicting management objectives.¹⁷⁸ Ecosystem-based management requires collaborative planning.¹⁷⁹

The practice of ecosystem-based management has raised serious questions, however, about whether collaborative planning is a sufficient basis for establishing substantive policy goals and ensuring demonstrable progress toward meeting those goals. Empirical research by Judith Layzer, Associate Professor of Environmental Policy at MIT, concludes that "initiatives whose goals were set in collaboration with stakeholders have produced environmental policies and practices that are less likely to conserve and restore ecological health than those whose goals were set through conventional politics."¹⁸⁰ Vermont Law School Research Fellow, Lara Guercio, and Associate Professor of Law, Timothy Duane, note that this is an unsurprising result for two reasons:

(1) [T]he collaborative process itself, because it seeks to minimize social and economic conflict, is likely to yield vague plans and commitments while deferring the hardest choices that involve tradeoffs among competing social and economic interests and values; and (2) the legal and political context within which collaborative processes occur establish the power relations that in turn determine the capacity of stakeholders to ensure the enforcement of commitments to yield substantive, rather than process-oriented, outcomes. To put it simply: power matters.¹⁸¹

Layzer elaborates on these principles by describing the differences between ecosystem-based management efforts that emphasized collaborative processes versus those that were directed by stronger political or legal forces:

Above all, to achieve consensus, planners promised to pursue environmental and economic goals simultaneously. To this end, they reframed problems in ways that allowed them to avoid tackling controversial issues or seriously considering policies that would impose short-run costs on development interests. They also adopted technology- and management-intensive solutions that aim to "expand the pie," in the process imposing substantial risk on the environment. In some cases, efforts to implement plans' provisions exposed

¹⁷⁸ See Lara D. Guercio & Timothy P. Duane, *Grizzly Bears, Gray Wolves, and Federalism, Oh My! The Role of the Endangered Species Act in De Facto Ecosystem-Based Management in the Greater Glacier Region of Northwest Montana*, 24 J. ENVTL. L. & LITIG. 285, 289–98 (2009) (discussing the origins and development of ecosystem-based management as a framework for public lands management).

¹⁷⁹ BARB CESTERO, SONORAN INST., BEYOND THE HUNDREDTH MEETING: A FIELD GUIDE TO COLLABORATIVE CONSERVATION ON THE WEST'S PUBLIC LANDS, at iii–6 (1999), *available at* http://www.sonoraninstitute.org/library/recoreading/doc_download/509-beyond-the-hundredth-meeting-a-field-guide-to-collaborative-conservation-on-the-wests-public-lands.html.

¹⁸⁰ JUDITH A. LAYZER, NATURAL EXPERIMENTS: ECOSYSTEM-BASED MANAGEMENT AND THE ENVIRONMENT 5 (Sheldon Kamieniecki & Michael E. Kraft eds., 2008).

¹⁸¹ Guercio & Duane, *supra* note 178, at 295–96.

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disagreements that had been glossed over during the collaborative process, resulting in stalemate and delay. $^{^{\rm 182}}$

Guercio and Duane suggest that legal constraints—in particular, those imposed by the federal Endangered Species Act (ESA)¹⁸³—are particularly important for generating ecosystem-based management regimes across jurisdictional boundaries that yield substantive environmental results. This insight seems directly relevant to the challenges facing BLM and the United States Fish and Wildlife Service (FWS) as they attempt to collaborate and coordinate fast-track utility-scale solar projects in the region:

Layzer's findings on the factors influencing the substantive outcomes of ecosystem-based management efforts are profoundly important as we contemplate the future of the public lands as well as calls for reform of major environmental laws such as the ESA. In particular, Layzer's work highlights that the ESA is likely to play a central role in determining whether or not "collaborative, landscape-scale planning and implementation that is flexible and adaptive" will yield substantive, environmentally protective outcomes. ... The ESA, representative of power organized outside the room, changed power relations among the key stakeholders and compelled some stakeholders, specifically landowners who otherwise were free to manage their lands without consultation, to enter into collaborative processes to develop management regimes that would survive legal challenge by other stakeholders. Environmental advocates and species' interests were otherwise not being adequately represented in management decisions. The ESA ensured a voice for those interests.

The ESA itself therefore generates de facto ecosystem-based management regimes wherever it reaches.¹⁸⁴

The BLM's collaborative planning efforts must therefore be considered in light of the legal constraints on the agency as well as the political imperatives that could favor either more development or conservationoriented decisions. A collaborative planning framework does not in and of itself assure particular substantive outcomes. Instead, it is a means by which conflicting social and environmental goals may be resolved—but always with an eye toward the power of any party in the collaborative effort to enforce or undermine any given decision.

F. Programmatic Environmental Impact Statements

CEQ regulations mandate that federal agencies "prepare statements on broad actions so that they are relevant to policy and are timed to coincide

¹⁸² LAYZER, *supra* note 180, at 5.

¹⁸³ Endangered Species Act of 1973, 16 U.S.C. §§ 1531–1544 (2006 & Supp. IV 2010). Specifically, 16 U.S.C. § 1540 (2006) provides for penalties and enforcement of the ESA.

¹⁸⁴ Guercio & Duane, *supra* note 178, at 297–98 (quoting LAYZER, *supra* note 180, at viii).

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with meaningful points in agency planning and decisionmaking."185 Commonly referred to as Programmatic Environmental Impact Statements (PEISs), evaluations of broad federal actions are appropriate when "the proposed action will define and implement programs that set the stage for potential site-specific actions that might result in significant impacts on the environment."¹⁸⁶ Development and adoption of a PEIS has several potential advantages from the agency's perspective: 1) it allows agencies (e.g., BLM and FWS) to assess the cumulative and aggregate effects of many similar projects across a broad landscape, which is difficult to do on a project-byproject basis; 2) it allows development of consistent policies for evaluation of individual project-based requests (e.g., for ROW grants from BLM, "no jeopardy" biological opinions under consultation requirements of Section 7 of the federal ESA,¹⁸⁷ and/or the issuance of Incidental Take Permits (ITPs) under Section 10 of the ESA by FWS¹⁸⁸). "[W]hen a variety of energy projects may be located in a single watershed," states the CEQ, "or when a series of new energy technologies may be developed through federal funding, the overview or area-wide EIS would serve as a valuable and necessary analysis of the affected environment and the potential cumulative impacts of the reasonably foreseeable actions under that program or within that geographical area."¹⁸⁹

A PEIS may also offer an advantage for project developers: it could allow expedited project-specific review through "tiering" off of the PEIS. CEQ states that "[a]gencies are encouraged to tier their [EISs] to eliminate repetitive discussions of the same issues and to focus on the actual issues ripe for discussion at each level of environmental review," and that if "a subsequent [EIS] or environmental assessment [EA] is then prepared on an action included within the entire program or policy (such as a site-specific action) the subsequent [EIS] or [EA] need only summarize the issues discussed in the broader [EIS] and incorporate discussions from the broader [EIS] by reference and shall concentrate on the issues specific to the subsequent action."¹⁰⁰ Tiering can withstand legal challenge only if the PEIS has adequately discussed all of the relevant issues;¹⁰¹ however, a projectspecific EA or EIS must still be prepared to analyze in further detail issues that were not addressed in the PEIS.¹⁰² The adequacy of the PEIS is therefore the key to streamlining later project-specific review under NEPA.

¹⁸⁵ 40 C.F.R. § 1502.4(b) (2011).

 ¹⁸⁶ U.S. Dep't of Energy & Dep't of the Interior, *Solar Energy Development Programmatic EIS: Frequently Asked Questions*, http://solareis.anl.gov/faq/index.cfm (last visited Nov. 12, 2011).
¹⁸⁷ 16 U.S.C. § 1536 (2006).

¹⁸⁸ *Id.* § 1539.

¹⁰⁰ *Iu.* § 1559.

¹⁸⁹ David M. Ivester & Christian L. Marsh, *Renewable Energy: Streamlining Review Under NEPA and the ESA*, TRENDS, (A.B.A. Section of Env't, Energy, & Res., Chicago, Ill.), Nov./Dec. 2010, at 12, 12 (quoting Forty Most Asked Questions Concerning CEQ's National Environmental Policy Act Regulations, 46 Fed. Reg. 18,026, 18,033 (March 23, 1981)).

¹⁹⁰ 40 C.F.R. § 1502.20 (2011).

¹⁹¹ Blue Mountains Biodiversity Project v. Blackwood, 161 F.3d 1208, 1214 (9th Cir. 1998).

 $^{^{192}}$ Headwaters, Inc. v. Medford Dist., Bureau of Land Mgmt., 914 F.2d 1174, 1178 (9th Cir. 1990).

"Like NEPA, the ESA does not mention programmatic review. Unlike NEPA, however, there are no regulations for tiering under the ESA. The [FWS and National Marine Fisheries Service] nonetheless have developed vehicles for doing just that."¹⁸³ Moreover, "[i]n the absence of regulations, courts have developed some standards for programmatic biological opinions."¹⁹⁴ It may therefore be advantageous to develop PEIS documents that are also legally sufficient to meet both the CEQ regulations under NEPA and the court-developed standards for the issuance of ITPs under Section 10 of the ESA¹⁹⁵—thereby generating the required "no jeopardy" biological opinion under Section 7 of the ESA¹⁹⁶—that would then streamline project-specific ROW grant reviews. Such streamlining will only be legally defensible if the PEIS has adequately addressed these criteria.

The collaborative requirements and recommendations described above also apply when agencies conduct a PEIS, such as the Solar PEIS discussed in Part VII of this Article. Parts V and VI of this Article describe and analyze this collaborative process, respectively. Part V describes the applicable Nevada, Arizona, and California state laws that BLM must comply with under FLPMA mandates, while Part VI explores collaborative processes and outcomes by comparing individual EISs for "fast-track" renewable energy projects in these states. Part VII then compares these projects and their collaborative processes to the Solar PEIS and federal plans to implement solar facility development on a broader scale.

V. APPLICABLE STATE LAW

BLM operates under a consistent set of federal statutes across the states—but it must evaluate ROW grant requests in the context of and in coordination with specific state laws that apply to siting regulations.¹⁹⁷

 $^{^{193}}$ Ivester & Marsh, supra note 189, at 13 (citing Gifford Pinchot Task Force v. U.S. Fish & Wildlife Serv., 378 F.3d 1059, 1067–68 (9th Cir. 2004)).

¹⁹⁴ Id. Ivester and Marsh state the following conditions:

They must be thorough and include strict conditions for subsequent site-specific consultations; cannot completely defer analysis of particular types of impacts to future site-specific consultations; and cannot defer an incidental take statement. And when tiering from an earlier analysis, a subsequent biological opinion or effects analysis should take care not to rely on a previous analysis that is flawed.

Id. (citations omitted).

¹⁹⁵ Endangered Species Act of 1973, 16 U.S.C. § 1539(a)(1)(A)–(B) (2006).

¹⁹⁶ Id. § 1536(a)(2).

¹⁹⁷ Federal authorities possess sole authority to permit or deny siting for utility facilities on federal lands. *Cf.* EDISON ELEC. INST., ENERGY POLICY ACT OF 2005 TIMELINE: TRANSMISSION SITING & PERMITTING IMPLEMENTATION MILESTONES 1 (2005), *available at* http://www.eei.org/whatwedo/ PublicPolicyAdvocacy/FedLegislation/Documents/TransSitingPermitTimeline.pdf. State or local zoning and land use requirements are generally preempted by federal laws. *See* Ventura Cnty. v. Gulf Oil Corp., 601 F.2d 1080, 1083–84 (9th Cir. 1979), *aff'd without opinion*, 445 U.S. 947 (1980). However, utility applicants must still comply with state environmental statutes, regulations, and certificates, unless state laws directly conflict with federal environmental laws. *See* Cal. Coastal Comm'n v. Granite Rock Co., 480 U.S. 572, 580–81 (1987). The manner in which agency personnel understand and apply these concepts in practice may impact the extent to which

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Different state agencies take differing roles and apply different substantive criteria to solar energy development siting and permitting decisions. Moreover, state water law varies across the desert southwest—and water-related impacts are particularly important in the region. We therefore describe the applicable state law in Nevada, Arizona, and California in this Part in order to set the institutional stage for our analysis in the following Part of the three fast-tracked ROW case studies in those three states.

A. Nevada

1. Public Utilities Commission of Nevada Siting Regulations

PUCN regulations require applicants to apply for a Nevada Utility Environmental Protection Act¹⁹⁸ permit for all utility facilities constructed in the State of Nevada.¹⁹⁹ The Act's purpose recognizes that the need for electric services requires constructing new facilities, which cannot be built without affecting the physical environment.²⁰⁰ Thus, Nevada has declared that "[i]t is essential in the public interest to minimize any adverse effect upon the environment and upon the quality of life of the people of the State which such new facilities might cause."201 PUCN may not grant a permit to construct a facility unless it determines the nature of the probable effect on the environment and finds the need for reliable utility service balances any adverse effect on the environment.²⁰² The facility must also represent the minimum adverse effect on the environment, considering available technologies and the economic viability of these alternatives.²⁰³ An application must include reasonable alternate locations for a proposed facility and a statement why the proposed location is best suited.²⁰⁴ Next, the Nevada Division of Environmental Protection of the State Department of Conservation and Natural Resources reviews the application.²⁰⁵ The statute imposes a duty on the applicant to accept and incorporate any findings and

federal and state agencies coordinate in the permitting process. For example, a March 2011 request to Nevada BLM for communications between BLM and Nevada's PUCN regarding siting solar facilities on BLM lands provides insight into the office's practices to comply and coordinate with state laws. Memorandum from Siobhan McIntyre, Research Assistant, Vermont Law Sch., to Professor Tuholske, Adjunct Professor, Vermont Law Sch. (Apr. 22, 2011) (on file with author). BLM responded to the Freedom of Information Act request "by explaining that BLM does not need to comply with PUCN's siting regulations because state siting regulations are preempted on federal lands." *Id.* "Although this statement is [technically] correct, utility developers must still apply for and receive approval regarding Nevada's environmental certificate, a process overseen by PUCN." *Id.* Regardless of this distinction, BLM asserted that it "would have no reason to coordinate or otherwise communicate with PUCN." *Id.*

¹⁹⁸ Utility Environmental Protection Act, NEV. REV. STAT. §§ 704.820–704.900 (2009).

¹⁹⁹ Id. § 704.865(1).

²⁰⁰ Id. § 704.825(1)(a).

²⁰¹ Id. § 704.825(1)(b).

²⁰² *Id.* § 704.890(1)(a)–(c).

²⁰³ Id. § 704.890(1)(d).

²⁰⁴ Id. § 704.870(1)(c).

²⁰⁵ Id. § 704.875.

conclusions made by these agencies.²⁰⁶ Throughout this process, PUCN must cooperate with other states and the federal government to the extent practicable, make joint investigations, and hold joint hearings within or outside of the State.²⁰⁷ Furthermore, PUCN requires an applicant to file an amended state application with PUCN no later than thirty days after a federal agency issues a final EIS.²⁰⁸

2. Nevada Water Resource Allocation Statutes

The Nevada Division of Water Resources (NDWR) oversees Nevada's water resources allocation program.²⁰⁰ The Division strives "to conserve, protect, manage and enhance the State's water resources for Nevada's citizens through the appropriation and reallocation of the public waters."²¹⁰ According to NDWR, Nevada's legal framework reflects this mission and "has the flexibility to accommodate new and growing uses of water in Nevada while protecting those who have used the water in the past."²¹¹ Nevada statutes authorize the state engineer to permit water users to appropriate "all water," as long as water users apply the resource for a beneficial use.²¹² However, like most western states, Nevada's statutory allocation scheme implements the prior appropriation doctrine, and new water users must conform to the "first in time, first in right" principle.²¹³ Thus, the resource quantity available to new water users is limited to water available subsequent to the exercise of previously existing water rights.²¹⁴

Furthermore, the State Engineer of water resources for the Nevada Department of Conservation and Natural Resources possesses the ability to designate groundwater basins that he deems to be depleting.²¹⁵ In these basins, the State Engineer may "make such rules, regulations and orders as are deemed essential for the welfare of the area involved" and "to prevent the waste of underground waters."²¹⁶ Predominantly, the State Engineer implements this duty by designating preferred uses within these basins.²¹⁷

²¹² NEV. REV. STAT. § 533.030(1) (2009).

²⁰⁶ *Id.* § 704.877.

²⁰⁷ Id. § 704.877(2).

²⁰⁸ Id. § 704.870(2)(b).

²⁰⁹ Nev. Div. of Water Res., *Home: Our Mission*, http://www.water.nv.gov/ (last visited Nov. 12, 2011).

²¹⁰ Id.

²¹¹ Nev. Div. of Water Res., *Nevada Water Law: Water Law Overview*, http://www.water.nv.gov/waterrights/waterlaw/ (last visited Nov. 12, 2011).

²¹³ See 1 SAMUEL C. WIEL, WATER RIGHTS IN THE WESTERN STATES, 307 (3d ed. 1911) ("The maxim, '*Qui prior est in tempore, portior est in jure*,' is continually quoted in the early cases upon this subject as governing....").

 $^{^{214}}$ NEV. REV. STAT. § 533.030(1) (2009). Once an entity holds a water right, the holder may request to temporarily alter the place of diversion, manner of use, or place of use associated with their allocated right by applying to the state engineer. *Id.* § 533.345.

²¹⁵ Id. § 534.120.

²¹⁶ Id. §§ 534.120, 534.020(2).

²¹⁷ Id. § 534.120(2).

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The State Engineer may also establish groundwater boards that assist the State Engineer in the administration of groundwater uses.²¹⁸

For example, applicable to the fast-track Silver State solar project discussed in this Article, in the greater Las Vegas region, a state-created entity, the Las Vegas Valley Water District (LVVWD), holds the rights in use to water from Lake Mead and the groundwater resources of the Las Vegas valley.²¹⁰ The Nevada State Legislature created the LVVWD by statutory act in 1947 in order to "provide reliable, quality water and to ensure the sustainability of our desert community."²²⁰ To utilize water held by the LVVWD, an interested party must apply to the LVVWD for a water service commitment, authorizing distribution of water held pursuant to the LVVWD's water right.²²¹

Las Vegas sits in Clark County, Nevada, and the LVVWD enacting statute grants the Clark County Board of Commissioners authority to manage the LVVWD.²²² The Clark County Board promulgates service rules for the LVVWD, which dictate application procedures and conditions for granting water service commitments.²²³ The rules expressly condition water service commitments on the availability of the LVVWD's water resources.²²⁴ Therefore, "[n]otwithstanding any provision in these Service Rules . . . the [LVVWD] may deny any request for a water commitment or request for a water connection if the District has an inadequate supply of water."²²⁵

B. Arizona

1. Arizona Corporation Commission Certificate of Environmental Compatibility

ACC regulations require utility applicants—"person[s] engaged in the generation or transmission of electric energy"—to receive a certificate of environmental compatibility before constructing a utility facility in the State of Arizona.²²⁶ ACC may approve or deny a certificate, or may approve a certificate after imposing reasonable conditions on a project.²²⁷ ACC

²¹⁸ Id. § 534.035.

²¹⁹ Act of March 27, 1947, ch. 167, § 1, 1947 Nev. Stat. 553, 553–56 (amended 1957) (creating a water district in the Las Vegas valley, Clark County).

²²⁰ Las Vegas to Build 3.1 MW Solar Energy Project, RENEWABLEENERGYWORLD.COM, Mar. 7, 2005, http://www.renewableenergyworld.com/rea/news/article/2005/03/las-vegas-to-build-3-1mw-solar-energy-project-23424 (last visited Nov. 12, 2011) (quoting Pat Mulroy, the District's General Manager); see also pmbl., 1947 Nev. Stat. 553, 553 (1947).

²²¹ LAS VEGAS VALLEY WATER DIST., SERVICE RULES 17–21 (2009), *available at* http://www.lvvwd.com/assets/pdf/serv_rules_fulldoc.pdf.

 $^{^{222}}$ Act of March 27, 1947, ch. 167, \S 1, \S 9, 1947 Nev. Stat. 553, 553, 562.

 ²²³ Id. § 9, 1947 Nev. Stat. at 562; see Las VEGAS VALLEY WATER DIST., supra note 221, at 17–20.
²²⁴ LAS VEGAS VALLEY WATER DIST., supra note 221, at 20–21.

 $^{^{225}\,}$ Id. at 17.

 $^{^{226}}$ ARIZ. REV. STAT. ANN. \$ 40-360(11), 40-360.02(B) (2011). This is a very broad definition, so it does apply to independent "merchant" solar generators selling power to regulated utilities, in addition to traditional utilities building their own projects. *See id.* \$ 40-360.

²²⁷ Id. § 40-360.06.

regulations also provide that ACC must host a public hearing regarding certificate decisions.²²⁸ When deciding whether to approve or deny a certificate, ACC considers numerous factors, including existing plans of state and local governments for other development at or near the proposed site; fish, wildlife, and plants; use of the site for public recreation purposes; existing scenic areas; "[t]he total environment of the area;" and the technical practicability of achieving the project's objective and previous experience with proposed technologies.²²⁹ ACC must also give "special consideration" to protect unique areas with biological wealth and habitats for rare and endangered species.²³⁰ In addition, the ACC certificate requires a unique review of groundwater availability and impacts on groundwater management plans, if a proposed utility facility lies within the service area of a city or town in an active management area (AMA).²³¹ AMAs are areas with a "heavy reliance on mined groundwater."232 The Arizona Groundwater Code recognizes "the need to aggressively manage the state's finite groundwater resources," particularly in these areas.²³³ Therefore, these areas are subject to regulation and AMA specific programmatic goals, such as safe-yield or preservation of groundwater to preserve agricultural water sources.²³⁴ The proposed site for the Arizona BLM solar project analyzed in this Article would lie within the Phoenix Active Management Area.²³⁵

2. Arizona Water Resource Allocation Statutes

The Arizona Department of Water Resources (ADWR) oversees water resource allocation in the State of Arizona.²³⁶ ADWR's mission states that the agency strives "to ensure a long-term, safe, sufficient and secure water supply for the State [and t]o develop public policies that promote the efficient use and equitable distribution of water in an environmentally sound manner."²³⁷ In 1980, the Arizona State Legislature passed the state groundwater code to govern groundwater allocation throughout the state and "to eliminate severe groundwater overdraft."²³⁸ To utilize groundwater resources, a general industrial user must obtain a groundwater withdrawal

 $^{^{228}\,}$ Id. \S 40-360.04.

²²⁹ Id. § 40-360.06(A).

²³⁰ Id. § 40-360.06(B).

²³¹ Id. § 40-360.13.

²³² Ariz. Dep't of Water Res., *Active Management Areas (AMAs) & Irrigation Non-Expansion Areas (INAs)*, http://www.azwater.gov/AzDWR/WaterManagement/AMAs/ (last visited Nov. 12, 2011).

²³³ Id.; ARIZ. REV. STAT. ANN. § 45-401 (2003).

²³⁴ Ariz. Dep't of Water Res., *supra* note 232.

²³⁵ ARIZ. REV. STAT. ANN. § 45-411(A)(2) (2003).

²³⁶ Id. § 45-103(A).

²³⁷ ARIZ. DEP'T OF WATER RES., ANNUAL REPORT 2008, at 4 (2008), *available at* http://www.azwater.gov/AzDWR/PublicInformationOfficer/documents/ADWR_Annual_Report_ 2008.pdf.

²³⁸ ARIZ. DEP'T OF WATER RES., THIRD MANAGEMENT PLAN FOR PHOENIX ACTIVE MANAGEMENT AREA 2000–2010, at 1-1 (1999), *available at* http://www.azwater.gov/azdwr/WaterManagement/ AMAs/ThirdManagementPlan3.htm (click on "Chapter 1 - Water Management Approach").

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permit from ADWR.²³⁹ The ADWR director must issue a groundwater withdrawal permit to an applicant if a project complies with the following conditions: 1) uncommitted municipal and industrial central Arizona project water is not available; 2) other surface water or effluent is not available at a cost less than 25% greater than groundwater withdrawal; 3) grandfathered irrigation rights appurtenant to used lands are not available for purchase; 4) if within three miles of a service area, the use has been denied service; 5) the management plan for an AMA can accommodate the use; and 6) an assured water supply exists.²⁴⁰ If, at any time, the ADWR director determines uncommitted municipal or industrial central Arizona project water is available or water or effluent is available at comparable cost to groundwater, the ADWR director may require use of these water sources in lieu of groundwater.²⁴¹

Of these numerous contingencies, condition five requires industrial use applicants to cross-reference and comply with additional governing standards set forth in an AMA management plan. The groundwater code identifies and designates five AMAs in order to "aggressively manage the state's finite groundwater resources to support the growing economy."²⁴² The groundwater code charges ADWR to adopt active management plans for each AMA to carry out measures necessary to meet statutorily mandated goals.²⁴³ For example, the groundwater code states that the Phoenix AMA's primary management goal is a safe-yield by the year 2025.²⁴⁴ "Safe-yield" occurs when the groundwater withdrawn does not exceed the groundwater annually recharged.²⁴⁵

The Phoenix AMA plan institutes programs to manage industrial groundwater uses. The Industrial Conservation Program aims to compel industrial users within the Phoenix AMA to achieve the greatest water use efficiency economically feasible by applying the latest available water conservation technology.²⁴⁶ The most recent Phoenix AMA plan states that attempts to encourage water conservation and renewable supply use have not been effective because surface water resources are often unreliable and effluent resources are difficult to transport.²⁴⁷ The plan speculates that groundwater's low cost deters industrial users from replacing groundwater withdrawal with more expensive renewable supplies.²⁴⁸ In addition,

²³⁹ ARIZ. REV. STAT. ANN. § 45-515(A) (2003).

 $^{^{240}}$ Id.

²⁴¹ Id. § 45-515(C).

 $^{^{242}\,}$ Ariz. Dep't of Water Res., supra note 232.

²⁴³ ARIZ. REV. STAT. ANN. § 45-563(A) (2003).

²⁴⁴ Id. § 45-562(A).

 $^{^{245}}$ *Id.* § 45-561(12). Historic precipitation and records may not be a reliable indicator of recharge rates in the face of climate change, however, so empirical rates of recharge may differ from projected rates. INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, CLIMATE CHANGE AND WATER: IPCC TECHNICAL PAPER VI, at 38 (Bryson Bates et al. eds., 2008) (noting how climate change impacts on groundwater recharge rates affect groundwater table depths and the renewability of this water resource).

²⁴⁶ ARIZ. DEP'T OF WATER RES., *supra* note 238, at 6-1.

²⁴⁷ Id. at 6-2, 6-4.

²⁴⁸ Id.

industrial use accounts for a disproportionate amount of groundwater overdraft.²⁴⁹ To mitigate these problems, the plan requires industrial users to avoid waste and make diligent efforts to recycle water.²⁵⁰ For example, single-pass cooling or heating is not allowed unless the applicant reuses water.²⁵¹

The Phoenix AMA Plan's Industrial Conservation Program also provides specific guidelines to manage industrial groundwater use at large-scale solar power plants. The plan recognizes that major consumptive water use occurs within cooling towers at power facilities and, accordingly, requires facilities to achieve efficiency in cooling operations.²⁵² ADWR deems that the best available and economic water conservation technology available to modern power plants allows fifteen cycles of reused cooling water.²⁵³ The plan also encourages the use of effluent in cooling towers as an alternative to groundwater.²⁵⁴ Power plants must also monitor and report cooling capacity of each cooling tower at the facility and the frequency of use of each cooling tower.²⁵

C. California

1. California Energy Commission and the California Environmental Quality Act

The California Energy Commission (CEC) conducts environmental review of utility-scale thermal electric generation facilities fifty megawatt (MW) or larger and grants power facility and site certification pursuant to the California Environmental Quality Act (CEQA).²⁵⁶ The CEQA siting process is extensive and requires two steps: 1) determination of acceptable facility sites, and 2) certification of a proposed facility.

Before beginning facility certification review, CEC must first determine whether an acceptable site exists for facility placement. To this end, an

²⁴⁹ Id.

 $^{^{250}}$ Id. at 6-11. ²⁵¹ Id.

 $^{^{252}\,}$ See id. at 6-56.

²⁵³ Id. at 6-56 to -57.

 $^{^{254}}$ Id. at 6-57.

 $^{^{255}}$ Id. at 6-62.

²⁵⁶ CAL. PUB. RES. CODE §§ 21000–21178 (West 2007); see CAL. PUB. RES. CODE § 25500 (West 2007). CEC is the common name for the State Energy Resources Conservation and Development Commission. Id. § 25104. CEC does not have permitting jurisdiction over wind, PV solar, hydropower (overseen and licensed by the Federal Energy Regulatory Commission), nuclear, (licensed by the Nuclear Regulatory Commission), or any thermal electric generation facilities generating less than 50 MW. See id. at §§ 25110, 25120 (defining "facility" as "any electric transmission line or thermal powerplant," and "thermal powerplant" as having a "generating capacity of 50 megawatts or more," but specifically excluding wind, hydroelectric, and solar PV facilities). This significantly alters permitting requirements for PV versus CSP/CST projects because PV projects do not need to go through the CEC's complex permitting process. See id. It is also one reason that wind development has proceeded so quickly in California only local permits must be acquired for wind power.

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applicant must submit at least three alternative sites and related facilities,²⁵⁷ a "preliminary statement of the relative economic, technological, and environmental advantages and disadvantages of the alternative site and related facility proposals,"²⁵⁸ as well as a description of the need for the proposed facility.²⁵⁹ Next, CEC must send notice to affected local, regional, state, and federal agencies.²⁶⁰ CEC must request comments and recommendations from these agencies regarding "the design, operation, and location of the facilities . . . in relation to environmental quality . . . and other factors on which they may have expertise."²⁶¹

In addition, CEC must comply with government and public participation mandates dictated by CEQA. CEC must publish notice of proposed sites and related facilities in a newspaper of general circulation in each county where an applicant proposes to locate the site and related facilities.²⁶² Within forty-five days of this notice, CEC must hold a public information session in these locations to "provid[e] knowledge and understanding of the proposed facilities and sites."263 Following this presentation, CEC must host a public hearing to determine which issues to address during certification proceedings.²⁶⁴ Hearings should focus on obtaining the views and comments of the public and "concerned governmental agencies on the environmental, public health and safety, economic, social, and land use impacts of the facility at the proposed sites."²⁶⁵ The public may attend and participate in these hearings if the presiding CEC member deems their participation relevant and reasonable.²⁶⁶ CEC must include these comments in a final published summary of the hearing.²⁶⁷ CEC then holds an internal hearing and subsequently prepares and delivers a final report to determine whether two proposed sites are acceptable for the proposed facilities.²⁶⁸ Two proposed sites must be acceptable for CEC to approve a proposed site application.²⁶⁹

Once CEC determines that acceptable alternative sites exist for a proposed facility, an applicant may file for certification of an electric generation plant.²⁷⁰ The application must include site information, "including... geological, aesthetic, ecological, seismic, water supply, [and] population... data.²⁷¹ CEC must issue a written decision on the application

- 259 Id.
- ²⁶⁰ Id. § 25505.
- ²⁶¹ Id. § 25506.
- ²⁶² Id. § 25505.
- 263 Id. § 25509.
- 264 Id. § 25509.5.
- ²⁶⁵ *Id.* § 25509.5(c).
- ²⁶⁶ Id. § 25509.5.
- ²⁶⁷ Id. § 25510.
- ²⁶⁸ Id. §§ 25513, 25514, 25516.
- ²⁶⁹ Id. § 25516.
- ²⁷⁰ Id. § 25519.
- ²⁷¹ *Id.* § 25520(c).

²⁵⁷ CAL. PUB. RES. CODE § 25503 (West 2007).

 $^{^{258}\,}$ Id. $\S\,25504.$
within eighteen months after an applicant files for review.²⁷² The decision must include findings regarding conformity with water quality standards and other local, state and federal standards, as well as a discussion of public benefits, including the environmental benefits, of the decision.²⁷³ To complete the application process, CEC must issue an environmental impact report.²⁷⁴ CEC must submit this report to appropriate federal agencies once CEC approves a proposed project.²⁷⁵ In addition, CEQA provides a specific provision for expediting the review and permitting of solar thermal power plant projects that qualify for funding under ARRA.²⁷⁶ The provision permits the applicant to pay additional fees for use by CEC to contract with a third party to assist CEC with the certification process in order to meet ARRA deadlines.²⁷⁷

CEC must also include the public and governmental agencies in this decision making process. CEC must submit a copy of an applicant's request for facility certification to local and state agencies with an interest in the proposed project and must also publish a summary of the application for public review.²⁷⁸ In addition, this application must list the federal agencies whose approval is needed to authorize the project.²⁷⁹ CEC must host a public hearing no later than 240 days after an applicant files a facility application.²⁸⁰ The hearing must provide "a reasonable opportunity for the public . . . to comment upon the application.²⁸¹ CEQA also requires CEC to establish a monitoring system, in cooperation with other affected state agencies, to ensure that the applicant adheres to these standards and permit conditions during construction and operation of the facility.²⁸²

There is another big distinction between CEQA and NEPA, however: CEQA requires (in the absence of specific findings of "overriding" considerations) that all impacts from a project fully "mitigate" to a less-thansignificant level.²⁸³ NEPA allows federal agencies to take actions even if the NEPA analysis shows that the action would cause significant adverse environmental effects; in contrast, CEQA prohibits such actions by state agencies (including the issuance of discretionary permits) if "significant" adverse environmental impacts remain.²⁸⁴ CEC therefore faces potential legal

 $^{^{272}}$ Id. $\$\,25522(a)$ (adding, "or within 12 months if it is filed within one year of the commission's approval of the notice of intent").

²⁷³ Id. § 25523.

²⁷⁴ Id. § 21100.

²⁷⁵ Id. § 25537.

 $^{^{276}}$ See id. § 25524 (West Supp. 2010) (providing greater efficiency by offering flexibility in payment and review options).

²⁷⁷ Id. § 25524(b).

²⁷⁸ *Id.* § 25519(g) (West 2007).

²⁷⁹ Id. § 25519(1).

²⁸⁰ Id. § 25521.

 $^{^{281}}$ Id.

 $^{^{282}\,}$ Id. § 25532.

 $^{^{283}\,}$ Id. § 21081.

²⁸⁴ Id.

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challenges under CEQA that BLM does not face under NEPA.²⁸⁵ BLM's commitment to consistency with California agency actions in this area also means that BLM may be constrained indirectly in its ROW grant decisions by the stricter California state law.

2. California Water Resource Allocation Statutes

Unlike Nevada and Arizona state law, the California Water Code does not require comprehensive groundwater management. Instead, it merely encourages local agencies to manage groundwater resources within their jurisdiction.²⁸⁶ In enacting statutory groundwater management provisions, the legislature declared its purpose to ensure water quality and safe use given groundwater's value to the State of California.²⁸⁷ The Water Code authorizes, but does not require, local agencies to enact groundwater management plans.²⁸⁸ An enacted groundwater management plan must include groundwater management objectives for the basin subject to the plan, monitoring requirements, quality measurements, inelastic surface subsidence provisions, and provisions regarding changes in surface flow and water quality directly affecting groundwater.²⁸⁹ A groundwater management plan may also include conditions regarding mitigating overdraft, monitoring groundwater levels, and developing relationships with state and federal regulatory agencies.²⁹⁰

To adopt a groundwater management plan, a local agency must honor the California Water Code's public participation mandates. For example, the local agency must hold a hearing before adopting a resolution to implement a groundwater plan and groundwater management program.²⁹¹ During development of the groundwater plan, local agencies must provide the public with opportunities to participate in developing the management

²⁸⁵ CEC issued nine permits for more than 4100 MW of utility-scale CSP/CST projects between August 25, 2010 and December 1, 2011. See Cal. Energy Comm'n, Status of All Projects, http://www.energy.ca.gov/sitingcases/all_projects.html#approved (last visited Nov. 12, 2011). The Sierra Club sued CEC in December 2010 over its issuance of license for the Calico Solar Project—but none of the other nine CEC licenses—with the primary issue presented to the California Supreme Court under original jurisdiction to address whether or not the CEC license conditions "fully mitigated" the impact of the 663.5 MW project on the desert tortoise and its habitat. Sierra Club v. Energy Res. Conservation & Dev. Comm'n, No. S189387 (Apr. 13, 2011), available at http://appellatecases.courtinfo.ca.gov/search/case/disposition.cfm?dist=0&doc_id= 1966209&doc_no=S189387 (madnate/prohibition petition denied) (last visited Nov. 12, 2011); Petition for Writ of Mandate and Supporting Memorandum of Points and Authorities at 2, 26, Sierra Club v. Energy Res. Conservation & Dev. Comm'n, No. S189387, 2010 WL 5490945 (Apr. 13, 2011). CEC therefore retains broad discretion on the adequacy of its mitigation conditions under CEQA, so this substantive requirement of CEQA may not have material effect in explaining different substantive outcomes across states. Instead, the key legal constraints on ROWs that grant conditions and permits are likely to be state water law and the federal ESA.

²⁸⁶ CAL. WATER CODE § 10750(a) (West Supp. 2011).

²⁸⁷ Id. § 10750(b).

²⁸⁸ Id. § 10750.4.

²⁸⁹ Id. § 10753.7(1), (4).

²⁹⁰ Id. § 10753.8.

²⁹¹ Id. § 10753.2(a).

plan.²⁹² After drafting a management plan, the local agency must hold a second hearing to determine whether or not to adopt the plan.²⁹³ Moreover, if landowners who collectively own over 50% of the county's assessed land value make written protest to the plan, the groundwater plan may not be adopted.²⁹⁴

Although numerous local agencies within San Bernardino County and the surrounding area have enacted groundwater management plans, some aquifers exist outside the boundaries of these jurisdictions. Relevant to this Article, the aguifers underlying the Ivanpah Solar Electric Generating System are not governed by a local agency groundwater management plan.²⁹⁷ Although not managed by a groundwater plan, San Bernardino County has promulgated an ordinance addressing these unmanaged aquifers.²⁹⁶ The ordinance requires any person or agency seeking to construct a new groundwater well within this region to file a written application to the San Bernardino County Director of the Department of Public Health for the Environmental Health Services Division.²⁹⁷ An application for a permit must include information regarding water use and effects on aquifer levels, including anticipated groundwater safe yield for the affected groundwater, anticipated pumping levels, anticipated return flows, and estimated natural recharge to the aquifer.²⁹⁸ The Environmental Health and Services Division may only approve plans that will not exceed groundwater safe yield in the specific aquifer.²⁹⁹ A permit may include conditions requiring applicants to manage, mitigate, and monitor these effects.³⁰⁰ Before issuing a permit, the Environmental Health Services Division must also complete an environmental impact report, as required by CEQA.³⁰¹ However, this ordinance does not apply to wells on federal lands unless otherwise stated in an interagency agreement or MOU.³⁰²

In addition to these general groundwater management provisions, the CEC's 2003 Integrated Management Policy Report (IMPR) provides that

²⁹² See id.

²⁹³ Id. § 10753.5(a).

 $^{^{294}}$ *Id.* § 10753.6. Note that this undemocratic decision rule strongly favors existing economic interests because the economic value of their land gives economically important landowners disproportionate voting power. A majority of citizens in a given jurisdiction may not be able to overcome this minority veto decision rule.

²⁹⁵ See U.S. BUREAU OF LAND MGMT., DEP'T OF THE INTERIOR, FEIS-10-31, CALIFORNIA DESERT CONSERVATION AREA PLAN AMENDMENT/FINAL ENVIRONMENTAL IMPACT STATEMENT FOR IVANPAH SOLAR ELECTRIC GENERATING SYSTEM 4.10-9 to -10 (2010).

²⁹⁶ SAN BERNARDINO CNTY., CAL., CODE OF ORDINANCES § 33.06552 (2011), *available at* http://www.amlegal.com/nxt/gateway.dll/California/sanbernardinocounty_ca/sanbernardinocounty_ca/sanbernardinocounty_ca (click on "Title 3," then on "Division 3," then on "Chapter 6," then on "Article 5").

²⁹⁷ *Id.* § 33.06554(a); *see id.* § 33.06553 (defining "enforcement agency" as the Board of Supervisors or the Director of the Department of Public Health, Environmental Health Services Division).

²⁹⁸ *Id.* § 33.06554(b).

²⁹⁹ *Id.* § 33.06554(d).

³⁰⁰ Id.

³⁰¹ Id. § 33.06554(e); see CAL. PUB. RES. CODE § 21100 (West 2007).

³⁰² SAN BERNARDINO CNTY., CAL., CODE OF ORDINANCES § 33.06552(c)(8) (2011).

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CEC, when issuing electric facility certification, will integrate a freshwater conservation provision promulgated by the State Water Resources Control Board (SWRCB).³⁰³ Specifically, the SWRCB provision prohibits SWRCB from authorizing facilities that propose to use freshwater for power plant cooling, unless use of another water source or cooling methods are environmentally undesirable or economically unsound.³⁰⁴ Thus, in the 2003 IMPR, CEC adopted this prohibition as a condition of its own certification approval. However, it is unclear whether all groundwater constitutes "freshwater" within the jurisdiction of either CEC or SWRCB³⁰⁵ and at least one applicant has challenged CEC requirements based on this ambiguity.³⁰⁶

VI. FAST-TRACK PROJECTS: COORDINATION IN SITE SPECIFIC ENVIRONMENTAL REVIEWS

This comparison of the institutional setting for siting and permitting in Nevada, Arizona, and California demonstrates that substantive and procedural differences exist among the three states that could affect BLM decision making. This is true despite the umbrella of consistent federal law across all BLM lands in the desert southwest under NEPA, the ESA, FLPMA, EPAct, and ARRA. State law and policy differ and those differences matter. Moreover, BLM traditionally operates through strong delegation of discretionary decisions to the State Director. We therefore expect to see significant variation across BLM ROW decision making in the three states. This Part explores this issue by examining the ROW review process for three large utility-scale projects that sought and received fast-tracked BLM ROW grants in Nevada, Arizona, and California.

³⁰³ CAL. ENERGY COMM'N, PUB. NO. 100-03-019, 2003 INTEGRATED ENERGY POLICY REPORT 40 (2003), *available at* http://www.energy.ca.gov/reports/100-03-019F.PDF.

³⁰⁴ Id.

³⁰⁵ "California is the only western state that still treats surface water and groundwater under separate and distinct legal regimes. . . . [T]he legal categories (e.g., 'subterranean streams flowing through known and definite channels,' 'percolating water') are drawn from antiquated case law and bear little or no relationship to hydrological realities." N. Gualala Water Co. v. State Water Res. Control Bd., 43 Cal. Rptr. 3d 821, 831 (Cal. Ct. App. 2006) (quoting Joseph L. Sax, *We Don't Do Groundwater: A Morsel of California Legal History*, 6 U. DENV. WATER L. REV. 269, 270, 274 (2003)).

³⁰⁶ Genesis Solar, L.L.C. Reply Brief in Support of Committee Scoping Order at 3, *In re* Application for Certification for the Genesis Solar Energy Project, No. 09-AFC-8 (Cal. Energy Res. Conservation & Dev. Comm'n Jan. 22, 2010), *available at* http://www.energy.ca.gov/sitingcases/genesis_solar/documents/applicant/2010-01-22_Applicants_Reply_Brief_In_Support_of_Cmmte_Scoping_Order_TN-54991.PDF.

A. Nevada: Silver State Solar Project

1. Las Vegas Resource Management Plan

The Silver State Solar Project lies on BLM lands in Nevada BLM's Southern Nevada District.³⁰⁷ The applicable RMP/LUP for this region is the Las Vegas Resource Management Plan (LVRMP).³⁰⁸ Thus, in the project area, BLM may only authorize land uses that conform to the LVRMP's guidelines.³⁰⁹ Most recently published in 1998, the LVRMP provides a multiple-use, sustained-yield framework for 3,332,000 acres of BLM lands stretching from Lake Mead, Arizona to Nellis Air Force Test and Training Range, Nevada to Death Valley National Park and San Bernardino County, California.³¹⁰ The LVRMP notes that this area encompasses a highly diverse planning region:

Landforms range from rugged mountain ranges, to sloping bajadas³¹¹and broad valleys. The Colorado River and several of its tributaries flow through the eastern portions of the planning area. New communities and developments... are expanding along the Colorado River, providing jobs and recreational opportunities in previously undeveloped areas. The Las Vegas Valley portion of the planning area is a major topographic feature, trending north-south through the middle of the planning area. This valley has a burgeoning metropolitan area, consisting of the cities of Las Vegas, North Las Vegas, Henderson, and Boulder City. Much of the planning area, however, remains remote and rural, with the population dispersed over large areas or clustered in small communities.³¹²

The LVRMP outlines conservation-oriented plans, measures, and policies to consider when authorizing ROWs. Reflecting the low level of renewable energy development pressure of the late 1990s, however, the LVRMP neither acknowledges nor provides guidance for electricity generation facility siting on federal lands in the Southern Nevada District. Instead, ROW objectives and directives focus on utility corridors.³¹³ The LVRMP recognizes that "[t]he Las Vegas area is a critical link in the complex network of interstate electrical transmission facilities" in California and the Intermountain region.³¹⁴ However, potential sites for these facilities may be limited by "increasing public opposition from residents of Las Vegas, [and] North Las Vegas ... to locating additional powerlines within their communities.³¹⁵ To this end, the LVRMP expresses a preference to site

³⁰⁷ See Las Vegas Field Office, Bureau of Land Mgmt., DOI No. FES 10-50, Volume I: Final Environmental Impact Statement for the Silver State Solar Energy Project 1-1 (2010).

³⁰⁸ LAS VEGAS FIELD OFFICE, BUREAU OF LAND MGMT., PROPOSED LAS VEGAS RESOURCE MANAGEMENT PLAN AND FINAL ENVIRONMENTAL IMPACT STATEMENT 1-2 (1998).

³⁰⁹ 43 C.F.R. § 1610.5-3(a) (2010).

³¹⁰ See LAS VEGAS FIELD OFFICE, supra note 308, at 1-2.

³¹¹ A "bajada" is a broad slope of alluvial material at the foot of an escarpment or mountain. WEBSTER'S THIRD NEW INTERNATIONAL DICTIONARY 164 (3d ed. 2002).

³¹² LAS VEGAS FIELD OFFICE, *supra* note 308, at 1-2, 1-4.

³¹³ See id. at 1-8 to -9.

³¹⁴ *Id.* at 1-8.

 $^{^{315}}$ Id.

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electric facilities that will supply power to Nevada as a higher priority over facilities providing power to the California grid.³¹⁶

In order to achieve these objectives and "resolve resource conflicts," the LVRMP's ROW management directives identify new utility corridors.³¹⁷ However, despite these acknowledged impacts on intra- and interstate electrical transmission, objectives and directives do not direct BLM to coordinate with Nevada agencies or officials. Instead, objectives focus on BLM lands in isolation.³¹⁸ Moreover, the LVRMP emphasizes that FLPMA requires BLM to designate utility corridors in order to prevent their proliferation across public lands.³¹⁹ Accordingly, the majority of ROW directives favor minimizing corridors and require measures such as establishing ROW exclusion areas and siting ROWs to the greatest extent possible on preexisting ROWs.³²⁰

The Southern Nevada District sets forth similar conservation-oriented guidelines in the LVRMP's water resource objectives and directives. The LVRMP notes that committed water resources in the Las Vegas BLM District have exceeded perennial basin yields since 1945.³²¹ Groundwater overdraft in the Southern Nevada District planning area contributes to declining water levels, land subsidence, declining water quality, and vegetation loss.³²² To this end, water resource objectives articulate that the Southern Nevada District BLM strives to maintain adequate water to meet LVRMP management objectives.³²³ Management directives require BLM to determine water needs and to file for appropriative water rights according to Nevada's water laws to meet this planning goal.³²⁴ Thus, in contrast to the LVRMP's ROW directives, this directive specifically advocates for coordination between BLM and state and local water agencies. The LVRMP also recognizes that future impacts to water resources may be moderated by mitigation measures implemented by outside sources or by the LVVWD, including recharge programs and mandatory conservation measures.³²⁵ The LVRMP does not explicitly address water quantity impacts from ROW grants and does not establish specific water resource directives concerning electricity generation facilities.

Although the LVRMP does not provide socioeconomic objectives or directives regarding BLM lands, the plan does identify and consider these

³¹⁶ See id.

³¹⁷ Id. at 1-9.

³¹⁸ See id. at 1-8 to -9.

³¹⁹ *Id.* at 1-9.

³²⁰ See id. at 2-26 to -27. Interestingly, the LVRMP also notes, for linear and areal ROWs together, "[b]ased on historical use, future [ROWs] would range from 0.5 to 1 acre for small projects ... and 100 to 500 acres for large projects." *Id.* at 4-41. In comparison, Nevada BLM anticipates that the Silver State Solar Project will occupy approximately 3000 acres of BLM lands. LAS VEGAS FIELD OFFICE, *supra* note 307, at ES-4.

³²¹ See Las Vegas Field Office, supra note 308, at 3-17, 3-19.

³²² Id. at 3-19.

 $^{^{323}\,}$ Id. at 2-9.

³²⁴ Id.

 $^{^{325}}$ Id. at 4-56.

influences on the region as a whole. The LVRMP highlights exceptional population growth in Las Vegas and surrounding communities.³²⁶ In 1995, the service industry was the most important source of income for both Clark and Nye counties, but Nye County also remained dependent on mining and mineral production.³²⁷ The LVRMP also describes tensions between increasing urban populations and rural communities. Urban populations expressed a greater desire for increased protection of wildlife and ecosystem values, while rural residents tout a more traditional western ethos, distinguished by emphases on self-reliance and a desire to live free from government interference.³²⁸ However, both populations expressed concerns regarding water use and the need for economic development to support economic growth.³²⁹ The LVRMP acknowledges "[t]he public lands in the planning area have important scenic, recreational, mineral, archeological, wilderness, wildlife, and vegetative values. Public uses of these resources often have an important role in the growth and development of local communities."330

On January 5, 2010, the Southern Nevada District announced its intent to update the current LVRMP in order "to cope with new uses of and demands on the public lands," including management of ROWs for renewable solar energy development, the first listed revision priority.³³¹ The Southern Nevada District invited forty-six federal, state, and local agencies

³²⁶ *Id.* at 3-80 to -81.

³²⁷ Id. at 3-81, 3-86 tbl.3-30.

³²⁸ *Id.* at 3-82. Nye County was ground zero for the anti-government, anti-environmental Wise-Use Movement in the 1990s when Nye County Commissioner Dick Carver illegally attempted to bulldoze a road into the Toiyabe National Forest. Patrick Austin Perry, Comment, *Law West of the Pecos: The Growth of the Wise-Use Movement and the Challenge to Federal Public Land-Use Policy*, 30 LOY. L.A. L. REV. 275, 275–76 (1996). Nye County is the third largest county in the contiguous 48 states, yet had a population of less than 50,000 in 2000 (making it one of the lowest-density counties). Nevada Comm'n on Econ. Dev., *Nye County: Overview*, http://www.diversifynevada.com/resources/nye_county (last visited Nov. 12, 2011); U.S. Census Bureau, *State and County QuickFacts: Nye County, Nevada*, http://quickfacts.census.gov/qfd/ states/32/32023.html (last visited Nov. 12, 2011). Nye County's official website today emphasizes the opportunities for renewable energy development in a place "where America's great entrepreneurial spirit drives a positive attitude toward new endeavors and opportunities." *Nye County Renewable Energy Resource Development Homepage*, http://www.nye-renewables.com/ index.html (last visited Nov. 12, 2011).

³²⁹ LAS VEGAS FIELD OFFICE, *supra* note 308, at 3-82. This concern has been expressed in the context of Las Vegas's aggressive attempt to appropriate groundwater from rural regions in Nevada to accommodate its own urban growth. *See* Matt Jenkins, *Vegas Forges Ahead on Pipeline Plan: Great Basin Pumping Project Is Closer to Reality*, HIGH COUNTRY NEWS, Oct. 12, 2009, http://www.hcn.org/issues/41.17/vegas-forges-ahead-on-pipeline-plan (last visited Nov. 12, 2011).

³³⁰ LAS VEGAS FIELD OFFICE, *supra* note 308, at 1-4.

³³¹ Notice of Intent To Prepare a Revision to the Las Vegas Resource Management Plan and Associated Environmental Impact Statement, Nevada, 75 Fed. Reg. 428, 428 (Jan. 5, 2010); U.S. Bureau of Land Mgmt., Dep't of the Interior, *RMP Revision for the Las Vegas and Pahrump Field Offices: Home*, https://www.blm.gov/epl-front-office/eplanning/planAndProjectSite.do?method Name=dispatchToPatternPage¤tPageId=12400 (last visited Nov. 12, 2011).

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to attend public scoping meetings.³³² This list includes the Southern Nevada Water Authority, which represents LVVWD, but excludes PUCN.³³³ Renewable energy received substantial public comment during the scoping meetings and via written comments and was second only to off-highwayvehicle (OHV) use in comment volume.³³⁴ Renewable energy concerns arose most frequently in communities close in proximity to proposed renewable energy development sites.³³⁵ Residents and landowners in these communities expressed concerns regarding preservation of natural viewshed and OHV use areas.³³⁶ Proponents of renewable energy also recommended that BLM only authorize project sites in previously disturbed areas and in areas away from communities.³³⁷ Public comments further "expressed concern over limited water resources on public lands and the need to determine the availability of water before public land is disposed or leased to energy developments and other uses that would require water."338 Comments also urged BLM to consider the socioeconomic impacts resulting from BLM decisions.³³⁹ The Southern Nevada District intended to issue the draft revised LVRMP and accompanying EIS in the spring of 2010, but no documents were released after the public scoping meetings were held in early 2010.³⁴⁰

2. Silver State Final Environmental Impact Statement and Record of Decision

Nevada's Utility Environmental Protection Act, state and local water resource regulations and rules, and the LVRMP provide a window into the land use concerns of these various national, regional, and local constituencies. Moreover, although not legally binding, the revised LVRMP scoping comments also portray current and prospective concerns that should be considered in the Southern Nevada District's public lands management decision-making process. Overall, the letter of the law for state and federal actors expresses a cautious approach to siting public utilities or corridors on public lands. Both legal jurisdictions seek to minimize utility facilities, except where absolutely necessary, and display concern for resulting environmental damage. Likewise, statutes, rules, and the LVRMP seek to balance water use and conservation and recognize the need to carefully distribute this dwindling, over-utilized resource. Neither state nor

³³³ *Id.* at 7 tbl.1.

³³² LAS VEGAS & PAHRUMP FIELD OFFICES, U.S. BUREAU OF LAND MGMT., FINAL SCOPING REPORT FOR THE LAS VEGAS/PAHRUMP RMP REVISION 7 tbls.1 & 2 (2010).

³³⁴ See id. at 9–15 fig.4, tbls.4 & 6.

³³⁵ See id. at 10.

³³⁶ Id.

 $^{^{337}}$ Id. at 18.

³³⁸ *Id.* at 20.

³³⁹ Id.

³⁴⁰ U.S. Bureau of Land Mgmt., Dep't of the Interior, *RMP Revision for the Las Vegas and Pahrump Field Offices: Timeline*, https://www.blm.gov/epl-front-office/eplanning/planAndProjectSite.do?methodName=dispatchToPatternPage¤tPageId=12403 (last visited Nov. 12, 2011).

federal law proscribes employment or labor standards with regard to public utilities development. However, the current and prospective LVRMP acknowledge the impact from federal land use management plans on socioeconomic factors. NEPA regulations also require BLM to consider these factors when completing the site-specific EIS.³⁴¹

These land-use cautions and concerns contrast with compelling state and federal initiatives to develop renewable energy incentives on Nevada's BLM lands. The following describes the Silver State Solar Project, a renewable energy project authorized in Nevada BLM's Southern Nevada District. We describe how this tension between conservation and sustainable use manifests itself in the project's final EIS and ROW grant. This Part then analyzes the collaborative methods employed to navigate this tension and to formulate the final grant.

a. Project Description and Siting

The Silver State Solar Project site lies two miles east from the nearest settlement of Primm in Clark County, Nevada and forty miles south from Las Vegas.³⁴² The site sits entirely on BLM lands.³⁴³ The proposed solar field envisioned by the applicant, NextLight Renewable Power, LLC,³⁴⁴ would employ PV panels to generate and provide 400 MW of electricity to Nevada and California's transmission systems.³⁴⁵ The proposal divides the project into two separate generation facilities: Silver State North and Silver State South.³⁴⁶ NextLight filed separate ROW applications with BLM for each of the two facilities.³⁴⁷

To complete these two anticipated facilities, the project would require three separate construction phases.³⁴⁸ The smaller of the two facilities, Silver State North, would contribute sixty MW to Nevada's public electric portfolio by coordinating with prominent electric provider, Nevada Energy, and by connecting to the nearby, preexisting Walter M. Higgins transmission substation.³⁴⁹ Silver State North comprises the entirety of construction Phase I and demands an approximately 620-acre footprint to construct the

³⁴¹ See generally National Environmental Policy Act of 1969, 42 U.S.C. §§ 4331–4332 (2006).

 $^{^{342}\,}$ Las Vegas Field Office, supra note 307, at 1-1.

 $^{^{343}\,}$ See id.

³⁴⁴ First Solar, which manufactures PV cells using a different technology that was not considered in the Draft EIS, purchased NextLight Renewable Power, LLC, in 2010. *Id.* at 1-32; Camille Ricketts, *First Solar Buys Solar Developer NextLight for \$285M*, N.Y. TIMES, Apr. 28, 2010, *available at* http://www.nytimes.com/external/venturebeat/2010/04/28/28venturebeat-first-solar-buys-solar-developer-nextlight-fo-3147.html (last visited Nov. 12, 2011).

³⁴⁵ LAS VEGAS FIELD OFFICE, *supra* note 307, at 1-1.

³⁴⁶ U.S. BUREAU OF LAND MGMT., DEP'T OF THE INTERIOR, RECORD OF DECISION SEPTEMBER 2010: SILVER STATE SOLAR ENERGY PROJECT 7 (2010).

³⁴⁷ See id.

³⁴⁸ LAS VEGAS FIELD OFFICE, *supra* note 307, at 1-1.

³⁴⁹ *Id.* at 2-1.

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proposed solar field, plant, and associated facilities.³⁵⁰ NextLight proposes to complete Silver State South through construction Phases II and III, each respectively contributing 140 MW and 200 MW of capacity for the generation of power to be sold into the California public electric portfolio.³⁵¹ Thus, Silver State South would provide the greater balance (85%) of the combined facilities' 400 MW potential. Although NextLight requested an ROW grant from BLM for 7925 acres, the two proposed facilities would affect only 2967 acres of BLM land.³⁵² Solar arrays would cover 2575 acres, solar field access ways would occupy 84.7 acres, and the remaining acreage within the project area would remain undeveloped (in some cases, between the arrays or other project facilities such as roads) or be used to support other ancillary facilities.³⁵³ BLM completed a combined final EIS for both Silver State North and South facilities in September 2010.³⁵⁴ The following discusses BLM's Final EIS (FEIS) findings and recommended actions for the Silver State Solar Project regarding regional water resource concerns and national labor and employment concerns.

b. Water Resource Allocation

Water resource concerns feature prominently throughout the Silver State Solar Project FEIS. The proposed project lies in the Ivanpah Valley, which sits above the Great Basin and Ivanpah–Pahrump Valleys groundwater sub-basin.³⁵⁵ The Ivanpah Valley does not feature continual surface water resources, and therefore, groundwater aquifers must supply the entirety of water resources required by the Silver State Solar Project.³⁵⁶ Aquifers in the Ivanpah sub-basin receive groundwater recharge through runoff from mountain slopes and direct rainfall.³⁵⁷ The Northern portion of the Ivanpah basin possesses a perennial yield of 700 acre-feet/year (afy), while the Southern portion only yields 250 afy.³⁵⁸ From these limited annual recharges, water resources are already over-committed.³⁵⁹ The Northern Ivanpah basin already commits 2108 afy to designated uses (three times the

 $^{^{350}}$ Id. at 1-1; U.S. BUREAU OF LAND MGMT., supra note 346, at 4; LAS VEGAS FIELD OFFICE, U.S. BUREAU OF LAND MGMT., Ser. No. N-85077, RIGHT-OF-WAY LEASE/GRANT ¶ 2(b) (2010). For reference and scale, 640 acres equals one square mile.

 $^{^{351}}$ Las Vegas Field Office, supra note 307, at 1-1; U.S. Bureau of Land Mgmt., supra note 346, at 4.

³⁵² LAS VEGAS FIELD OFFICE, *supra* note 307, at 2-2, 2-8.

³⁵³ *Id.* at 2-2, 2-4 tbl.2.2-1. The fragmentation effects of the project on these lands that "remain" could be significant in terms of how "edge" effects may influence the behavior of any species dependent on relatively little habitat disturbance. *See, e.g.*, NELS JOHNSON, THE NATURE CONSERVANCY, PENNSYLVANIA ENERGY IMPACTS ASSESSMENT: REPORT 1: MARCELLUS SHALE NATURAL GAS AND WIND 10–11 (2010) (discussing the edge effect in forests fragmented by wind and natural gas development), *available at* http://www.nature.org/media/pa/tnc_energy_ analysis.pdf.

³⁵⁴ U.S. BUREAU OF LAND MGMT., *supra* note 346, at 7.

³⁵⁵ LAS VEGAS FIELD OFFICE, *supra* note 307, at 3-25.

³⁵⁶ See id.

 $^{^{357}}$ Id. at 3-28.

³⁵⁸ *Id.* at 3-28 tbl.3.5-1.

³⁵⁹ See id.

basin's historic safe yield), and the Southern Ivanpah basin commits 780.75 afy to designated uses (also just over three times its historic safe yield).³⁶⁰ The LVVWD owns the groundwater rights within the Las Vegas Valley.³⁶¹ To obtain water rights, NextLight filed for a water service agreement from the LVVWD to drill two wells in the Northern Ivanpah basin.³⁶²

Although the basin is currently overcommitted, the LVVWD permitted the agreement because water use in the basin for LVVWD customers is currently significantly lower than water commitments.³⁶³ The LVVWD Board finalized and approved this agreement in April 2010.³⁶⁴ The proposed project would require 600 acre-feet (ac-ft) of water throughout the project's fouryear construction period and would devote 95% of water use to dust control.³⁶⁵ In contrast, the solar facility would require only twenty-one afy for standard operation and maintenance of the project.³⁶⁶ Although the LVVWD granted NextLight's water request, the LVVWD still requires NextLight to take precautionary steps to protect its prior appropriators and the overall sustainability of the Northern Ivanpah basin. For example, if at any time during the project's life the LVVWD believes that project water withdrawals compromise customer or basin needs, NextLight must recharge the aquifer at a rate of 270 afy for the project's continued life.³⁶⁷ The agreement designates recharge from treated effluent disposed by the Jean correctional facility, located in Jean, Nevada.³⁶⁸ In addition, the FEIS also mandates that NextLight develop and implement a groundwater monitoring plan to meter project wells and provide monthly reports to LVVWD and quarterly reports on water use to BLM and Nevada's State Engineer.³⁶⁹

Moreover, water resource concerns influenced both the technology and preferred alternative choice selected by BLM's Southern Nevada District for the proposed project. NextLight initially proposed CST technology for the Silver State Solar Project, "but *because of the water demands of this technology*, it was rejected early in the NEPA process."³⁷⁰ Indeed, contrasted

 $^{^{360}}$ Id. However, these historic safe yield figures may not prove reliable in the face of climate change.

 $^{^{361}}$ See Act of March 27, 1947, ch. 167, 1947 Nev. Stat. 553, 553–56 (amended 1957) (creating and discussing the various powers of the water district).

³⁶² See LAS VEGAS FIELD OFFICE, supra note 307, at 4-24 to -25.

 $^{^{363}\,}$ Id. at 4-25 to -26.

³⁶⁴ Id. at 1-32.

 $^{^{365}}$ Id. at 2-38.

³⁶⁶ Id.

³⁶⁷ *Id.* at 4-26.

³⁶⁸ Id.

³⁶⁹ Id. at 4-27.

³⁷⁰ *Id.* at 2-5 (emphasis added). Professor Duane served on the board of directors of CSP/CST technology company, SkyFuel, Inc., from 2007 to 2009 and has consulted with a wide range of renewable energy companies—including CSP/CST, PV, wind, geothermal, biomass, landfill gas recovery, and small hydropower—utilities, nongovernmental organizations, and governments on energy, environmental, resource management, and land use policy and planning. Tim Duane, *Biography*, http://www.timduane.com/timduane.com/Biography.html (last visited Nov. 12, 2011). SkyFuel was not a technology provider to, or applicant for, any BLM ROWs in the desert Southwest during this period, but the SkyFuel technology has been deployed in a small pilot project by repowering part of the solar energy generating facilities in the region. *See* SkyFuel,

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to PV technology's typical annual water use of 21 afy, CSP's typical 300 to 3,000 afy³⁷¹ consumption seems downright gluttonous to some observers.³⁷² Likewise, BLM cites "Alternative 2" (the proposed project) as the preferred alternative compared to "Alternative 3," which would disturb more acreage and would therefore require more water for dust suppression during construction.³⁷³ Thus, water resource concerns have greatly affected the Silver State Solar Project's final plan, design, and operation.

c. Green Jobs: Labor and Employment

In contrast to water resource concerns, labor and socioeconomic factors appear to have no influence on the proposed project's final plan, design, and operation. However, the Silver State Solar Project FEIS stresses the positive impact renewable energy could have on employment prospects in rural and urban communities particularly hard hit by the 2008 housing collapse and subsequent recession.³⁷⁴ The surrounding Nevadan communities of Primm and Jean, like nearby Las Vegas, experienced rapid population growth between 2000 and 2008 and enjoyed a relatively low rate of unemployment at approximately 6.6%.³⁷⁵ In September 2009, the recession began to adversely impact the greater Las Vegas economy. Unemployment rates rose to 13%, and average regional housing prices fell by 55% from \$280,000 to \$125,000.³⁷⁶ In June 2010, 141,456 regional residents were

³⁷³ See Las Vegas Field Office, supra note 307, at 2-5.

³⁷⁵ LAS VEGAS FIELD OFFICE, *supra* note 307, at 3-101, 3-106 tbl.3.15-4.

Inc., *Applications: Standalone Plants*, http://www.skyfuel.com/#/OUR TECHNOLOGY/ APPLICATIONS/ (last visited Nov. 12, 2011) (describing the first commercial deployment of SkyFuel's technology in California's Mojave desert); *see also* SkyFuel, Inc., *SkyFuel Is a Privately-Held Company*, http://www.skyfuel.com/#/ABOUT COMPANY/INVESTORS/ (last visited Nov. 12, 2011) (noting SkyFuel's private investors).

³⁷¹ LAS VEGAS FIELD OFFICE, *supra* note 307, at 2-7 tbl.2.2-2

³⁷² See Basin & Range Watch, Save Ivanpah Valley!: Industrial Solar Energy Developments Threaten Desert, BASIN & RANGE WATCH, Feb. 15, 2009, http://www.basinandrangewatch.org/ IvanpahValley.html (last visited Nov. 12, 2011) (commenting on water use for Ivanpah solar project). CSP has some advantages over PV in terms of its potential to buffer both short-term and longer-term temporal variations in output through its thermal storage capabilities, however, so selection of PV technology has some costs. NICOLE T. CARTER & RICHARD J. CAMPBELL, CONG. RESEARCH SERV., R40631, WATER ISSUES OF CONCENTRATING SOLAR POWER (CSP) ELECTRICITY IN THE U.S. SOUTHWEST 2 (2009). CSP technology heats a fluid with solar energy to then generate power—typically through a heat exchanger and steam generation, but sometimes through direct-cycle technologies—while PV technology generates power through a photoelectrical effect within a fixed solar cell and therefore does not generate as much heat or water demand to cool. See id. at 2–3. CSP generation is less susceptible than PV to widely varying power output as a function of cloud cover. See id. at 2.

³⁷⁴ See id. at 3-106 to -107, 4-188 to -189. See also Buck Wargo, Las Vegas Economy Among Worst in the World, Report Says: City at No. 146 Among 150 Metro Areas in Study, LAS VEGAS SUN, Nov. 30, 2010, http://www.lasvegassun.com/news/2010/nov/30/report-las-vegas-economy-ranks-worldwide-among-bot (last visited Nov. 12, 2011) (reporting that Las Vegas ranked 14th among 150 metropolitan studied areas from 1993 through 2007, dropped to 128th in 2008 through 2009, and dropped further to 146th in 2010).

 $^{^{376}\,}$ Id. at 3-103, 3-106 tbl.3.15-4.

unemployed.³⁷⁷ Although the leisure and hospitality industry serves as the area's leading employer, construction typically accounted for 8.6% of local income in 2009 (down from 10.2% in 2008).³⁷⁸ The construction industry was "[p]articularly hard hit" and "shed over 20,000 jobs (29% of the total job losses)" during the recession.³⁷⁹ Furthermore, "[t]he most recent available data show that the construction industry has yet to stabilize."³⁸⁰

Although not expressly manifested in conditions or alterations to the final project, the likely influence of labor and employment concerns on Nevada BLM's final project approval surfaces in textual evidence throughout the project's FEIS. For example, the FEIS employs strong words to describe renewable energy's employment potential: "Since the area is in the midst of a recession, social attitudes towards future employment opportunities and cross training are favorable and hopeful.... The livelihood of this group depends on economic opportunities for sustainably developing renewable energy in the region."³⁸¹ Nevada BLM acknowledges that the greatest employment potential will arise from short-term construction positionsthroughout the four-year construction period the maximum local workforce will average 280 workers, while permanent operations and maintenance positions will only yield fifteen positions.³⁸² However, Nevada BLM does not discount the impact from these construction period positions based on their limited duration. Rather, the agency examines the economic impact from both short-term and long-term employment in an expansive and holistic manner. The final EIS notes that the project will employ mostly local workers, and on-site construction jobs traditionally pay relatively high wages.³⁸³ Moreover, "clean energy/renewable energy opportunities [] are expected to grow at above-average rates and pay above-average wages."³⁸⁴ Nevada BLM also examined potential indirect economic effects from shortterm and long-term construction employment and found that direct employment would increase direct expenditures on locally procured materials, equipment, and supplies.³⁸⁵ The proposed project would, in fact, create a 60% increase in total jobs in the region, as "generated through the multiplier impact, once indirect and induced jobs are taken into account over the [project's] four-year construction period."386

³⁷⁷ Id. at 4-122.

³⁷⁸ *Id.* at 3-108.

³⁷⁹ *Id.* at 3-107.

 $^{^{380}}$ Id; see Wargo, supra note 374 (stating Las Vegas metro unemployment was at 14.1% in November 2010).

³⁸¹ LAS VEGAS FIELD OFFICE, *supra* note 307, at 3-104 (emphasis added).

³⁸² Id. at 4-122.

³⁸³ *Id.* at 4-126. The FEIS does not define "local" worker, while the PEIS discussed below relies on a concept of "Regions of Influence" to assess work force impacts. *See* U.S. BUREAU OF LAND MGMT., DEP'T OF THE INTERIOR & U.S. DEP'T OF ENERGY, *supra* note 69, at 6-52 to -53, 16-64 (defining "Regions of Influence" as areas "occupied by affected resources and the distances at which impacts associated with license renewal may occur" and applying this concept to a study on human and environmental impact).

³⁸⁴ LAS VEGAS FIELD OFFICE, *supra* note 307, at 4-126.

 $^{^{385}\,}$ Id. at 4-122 to -123.

³⁸⁶ *Id.* at 4-126.

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Finally, the FEIS also accounts for the important psychological benefit employment bestows upon individuals and communities:

[C]onstruction workers and suppliers to the utility scale solar installation industry have a vested interest in seeing the Proposed Project through to completion.... [T]he social well-being of this group would be enhanced as the construction phase mobilization of manpower, materials, equipment, and supplies would provide a much needed stimulus to this sector of the regional economy. Although the construction phase of the Proposed Project would be short term, the sense of positive social well-being would arise from the participation of this group in the industry's development and the experience of having worked on a utility scale project. Positive social well-being also comes with developing experience and knowledge of utility scale installation ... of solar assets that can potentially lead to future contracts in this growing industry.³⁸⁷

Therefore, in this manner, labor and socioeconomic concerns certainly may have contributed to BLM's final decision whether or not to approve the Silver State Solar Project and may contribute to agency decisions to approve renewable energy proposals in the future. Indeed, the DOI press release announcing the Silver State Solar Project approval opens with a quote from Secretary of the Interior, Ken Salazar touting, "Silver State is one of several renewable energy projects in the pipeline that will help Nevada and the nation create jobs as we build a clean energy economy."388 The press release follows this message by next citing the nation's demand for energy and need for energy independence.³⁸⁹ In addition, Nevada Public Utilities Commissioner, Rebecca Wagner, highlighted jobs and state income as key benefits of solar development at the unveiling of a similar PV facility in Boulder City, Nevada.³⁹⁰ The Commissioner professed, "We want people to know Nevada is open for business and we want to sell our solar, wind and geothermal."391 Public comments regarding the Silver State Solar Project Draft EIS, discussed below, emphasize the same desire to adopt the Silver State Solar Project as a means towards increasing and diversifying employment opportunities.³⁹²

 $^{^{387}}$ Id. at 4-123.

³⁸⁸ Press Release, U.S. Dep't of Interior, First-Ever Solar Project Approved on Public Lands in Nevada (Oct. 13, 2010), http://www.doi.gov/news/pressreleases/First-Ever-Solar-Project-Approved-on-Public-Lands-in-Nevada.cfm (last visited Nov. 12, 2011) (quoting Secretary of Interior Ken Salazar).

³⁸⁹ Id.

³⁹⁰ Stephanie Tavares, *Silver State Solar Powering California Utility Customers*, LAS VEGAS SUN, Jan. 30, 2009, http://www.lasvegassun.com/news/2009/jan/30/silver-state-solar-powering-california-utility-cus/ (last visited Nov. 12, 2011).

³⁹¹ Id.

³⁹² See infra notes 393–401.

d. Collaborative Process

The Silver State Project FEIS does not identify steps taken to coordinate with Nevada public agencies, and public information on BLM Nevada's website also fails to provide a window into the collaboration between state and federal agencies. However, CEQ NEPA regulations require BLM to include a summary of public comments in the EIS.³⁹³ Thus, the Silver State Project FEIS outlines responses and comments from public participation at draft EIS hearings and scoping meetings.³⁹⁴ Interestingly, similar to sentiments in the LVRMP, commentators were unsupportive of electricity from the project being sold to states outside Nevada.³⁹⁵ Likewise, commentators echoed concerns regarding impacts to local water resources, that included inquiries about alternative solar technologies.³⁹⁶ Although none of the written public comments submitted to BLM address labor concerns, union representatives were present at all three public meetings.³⁹⁷ One union representative spoke on behalf of the International Brotherhood of Electrical Workers (IBEW) at the Henderson, Nevada meeting, stating, "I represent about 4,000 workers with the IBEW Local 357. We have many of them [] trained to install these types of projects... [and] we're in full support of this project."398 Four IBEW members commented at the meeting in Jean, Nevada, and one in Primm, Nevada.³⁹⁹ The members noted the union's investment in renewable energy training programs and stated, "[W]e're not just talking about this stuff, we are renewable energy."400 One member emphasized, "I've got a lot of history here. I have seven kids here. I want to stay here. I want to make sure the project goes in right. I want to make sure it goes in with good labor."401

e. Approved Project

The Southern Nevada District's October 12, 2010 Record of Decision (ROD) only approves NextLight's Silver State North application, Phase I of construction (accounting for only 15% of the total capacity for the project).⁴⁰² The ROD underscores two "key factors" in Nevada BLM's decision only to authorize the Silver State North application.⁴⁰³ First, BLM emphasizes that Silver State North "is a stand-alone renewable energy generating facility and has an existing power purchase agreement [PPA] with NV Energy," as well

³⁹³ 40 C.F.R. § 1503.4 (2011).

 $^{^{394}\,}$ Las Vegas Field Office, supra note 307, at 5-1 to -8.

 $^{^{395}\,}$ Id. at 5-3.

 $^{^{396}}$ Id. at 5-4.

³⁹⁷ See *id.* app. F, at F-5 (listing attendees as union representatives James Halsey, Chris Wile, and Edward Gering at each of three meetings, which are indicated by Comment Letters 0064, 0065, and 0066).

³⁹⁸ *Id.* app. F, at 0064-9 to -10.

³⁹⁹ See id. app. F, at 0065-10 to -14, 0066-10 to -11.

⁴⁰⁰ *Id.* app. F, at 0065-10.

 $^{^{401}}$ Id. app. F, at 0065-13 to -14.

 $^{^{402}\,}$ See U.S. Bureau of Land Mgmt., supra note 346, at 4, 7.

⁴⁰³ *Id.* at 8.

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as an approved interconnection agreement for the transmission of power.⁴⁰⁴ In contrast, NextLight proposes to sell energy from Silver State South to the California market, after Southern California Edison completes a transmission upgrade, the Eldorado–Ivanpah Transmission Project (EITP).⁴⁰⁵ However, as of fall 2010, the EITP was still undergoing environmental analysis.⁴⁰⁶ Thus, BLM opted to postpone approving Silver State South because the project lacked a concrete PPA and the facility's ultimate utility buyer for its power remained contingent on a pending transmission upgrade.⁴⁰⁷ Second, Nevada BLM highlighted concern for the effects on the desert tortoise population.⁴⁰⁸ A higher density of desert tortoises reside in the Silver State South portion of the proposed project site, and BLM believes this area may require additional wildlife consideration and further consultation with FWS. Therefore, NextLight's Silver State South application remains a pending application and may require supplemental NEPA analysis and public involvement before BLM approves this application.⁴⁰⁹

B. Arizona: Sonoran Solar Energy Project

1. Lower Gila South Resource Management Plan

The proposed Sonoran Solar Energy Project (SSEP) lies on BLM lands in Arizona BLM's Lower Sonoran Desert region.⁴¹⁰ The applicable RMP/LUP for this region is the Lower Gila South Resource Management Plan (LGSRMP).⁴¹¹ Originally published in 1985 and amended in 2005, the LGSRMP designs controls for future management actions for 2,009,232 acres of BLM lands in southern Arizona, passing through Maricopa, Pinal, Pima, Yuma, and La Paz counties.⁴¹² The managed area "consists of broad desert basins bound by relatively low desert mountain ranges... [and g]ranite mountains dominate the area, which is drained by the Gila River."⁴¹³

⁴⁰⁴ Id.

⁴⁰⁵ LAS VEGAS FIELD OFFICE, *supra* note 307, at 1-1.

⁴⁰⁶ See U.S. BUREAU OF LAND MGMT., supra note 346, at 8.

 $^{^{407}}$ Id.

⁴⁰⁸ Id.

⁴⁰⁹ Id.

⁴¹⁰ U.S. Bureau of Land Mgmt., Dep't of the Interior, *Ariz. BLM Planning Areas 2010, available at* http://www.blm.gov/pgdata/etc/medialib/blm/az/pdfs/planning.Par.74858.File.dat/ PlanningAreas.pdf (visualizing on a map the location of the "in progress" Sonoran Desert RMP); Lower Sonoran Field Office, U.S. Bureau of Land Mgmt., *Map 1: Sonoran Solar Energy Project Location and Surrounding Land Ownership, available at* http://www.blm.gov/pgdata/etc/ medialib/blm/az/pdfs/energy/sonoran-solar/deis/maps.Par.18793.File.pdf/Map01.pdf.

⁴¹¹ LOWER SONORAN FIELD OFFICE, U.S. BUREAU OF LAND MGMT., SONORAN SOLAR ENERGY PROJECT FINAL ENVIRONMENTAL IMPACT STATEMENT 1-16 (2011).

 $^{^{412}}$ Phoenix Dist. Office, U.S. Bureau of Land Mgmt., Lower Gila South: Resource Management Plan Environmental Impact Statement Phoenix District, Arizona: Final 1 (1985); Phoenix Field Office, U.S. Bureau of Land Mgmt., Approved Amendment to the Lower Gila North Management Framework Plan and the Lower Gila South Resource Management Plan and Decision Record 1 (2005).

⁴¹³ PHOENIX DIST. OFFICE, *supra* note 412, at 25.

Although LGSRMP was updated much more recently (2005) than the LVRMP (1998), the LGSRMP still does not provide management objectives or directives for renewable energy, siting utility generation facilities, or ROWs. This shows how recently these issues have become central for BLM planners in the renewable resource-rich southwestern United States. Utility corridor guidelines are the featured directives that most closely resemble any form of planning initiative that would address similar utility concerns. The 1985 LGSRMP notes an increase in need for utility corridors due to construction of the Palo Verde Nuclear Generating Station, which divides distribution of its power output between Arizona, California, New Mexico, and Texas.⁴¹⁴ In order to accommodate this system, and to "provide for the orderly development of future systems," the LGSRMP designates ten utility corridors in the planning area to allow space for powerline and pipeline construction.⁴¹⁵ The LGSRMP notes that, without this action, utility lines may be sited in previously untouched areas and may damage significant wildlife habitat.416 BLM amended this plan in 2005 in order to expand the RMP's recreation management, to improve resource protection, and to implement internal directives and policy changes.⁴¹⁷ These amendments do not address renewable energy or otherwise alter the 1985 utility provisions mentioned above.

The LGSRMP also fails to provide any management objectives or directives regarding water resources within the planning area. The plan's EIS briefly notes that groundwater "[w]ells are the most dependable source of water in the area."⁴¹⁸ The 2005 amendments also remain silent regarding water resource use.

Not surprisingly—since it does not anticipate significant development along these lines—the LGSRMP also does not account for socioeconomic effects arising from renewable energy, utility generation facilities, ROWs, or utility corridors. The LGSRMP EIS was not fully updated during the process to adopt the 2005 amendments.⁴¹⁹ Thus, in areas unaddressed by these amendments, the LGSRMP reflects conditions in the area in 1982, when BLM prepared the LGSRMP published in 1985. In 1982, the services and retail trade were the two largest employment sectors in the planning area.⁴²⁰ However, the twenty-eight-year-old plan dedicates the majority of its socioeconomic focus to ranching demographics and underscores that:

⁴¹⁴ Id. at 18.

 $^{^{415}}$ Id.

⁴¹⁶ *Id.* at 63.

 $^{^{417}\,}$ Phoenix Field Office, supra note 412, at 1.

⁴¹⁸ PHOENIX DIST. OFFICE, *supra* note 412, at 36.

⁴¹⁹ See PHOENIX FIELD OFFICE, *supra* note 412, at iii (acknowledging that "[d]ecisions pertaining to wild horse and burro management were deferred to subsequent planning"); *see, e.g.*, U.S. Bureau of Land Mgmt., Dept. of the Interior, *Final EISs*, http://www.blm.gov/az/st/en/info/nepa/environmental_library/eis.html (last visited Nov. 12, 2011) (listing as most recent the 1988 Lower Gila South EIS).

 $^{^{420}\,}$ Phoenix Dist. Office, supra note 412, at 39.

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[R]esidents of the local area have a high regard for ranching, are concerned for its future, and do not feel it represents any kind of problem for public land use. Residents of the local area tend to favor efforts that would reduce the amount of land in federal administrative ownership. Generally, they feel that private ownership would be more beneficial.⁴²¹

The LGSRMP appears to balance the tension between BLM's multipleuse, conservation-oriented mandate by setting aside specific wilderness areas to honor this latter value.⁴²² The 2005 amendments further bolster this conservation tactic by decreasing acreage available for disposal from the planning area, standardizing certain habitat provisions for desert tortoise, and augmenting big horn sheep populations.⁴²³ The original 1985 LGSRMP documents divided public attitudes towards these efforts. For example, during RMP drafting in 1982, the Phoenix metropolitan area expressed general support for wilderness designation due to concerns regarding increased land use demands and population growth in the Phoenix area.⁴²⁴ In contrast, BLM's draft RMP proposal questionnaire revealed that local, rural "respondents in the LGSRMP/EIS area are less supportive of wilderness expansion than is the case statewide."425 In addition, the original EIS declares that a proposed resource protection alternative would engender negative attitudes towards BLM from local ranchers, while an environmental protection alternative would engender "extremely negative" attitudes.⁴²⁶

In the early 2000s, the Phoenix Field Office began efforts to gather information to complete fully updated and revised RMPs for the Lower Gila Management Area.⁴²⁷ The proposed, revised RMP would reorganize and integrate the area that currently comprises six separate, existing RMPs into two new RMPs.⁴²⁸ The RMP not only updates resource management and BLM policy directives, but also aims to accommodate and recognize the designation of the Sonoran Desert National Monument, established by

⁴²¹ *Id.* at 42. Many rural regions in the West have undergone significant socioeconomic changes since the RMP/LUP was adopted, however, which was completed in the wake of James Watt's attempts to privatize much of the public domain in the West in a reprise of the century-old laissez-faire public land disposal policies predating the Progressive Era. See SAMUEL P. HAYS, CONSERVATION AND THE GOSPEL OF EFFICIENCY: THE PROGRESSIVE CONSERVATION MOVEMENT, 1890–1920, at 66–90 (1959) for a discussion of the history of public lands through the Progressive Era. See WILLIAM R. TRAVIS, NEW GEOGRAPHIES OF THE AMERICAN WEST: LAND USE AND THE CHANGING PATTERNS OF PLACE 13–32 (2007) for a discussion of recent demographic trends.

⁴²² PHOENIX DIST. OFFICE, *supra* note 412, at 16, 18.

 $^{^{423}}$ Phoenix Field Office, supra note 412, at iii, 10–15. The federal ESA casts a long shadow across any public lands management question involving a species listed as threatened or endangered under the Act. See Guercio & Duane, supra note 178, at 297–98.

⁴²⁴ PHOENIX DIST. OFFICE, *supra* note 412, at 43.

 $^{^{425}}$ Id.

⁴²⁶ *Id.* at 72, 76.

 $^{^{427}\,}$ These efforts are independent of the amendments enacted in 2005.

⁴²⁸ PHOENIX FIELD OFFICE, U.S. BUREAU OF LAND MGMT., PRELIMINARY DRAFT MANAGEMENT ALTERNATIVES: PHOENIX SOUTH AND SONORAN DESERT NATIONAL MONUMENT PLANNING AREAS 3 & tbl.1-1 (2005).

Presidential Proclamation in 2001.⁴²⁹ Thus, the Arizona BLM is currently undertaking efforts to draft these two new RMPs, one for the Phoenix South Planning Area and another for the Sonoran Desert National Monument, that will supersede the six existing RMPs in this area.⁴³⁰

In contrast to the 1985 LGSRMP, the Preliminary Draft Management Alternatives Report from these efforts explicitly states the necessity to fulfill BLM's multiple-use mandate and identifies the Phoenix South RMP's "purpose [] to sustain the health, diversity, and productivity of the public lands and resources for the use and enjoyment of present and future generations, with multiple uses being the primary emphasis of management."⁴³¹ This report also notes that one of the significances of this purpose is that public lands help supply the needs of southern Arizona communities, including corridors for utilities and opportunities for renewable energy.⁴³²

The Preliminary Draft Management Alternatives provide objectives and directives for ROWs. Arizona BLM aims to evaluate designated corridors and ROW authorizations for need, purpose, effects on resources, and compatibility with other management decisions.⁴³³ The proposed alternatives recommend designating thirteen multipurpose transmission corridors and examining all other transmission uses on a case-by-case basis.⁴³⁴ Specifically, the proposal offers two renewable energy alternative directives: 1) Arizona BLM works with industry to designate areas where renewable energy development will be a priority, or 2) Arizona BLM evaluates renewable energy sites on a case-by-case basis and authorizes projects consistent with other management objectives.⁴³⁵ The second alternative also recommends prohibiting renewable energy development in Areas of Critical Environmental Concern (ACEC)⁴³⁶ and sensitive cultural and natural resource areas.⁴³⁷ The draft scoping report lists ACC as a coordinating state agency for the updated RMP.⁴³⁸

⁴²⁹ U.S. Bureau of Land Mgmt., Dep't of the Interior, *National Monuments*, http://www.blm.gov/wo/st/en/prog/blm_special_areas/NLCS/monuments.html (last visited Nov. 12, 2011).

⁴³⁰ PHOENIX FIELD OFFICE, *supra* note 428, at 3.

 $^{^{431}\,}$ Id. at 6.

 $^{^{432}}$ Id.

 $^{^{433}\,}$ Id. at 123 tbl.2-14.

 $^{^{434}\,}$ See id.

 $^{^{435}\,}$ Id. at 129–30 tbl.2-14.

⁴³⁶ FLPMA defines ACECs as "areas within the public lands where special management attention is required ... to protect and prevent irreparable damage to important historic, cultural, or scenic values, fish and wildlife resources or other natural systems or processes." Federal Land Policy and Management Act of 1976, 43 U.S.C. § 1702(a) (2006). ACECs must be nominated and designated by a State BLM Director following notice and comment periods according to processes set forth in 43 C.F.R. § 1610.7-2 (2010).

⁴³⁷ PHOENIX FIELD OFFICE, *supra* note 428, at 129–30 tbl.2-14.

⁴³⁸ PHOENIX FIELD OFFICE, U.S. BUREAU OF LAND MGMT., SCOPING REPORT: PHOENIX SOUTH AND SONORAN DESERT NATIONAL MONUMENT RESOURCE MANAGEMENT PLANS AND ENVIRONMENTAL IMPACT STATEMENT 1-5 (2003).

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The Preliminary Draft Management Alternatives also designate objectives and directives regarding water resource allocation. However, these goals remain limited. The draft alternative lists one goal: managing surface and groundwater resources to protect, maintain, and improve water quality.⁴³⁹ Another listed "goal" simply states "[s]urface and ground water is available and provides for the needs of natural resources and multiple-use resources."440 Alternative directives range from approving new water developments only when the development will not decrease water availability to approving proposed new water development, regardless of conservation concerns, whenever a project proponent demonstrates a need for water and will not conflict with other resource management goals.⁴⁴¹ All proposed alternatives call for evaluation and efforts to mitigate effects from proposed water uses on a project-by-project basis.442 In addition, all proposed alternatives would require coordination with ADWR and would incorporate restrictions and guidelines for the Phoenix AMA.⁴⁴³ The draft scoping report also lists ADWR as a coordinating state agency for the updated RMP.444

Lastly, public community workshops during the draft scoping period for the updated RMP reveal community values that desire to "maintain their current quality of life and general rural character while gaining additional amenities in their communities (such as better jobs, restaurants and movie theatres, and community services)."⁴⁴⁵ Although sparse comments mention a concern over water resource use and an interest in local employment prospects, the overwhelming body of comments reflects that area communities highly value the open space, solitude, and rural character of life that Arizona BLM lands in this region provide.⁴⁴⁶

Although these planning efforts reflect thought and movement towards future management goals, the Phoenix South RMP and Sonoran Desert National Monument RMPs will not govern management practices until after BLM completes a Final EIS and enacts a ROD for these plans. From information available on the Arizona BLM's planning website, the planning processes for these RMPs appear to have halted at the preliminary draft stages in 2005.⁴⁴⁷ Until these plans are enacted in a ROD, the 1985 LGSRMP, as amended in 2005, governs land use planning in this area.

 $^{^{439}\,}$ Phoenix Field Office, supra note 428, at 16 tbl.2-2-2.

⁴⁴⁰ Id.

⁴⁴¹ *Id.* at 40 tbl.2-2-4.

⁴⁴² *Id.* at 40–41 tbl.2-2-4.

⁴⁴³ *Id.* at 41 tbl.2-2-4.

⁴⁴⁴ PHOENIX FIELD OFFICE, *supra* note 438, at 1-6.

⁴⁴⁵ LOWER SONORAN FIELD OFFICE, U.S. BUREAU OF LAND MGMT., SONORAN DESERT NATIONAL MONUMENT & PHOENIX SOUTH COMMUNITY WORKSHOPS 2 (2003).

⁴⁴⁶ *Id.* at 2–6, 8–9, 14.

⁴⁴⁷ See U.S. Bureau of Land Mgmt., Dep't of the Interior, *Preliminary Draft Management Alternatives*, http://www.blm.gov/az/st/en/prog/planning/son_des/reports/prelim_alts.html (last visited Nov. 12, 2011).

2. Sonoran Solar Energy Project Final Environmental Impact Statement

The language and focus of the LGSRMP contrast sharply with that employed by Nevada and Nevada BLM, which were steeped in conservation principles. In Arizona, the LGSRMP instead approaches land use planning and management by providing selective guidance on discrete, highlighted resources. For example, the LGSRMP establishes specific wilderness areas for preservation, but fails to implement conservation provisions to preserve water resources throughout the planning region.⁴⁴⁸ The LGSRMP often appears to segregate uses rather than balance conservation and multiple-use within specific areas.⁴⁴⁹

In contrast, the ACC Certificate of Environmental Compatibility expresses a desire to review a potential utility site as a whole, with interconnected resources above and below the surface.⁴⁵⁰ To this end, the certificate process explicitly incorporates groundwater conservation efforts by a sister state agency, ADWR. Likewise, the proposed Phoenix South RMP also considers adopting a more inclusive and comprehensive scheme for land use planning. The Phoenix South RMP echoes the ACC's collaborative efforts by expressly recommending that Arizona BLM coordinate with ADWR to determine groundwater rights and to obtain allocations. These provisions not only highlight both an interest in a more holistic, collaborative approach to land management, but also demonstrate the importance of water resources to Arizona. The following Parts examine how BLM's SSEP Final EIS manifests Arizona's legal mandates and associated goals into proposed alternatives and provisions.

a. Project Description and Siting

The proposed site for the SSEP is in Little Rainbow Valley, Arizona south of the Town of Buckeye in Maricopa County.⁴⁵¹ The project site spans federal, state, and private lands.⁴⁵² The applicant, Boulevard Associates, LLC, proposes to construct a CST power plant and additional facilities to provide 375 MW of electricity to Arizona's transmission system.⁴⁵³ On June 28, 2007, the applicant filed a request for an ROW area of 14,759.39 acres.⁴⁵⁴ However, the final SSEP footprint would only occupy approximately 3620 acres for all facilities, including "power blocks, solar fields, evaporation ponds, [heat transfer fluid] land treatment areas, and required linear facilities."

Arizona BLM recognizes that, in deliberating on whether and in what form to authorize the SSEP, "BLM is committed to promoting the [EPAct] and providing for renewable energy projects on public lands where possible

⁴⁴⁸ See supra note 418 and accompanying text.

⁴⁴⁹ See supra notes 421–22.

⁴⁵⁰ See Ariz. Rev. Stat. Ann. § 40-360.06(A)(6)-(7) (2011).

⁴⁵¹ LOWER SONORAN FIELD OFFICE, *supra* note 411, at 1-1.

⁴⁵² Id. at 1-4 tbl.1.1.

 $^{^{453}}$ Id. at 1-1, 1-3.

 $^{^{454}}$ Id. at 1-1.

 $^{^{455}}$ Id.

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and where appropriate."⁴⁵⁶ The Final EIS purpose and need statement also emphasize that Arizona's demand for electricity is increasing with the state's growing population.⁴⁵⁷ Unlike Nevada's Silver State Project, which automatically dismisses CST power generation based on unacceptably high water use, the SSEP draft EIS purpose and need statement readily dismissed PV power generation based on potential customer needs, stating that customers "do not consider large scale photovoltaic (PV) facilities practical for commercial operation."⁴⁵⁸ In contrast, according to the SSEP draft EIS, customers find CST technology "very dependable (dispatchable) and valid for commercial applications." ⁴⁵⁹ However, in the Final EIS, PV technology is included as a low-water-use Sub-alternative A1.⁴⁶⁰

The SSEP Final EIS considers four alternatives: a no action alternative, the alternative proposed by the applicant, a reduced water alternative inclusive of Sub-alternative A1, and a reduced footprint alternative.⁴⁶¹ The following portion of this Part explores how Arizona BLM presents these three proposals and their pursuant environmental effects.

b. Water Resource Allocation

Water resource use is a critical distinguishing feature between each proposed alternative in the SSEP Final EIS. The proposed project area sits above the Rainbow Valley Sub-basin of the Phoenix AMA, and, due to unavailability or insufficient supply from surface water, groundwater must supply the SSEP's water use needs.⁴⁶² The Rainbow Valley Sub-basin recharges from natural flood flow from regional washes and from mountain front recharge.⁴⁶³ Average annual groundwater recharge equals approximately 2550 afy.⁴⁶⁴ However, "[g]roundwater recharge near the SSEP is believed to be minimal due to the lack of a mountain front capable of providing recharge, lack of a primary stream channel, and significant

 $^{^{456}}$ Id.

⁴⁵⁷ See id. at 1–3.

⁴⁵⁸ LOWER SONORAN FIELD OFFICE, U.S. BUREAU OF LAND MGMT., SONORAN SOLAR ENERGY PROJECT DRAFT ENVIRONMENTAL IMPACT STATEMENT 1–2 (2010).

⁴⁵⁹ *Id.* Note how the Nevada and Arizona BLM treated the desirability and feasibility of PV versus CSP/CST solar technologies differently; this may reflect differences in internal BLM assumptions or operations in each state, but in both cases the BLM draft EIS takes a position favoring the specific technology proposed by the applicant. Rapid reductions in the cost of PV technology from 2009 to 2011 have made many CSP/CST projects less economical than PV projects, however, causing some CSP/CST project developers to switch to PV-based technology in 2011. These include the first 500 MW of the 1000-MW Blythe Solar Power Project, which is being developed by the CSP/CST technology company, Solar Trust of America. *See* Press Release, Solar Trust of America, Solar Trust of America Chooses PV Technology for World's Largest Solar Facility (Aug. 18, 2011), *available at* http://blythesolarpower.org/sites/default/files/STA_Chooses_PV_technology_for_Blythe_Facility.pdf.

⁴⁶⁰ LOWER SONORAN FIELD OFFICE, *supra* note 411, at 2-2.

⁴⁶¹ *Id.* at 2-1.

⁴⁶² See id. at 3-108, 3-113.

⁴⁶³ *Id.* at 4-231.

⁴⁶⁴ *Id.* at 4-240

evapotranspiration."⁴⁶⁵ The Final EIS measures impacts from groundwater withdrawals based on drawdown or changes in groundwater levels.⁴⁶⁶

The proposed action is the most water consumptive SSEP alternative. The proposed action would feature two independent, concentrated solar generating facilities with electrical outputs of 125 MW and 250 MW.⁴⁶⁷ Both generating facilities would employ wet-cooling towers supplied with water from on-site groundwater wells.⁴⁶⁸ The proposed action would develop a well field located approximately one mile east of the power plant area and would include four wells with appurtenant pumping facilities.⁴⁶⁹ These wells would provide water for the plant's circulating steam generators, mirror washing, service water, potable water, and fire protection water.⁴⁷⁰ These daily water uses would consume between 6.3 and 8.2 ac-ft per day.⁴⁷¹ Peak daily use during summer months may range from 11.9 to 12.8 ac-ft per day, equaling an estimated annual consumptive rate of 2305 to 3003 afy.⁴⁷² The proposed action notes that a reverse osmosis filter must be installed for wet-cooling methods to meet the ADWR's fifteen-concentration-cycle requirement, as specified in the Phoenix AMA Plan.⁴⁷³

The proposed action would create drawdown in neighboring wells in the Rainbow Valley Sub-basin.⁴⁷⁴ This action proposes to pump between 1,429 and 1,862 gallons per minute (gpm) for the SSEP.⁴⁷⁵ Under this water use rate, after five years, drawdown between two to twelve feet would occur in seventy-nine to ninety neighboring wells in the Rainbow Valley Subbasin.⁴⁷⁶ After thirty years, this pumping rate would reduce Rainbow Valley groundwater reserves by 69,150 to 90,120 ac-ft, respectively.⁴⁷⁷ In addition, if the SSEP requires more than 1800 gpm for a five-year period, drawdown in six surrounding area wells would reach between ten and twelve feet and would require mandated waivers, according to ADWR requirements.⁴⁷⁸

In contrast, the Final EIS "Alternative A" presents a reduced water option, designed to address concerns identified during public scoping meetings regarding consumptive water use.⁴⁷⁹ This alternative proposes

⁴⁶⁵ *Id.* at 4-231.

 $^{^{466}}$ Id. at 4-230.

 $^{^{467}}$ Id. at 4-1.

⁴⁶⁸ *Id.* at 2-11. Wet-cooling CSP/CST technologies are less expensive but require significantly more water than dry-cooling CSP/CST technologies, which take more energy and therefore produce less net electricity output. U.S. DEP'T OF ENERGY, *supra* note 84, 11, 13–14 (2009). The combined effect of higher capital costs and reduced net generation increases dry-cooling costs per kilowatt-hour produced. *Id.* at 11.

 $^{^{469}\,}$ Lower Sonoran Field Office, supra note 411, at 2-15.

⁴⁷⁰ See id. at 2-45.

⁴⁷¹ *Id.* at 2-45 & tbl.2.7.

⁴⁷² Id.

 $^{^{473}}$ Id. at 2-46.

⁴⁷⁴ Id. at 4-230.

⁴⁷⁵ *Id.* at 4-232.

⁴⁷⁶ *Id.* at 4-233 to -234

⁴⁷⁷ Id. at 4-291.

⁴⁷⁸ Id. at 4-235.

⁴⁷⁹ *Id.* at 2-55.

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constructing the SSEP with a dry-cooling tower.⁴⁸⁰ As a result, the SSEP constructed according to Alternative A's design would use only 0.3 to 0.4 acft per day (116 to 151 afy) for operations and would require only two groundwater wells.⁴⁸¹ Thus, Alternative A saves approximately 2000 to 3000 afy, requiring 90% less net water use compared to the proposed action.⁴⁸² The Final EIS does not calculate groundwater modeling and projected drawdown measures for Alternative A.⁴⁸³ The Final EIS states the major drawback to employing dry-cooling towers rather than wet-cooling towers relates to generation efficiency as it would decrease total solar generation by 9% compared to the proposed action.⁴⁸⁴

The Final EIS also outlines "Alternative B," a reduced footprint model, designed to address concerns regarding impacts to water use, as well as impacts to wildlife corridors, impacts to residential areas, impacts to vegetation, and overall surface disturbance.⁴⁸⁵ This alternative would use wet-cooling methods, as in the proposed action, but would occupy only 63% of the proposed action's footprint, reducing it to 2136 acres.⁴³⁶ Due to the smaller facility size, water use would decrease to an annualized average of 4.2 to 5.5 ac-ft per day, or 1518 to 2003 afy.⁴⁸⁷ This model also requires only three groundwater wells and would consume 30% less water than the proposed action.⁴⁸⁸ The Final EIS does not calculate groundwater modeling or project drawdown for Alternative B, but notes that this alternative would decrease total solar generation by 33% compared to the proposed action.⁴⁸⁹ Lastly, the Final EIS proposes to reduce water use by installing brine concentrators.⁴⁹⁰ This technology would reduce water use by 7% in both the Proposed Action and Alternative B and would only marginally decrease electricity output.⁴⁹¹ The Final EIS does not calculate groundwater modeling or drawdown for this alternative.492

The draft EIS alternatives "considered . . . but eliminated from detailed analysis" included two reduced water options: hybrid cooling and utility-scale PV energy production.⁴⁹³ The Final EIS notes that hybrid cooling would combine the wet- and dry-cooling tower technologies featured in the proposed action and Alternative A.⁴⁹⁴ This proposal would result in 27% less water use than the proposed action.⁴⁹⁵ The draft EIS rejected this option

480 *Id.*481 *Id.* at 2-55, 2-57 tbl.2.11.
482 *Id.* at 4-237.
483 *Id.*484 *Id.* at 2-55.
485 *Id.* at 2-72.
486 *Id.*487 *Id.* at 2-72, 2-74 & tbl.2.13.
488 *Id.* at 2-72.
489 *Id.*490 *Id.* at 2-74.
491 *Id.* at 4-239.
492 *Id.*493 LOWER SONORAN FIELD OFFICE, *supra* note 458, at 2-44 to -46.
404 *M.* at a 2-72.

⁴⁹⁴ LOWER SONORAN FIELD OFFICE, *supra* note 411, at 2-76.

 $^{^{495}}$ *Id.* at 2-77.

because this model requires the applicant to construct both a dry- and wetcooling tower and this system does not achieve the same level of water savings as a dry-cooled system for roughly comparable costs.⁴⁹⁶ While the draft EIS also dismisses PV technologies, despite significant water savings, because this technology would not accommodate the dispatch that Arizona utilities need to meet demand during peak load periods, the Final EIS reconsidered these technologies.⁴⁹⁷ The PV alternative in the Final EIS would use 98% less water than the proposed action and "[n]o modeled detectable drawdown to previously existing wells would occur," making it the agency preferred alternative.⁴⁹⁸

c. Green Jobs: Labor and Employment

The SSEP Final EIS demonstrates that the SSEP would have an overall positive impact on the labor, employment, and general economic conditions in the southern Phoenix planning area. The Final EIS explores the economic impact from the SSEP on both Maricopa and Pinal counties, Arizona.⁴⁹⁹ Maricopa County is the most populous county in the state, and Pinal County is the third most populous.⁵⁰⁰ Both areas experienced dramatic population growth between 2000 and 2008, with an increase in Maricopa County at 28% and an increase in Pinal County at 82%.⁵⁰¹ Population growth has slowed in both areas, however, due to the recent economic recession.⁵⁰² In fact, both counties suffered especially high job loss rates—Maricopa County, Arizona; Las Vegas, Nevada; and Riverside, California currently lead the nation in this loss and housing foreclosures.⁵⁰³ The unemployment rate in the

⁴⁹⁶ LOWER SONORAN FIELD OFFICE, *supra* note 458, at 2-46.

⁴⁹⁷ Id.; LOWER SONORAN FIELD OFFICE, supra note 411, at 2-78. In regards to this dismissal, the draft EIS states "it has been reiterated that customers explicitly request a source of dispatchable generation at this project ... [and t]hus, a PV alternative at this site would likely not be supported by customers, and would potentially result in the abandonment of the SSEP.' LOWER SONORAN FIELD OFFICE, supra note 458, at 2-47. Electrical generation from both PV and CSP/CST technologies may fluctuate as a function of solar insolation as cloud cover may impede the sun's energy from reaching the solar receivers. Id. at 2-48. The generating output of CSP/CST technologies are buffered in part by the thermal mass of the receiving fluid, however, which must then be transferred to steam and a generator before producing electrical output to the grid. See id. Both PV and CSP/CST technologies can reduce this variability and provide more valuable "dispatchable" power through the use of storage technologies (e.g., batteries or Compressed Air Energy Storage for PV; molten salt for CSP/CST) but these storage technologies are more expensive and generally have not been a part of project designs except when the economics of power sales—where prices are high even when solar insolation is low-warrant such investment. Id. at 2-5 to -6; see also James Montgomery, Putting PV and Energy Storage Together; RENEWABLEENERGYWORLD.COM, July 12, 2011, http://www.renewable energyworld.com/rea/news/article/2011/07/putting-pv-and-energy-storage-together (last visited Nov. 12, 2011).

⁴⁹⁸ LOWER SONORAN FIELD OFFICE, *supra* note 411, at ES-1, ES-9, 2-2.

⁴⁹⁹ *Id.* at 3-63.

⁵⁰⁰ Id.

 $^{^{501}}$ Id. at 3-64.

⁵⁰² Id. at 3-63.

⁵⁰³ *Id.* at 3-67, 3-70.

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Maricopa area increased from 5.1% in July 2008 to 8.4% in July 2009.⁵⁰⁴ The construction industry shed the most employment, with a loss of approximately 32,500 positions.⁵⁰⁵ Of these losses, 70% occurred in Maricopa County.⁵⁰⁶

The Final EIS notes that the SSEP could alleviate job loss by employing an average of 874 full-time workers for the project's three-year construction period and employing a staff of eighty full-time workers for the project's entire expected life.⁵⁰⁷ During the construction period, the project would require carpenters, electricians, insulators, ironworkers, cement masons, mill wrights, operating engineers, painters, pipefitters, and general skilled and unskilled laborers.⁵⁰⁸ The project would employ workers from the construction workforce in the region and could employ the region's "plentiful" and available workforce, currently unemployed due to the economic recession and weakened housing market.⁵⁰⁹ During construction, the SSEP would also support 702 induced and indirect jobs for each of the three construction years.⁵¹⁰ Total sales and revenues from direct and indirect economic impacts would total \$221.6 million and would benefit many sectors, including construction, wholesale trade, food services and drinking establishments, real estate, hospitals, and retail sales.⁵¹¹ Purchases from these industries would be subject to both state and local sales taxes and would contribute to both state and local community tax funds.⁵¹² During operations, state and local communities also levy taxes for transaction privileges and property.⁵¹³ Therefore, the proposed project would provide additional annual funding to applicable school districts, cities, counties, and the State of Arizona.⁵¹⁴ Thus, a short-term beneficial impact to nearby communities would arise by re-employing a significant labor market. Likewise, the project's eighty permanent positions and tax revenue would provide long-term benefits to the region.

The Final EIS also identifies negative social impacts that may arise. Despite potential employment benefits, the Final EIS notes "[t]he communities closest to the Project Area would likely notice adverse impacts to their current rural quality of life."⁵¹⁵ The area outside the Phoenix metropolitan area, including communities closest to the project area, Buckeye and Goodyear, Arizona, have "historical connections to farming and ranching [and t]he rural, moderately developed area has recently begun to feel development pressure as the urban growth ... presses south and

west.^{*516} These sentiments are in tension with a simultaneous community desire to develop economic growth.⁵¹⁷ However, the Final EIS relates that construction noise and the ultimate visual disturbance from the SSEP "may adversely impact those residents and visitors to the area who have previously identified with the area as a moderately developed, rural landscape."⁵¹⁸ Moreover, "[t]hose members of the community who have an adverse reaction to a change in their perceived quality of life may choose to move from the area. People who are seeking to relocate to a rural and moderately developed community ... may not be attracted to the area and choose to live elsewhere."⁵¹⁹

d. Collaborative Process

The Final EIS states that BLM invited twenty federal, state, and local agencies to participate as cooperating agencies.⁵²⁰ Although Arizona Game and Fish Department and ADWR accepted this invitation and executed a MOU with Arizona BLM, ACC has not participated as a cooperating agency.⁵²¹ Arizona BLM and ADWR, however, did not formalize their relationship until after the issuance of the draft EIS.⁵²²

The Final EIS for the SSEP issued on October 21, 2011.⁵²³ BLM "modified the evaluation to include a photovoltaic (PV) alternative as part of its consideration of low-water-use technology," announcing the inclusion of this new alternative (Sub-alternative A1) in a newsletter mailed to stakeholders in May 2011.⁵²⁴ BLM then identified Sub-alternative A1 as its preferred alternative in the Final EIS despite the original proposal to use CST technology.⁵²⁵ The primary reason, according to BLM, is that the PV alternative would cause no detectible drawdown as it uses 98% less water than the proposed action, which is based on CST technology.⁵²⁶ Finally, the surface disturbance under Sub-Alternative A would result in 44% less surface

⁵²⁰ LOWER SONORAN FIELD OFFICE, *supra* note 411, at 5-6.

 $^{^{516}}$ Id. at 4-122 to -123.

⁵¹⁷ See id.

⁵¹⁸ *Id.* at 4-123.

⁵¹⁹ *Id.* There may be a split within the community over these issues, for land development and growth issues often generate conflict over values and interests. See generally TIMOTHY P. DUANE, SHAPING THE SIERRA: NATURE, CULTURE, AND CONFLICT IN THE CHANGING WEST (1999), for a detailed case study of how local political conflict reflects these differences. Such conflicts are especially likely in communities undergoing rapid socioeconomic transformations.

⁵²¹ Id.

 $^{^{522}}$ Id.

⁵²³ LOWER SONORAN FIELD OFFICE, U.S. BUREAU OF LAND MGMT., SONORAN SOLAR ENERGY PROJECT FINAL ENVIRONMENTAL IMPACT STATEMENT (2011), *available at* http://www.blm.gov/az/st/en/prog/energy/solar/sonoran_solar/maps/feis.html.

⁵²⁴ U.S. Bureau of Land Mgmt., Dep't of the Interior, *Final Environmental Impact Statement Issued*, http://www.blm.gov/az/st/en/prog/energy/solar/sonoran_solar.html (last visited Nov. 12, 2011); *Sonoran Solar Energy Project Update: Project Focused on Reduced Water Use PV Technology*, (BLM/Sonoran Solar Energy Project, Phoenix, Ariz.), May 2011.

⁵²⁵ LOWER SONORAN FIELD OFFICE, *supra* note 411, at ES-1.

⁵²⁶ *Id.* at ES-9, 2-2.

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disturbance (and its attendant impacts) than the original Proposed Action while still generating 89% of the power of the original Proposed Action.⁵²⁷

C. California: Ivanpah Solar Electric Generating System

1. California Desert Conservation Area Plan

The proposed Ivanpah Solar Electric Generating System (ISEGS) is located on BLM lands in California BLM's California Desert Conservation Area (CDCA).⁵²⁸ The applicable RMP/LUP for this region is the California Desert Conservation Area Plan (CDCAP), as amended.⁵²⁹ Unique to BLM California desert lands, FLPMA provides specific, separate statutory provisions and guidelines governing land use planning measures in this region.⁵³⁰ In enacting FLPMA, Congress found that the "extremely fragile" California desert contains a vast array of cultural, economic, recreational, educational, and scientific resources distinctively located near a rapidly growing population.⁵³¹ These considerations led Congress to initiate further studies regarding "the relationship of man and the California desert environment" and to establish the California Desert Conservation Area Advisory Committee, a group representative of citizens' interests, to assist with creating the CDCAP.⁵³²

The CDCAP aims to provide direction for public land use in order to avoid conflict between competing uses, as well as between use and conservation.⁵³³ The CDCAP expresses the need to employ the CDCA as a supply source for meeting the social and economic needs of the country.⁵³⁴ The CDCAP stresses the importance of resource use, but tempers these sentiments with principles aimed at moderation, which will hopefully ensure continuing use into the infinite future.⁵³⁵ For example, introductory language provides: "Maintenance of the productive potential of these resources on a global scale will determine the future of mankind, thus this must be the heart and foundation of any land-use plan."⁵³⁶ The CDCAP sets forth management principles for 12 million acres of California BLM lands, spanning three deserts: the Mojave, the Sonoran, and a smaller portion of the Great Basin.⁵³⁷ This area features valleys, bajadas, pediments,⁵³⁸ "rough-

 $^{^{527}}$ Id. at 2-2.

⁵²⁸ U.S. BUREAU OF LAND MGMT., *supra* note 295, at 2-1.

⁵²⁹ Id. at 2-7.

⁵³⁰ Federal Land Policy and Management Act of 1976, 43 U.S.C. § 1781(d) (2006).

⁵³¹ Id. § 1781(a)(1)-(3).

 $^{^{532}}$ Id. \$ 1781(a)(6), (g)(1). See generally ELISABETH M. HAMIN, MOJAVE LANDS: INTERPRETIVE PLANNING AND THE NATIONAL PRESERVE (2003) for an excellent discussion of the range of citizens' interests represented in the region. Also see DAVID DARLINGTON, THE MOJAVE: A PORTRAIT OF THE DEFINITIVE AMERICAN DESERT 9–13 (1996) for a sense of the place.

⁵³³ U.S. BUREAU OF LAND MGMT., *supra* note 1, at 6.

 $^{^{534}}$ Id.

 $^{^{535}}$ Id.

⁵³⁶ Id.

 $^{^{537}\,}$ Id. at 3.

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hewn" mountain ranges, washes, sand dunes, dry lakebeds, annual wildflowers, desert tortoises, and arthropods.⁵³⁹ To manage this vast area, the CDCAP divides the CDCA geographically into four multiple-use categories. Relevant to the ISEGS, multiple-use class L (Limited Use) lands protect sensitive natural and ecological values and must be managed to feature "generally lower-intensity, carefully controlled multiple use of resources."540

FLPMA mandates that the CDCAP account for management of ROW grants.⁵⁴¹ The CDCAP recognizes BLM and CEC's collaborative and often overlapping duties to manage power plant development within the greater CDCA region. Therefore, CDCAP ROW management components state that, due to the extensive nature of BLM holdings within the CDCA, "BLM will participate to the maximum extent possible in State Energy Commission hearings on powerplants proposed for siting in the CDCA."542 When BLM reviews applications to site plants on BLM lands, the CDCAP requires BLM to consider and authorize sites through the RMP/LUP amendment process.⁵⁴³ Thus, each newly approved electric facility amends the original 1980 CDCAP. The CDCAP power plant component stresses that ROWs for power plants should be granted through collaborative efforts between the State and BLM.⁵⁴⁴ The CDCAP requires BLM to analyze facility effects on BLM lands under the factors established by CEC.⁵⁴⁵ CDCAP implementation provisions also reiterate the importance of state and federal cooperation when siting power plant facilities.⁵⁴⁶ In addition, BLM acknowledges California's longterm goals regarding solar energy development.⁵⁴⁷ However, the CDCAP does not provide specific provisions for renewable energy development on California BLM lands.

The CDCAP also establishes a water resources program to manage the limited water supplies that support this area's habitat and maintain the

544 Id. 545 Id.

^{538 &}quot;Pediments" are broad, gently sloping expanses of rock debris extending outward from the foot of a mountain slope. WEBSTER'S THIRD NEW INTERNATIONAL DICTIONARY, supra note 311, at 1664.

⁵³⁹ U.S. BUREAU OF LAND MGMT., *supra* note 1, at 3.

⁵⁴⁰ Id. at 13.

⁵⁴¹ Federal Land Policy and Management Act of 1976, 43 U.S.C. § 1781(d) (2006); id. § 1712(a) (explaining how to implement section 1781(d)).

⁵⁴² U.S. BUREAU OF LAND MGMT., *supra* note 1, at 95.

⁵⁴³ Id.

 $^{^{546}}$ Id. at 95–96. Although the CDCAP was first adopted in 1980, the BLM formalized the structure of California state and federal cooperation in relationship to renewable energy project development specifically when it entered into a special MOU to coordinate siting and permitting efforts for renewable energy projects deemed necessary to meet California's ambitious 33% Renewable Portfolio Standard by 2020. Memorandum of Understanding Between the California Department of Fish and Game, the California Energy Commission, the Bureau of Land Management, and the U.S. Fish and Wildlife Service Regarding the Establishment of the California Renewable Energy Action Team 1-2 (Nov. 17, 2008) [hereinafter REAT MOU], available at http://www.blm.gov/pgdata/etc/medialib/blm/ca/pdf/pa/energy.Par.76169.File.dat/ RenewableEnergyMOU-CDFG-CEC-BLM-USFWS-Nov08.pdf.

⁵⁴⁷ U.S. BUREAU OF LAND MGMT., *supra* note 1, at 95.

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area's natural resources.⁵⁴⁸ The CDCAP urges BLM to cooperate with state and local agencies when implementing this program.⁵⁴⁹ The CDCAP identifies objectives, including establishing "certainty in regard to Federal and State relations in water rights"⁵⁵⁰ and "[t]he acquisition and protection of water rights necessary for fulfilling Bureau management programs."⁵⁵¹

The CDCAP does not identify socioeconomic factors or impacts arising from BLM land management in the CDCA region. The CDCAP's introduction only provides a brief catalog of settlements and facilities in the area, which is sparsely populated.⁵⁵² The region has several large urban areas on its periphery, however, which would be affected by the Ivanpah project.

⁵⁵⁰ Id. at 117. Such "certainty" is a seemingly impossible task, however, given the complexity, ambiguity, and contested character of nearly all water appropriations in California water rights law. California water law is among the most complex in the western United States, for it juxtaposes both riparian and appropriative regimes for surface water with ambiguous state authority over groundwater. Article X of the California Constitution requires both "reasonable" and "beneficial" use of any water; its adoption in 1928 followed the decision in Herminghaus v. Southern California Edison Co., 252 P. 607, 624 (Cal. 1926) (establishing a duty of reasonableness through the constitutional amendment for all water users after a downstream riparian user successfully challenged an upstream appropriator). CAL. CONST. art. X, §2. The meaning of these terms has shifted over time with changing social mores, economic demands, and environmental values. See Joslin v. Marin Mun. Water Dist., 429 P.2d 889, 896, 900 (Cal. 1967) (finding that gravel operator's historic use under common law riparian claims violated duty of reasonableness under California Constitution to Marin Municipal Water District appropriative right for urban domestic use). More recently, the courts have struggled with the limits of California surface water law as applied to groundwater sources. N. Gualala Water Co. v. State Water Res. Control Bd., 43 Cal. Rptr. 3d 821, 823 (Cal. App. 2006) (deferring to the Water Board's interpretation of the statutory phrase "subterranean streams flowing through known and definite channels," which defines the limited jurisdiction of the Water Board over groundwater under Water Code section 1200). See generally NORRIS HUNDLEY, JR., THE GREAT THIRST: CALIFORNIANS AND WATER: A HISTORY (rev. ed. 2001), for an excellent historical overview of California water law.

551 U.S. BUREAU OF LAND MGMT., supra note 1, at 117 tbl.16. The United States Supreme Court ruled in Winters v. United States, 207 U.S. 564 (1908), that the federal government held reserved water rights to meet the primary purpose of a federal reservation of land and were not subject to state appropriation. Id. at 577. The Court also held that the McCarran Amendment, 43 U.S.C. § 666 (2006), waived federal sovereign immunity to allow states to compel federal participation in adjudications of water rights disputes. Id. The BLM also established specific Public Water Reserves (PWRs) on an ad hoc and site-specific basis until 1926, when a blanket PWR—PWR 107-was created by President Coolidge through executive order. Public Water Reserve No. 107, CONG. INFO. SERV. 33-17 (Apr. 17, 1926). The Wilderness Act, 16 U.S.C. §§ 1131-1136 (2006 & Supp. II 2008), amended by Pub. L. No. 111-11, and the Wild and Scenic Rivers Act, 16 U.S.C. §§ 1271-1287 (2006), established additional reservations that apply to some federal lands. See U.S. Bureau of Land Mgmt., Federal Reserved Water Rights, available at http://www.blm.gov/nstc/WaterLaws/pdf/FedResWaterRights.pdf. Background principles of California state water law also "reserve" some rights to ensure protection of a broadly conceived Public Trust Doctrine. See Nat'l Audubon Soc'y v. Superior Court of Alpine Cnty., 658 P.2d 709, 728-29, 732 (Cal. 1983) (requiring the State Water Resources Control Board to reconsider its issuance of appropriative water rights licenses to the City of Los Angeles Department of Water and Power in light of the impact of such diversions on public trust resources in Mono Lake).

⁵⁵² U.S. BUREAU OF LAND MGMT., *supra* note 1, at 4–5.

⁵⁴⁸ *Id.* at 114.

⁵⁴⁹ Id. at 116.

2. Ivanpah Solar Electric Generating System Final Environmental Impact Statement and Record of Decision

In contrast to Arizona and Nevada's state land use statutes and guidance documents, CEQA's mandated power plant siting review provides step-by-step guidance to facilitate siting requirements and to ensure environmental goals and objectives are met. In addition, these detailed provisions mandate proactive measures to ensure that BLM addresses State concerns when conducting actions with overlapping State jurisdiction. Reciprocally, the CDCAP recognizes this cooperative relationship and sets forth specific guidelines addressing coordination in particular scenarios, including ROW grants and power plant siting efforts. The following explores the impact of this detailed, highly collaborative framework on the ISEGS.

a. Project Description and Siting

The ISEGS is located in the Mojave Desert on the unincorporated lands of San Bernardino County, California.⁵⁵³ The site is near the Nevada border and approximately four miles from the nearest town of Primm, Nevada.⁵⁵⁴ The project sits entirely on California BLM lands.⁵⁵⁵ BrightSource Energy's original project application proposed to construct and operate a CST solar power field (using a solar tower technology rather than a parabolic trough), which would provide 400 MW of electricity to California's transmission system.⁵⁵⁶ BrightSource's original application requests an ROW grant for the project's estimated footprint, an area of 4073 acres, including 3712.7 acres of long-term disturbance and 359.9 acres of short-term disturbance.⁵⁵⁷ Both California BLM and BrightSource note that the proposed project will help federal and state governments meet renewable energy goals and standards.⁵⁵⁸

b. Water Resource Allocation

The ISEGS FEIS considers and describes the importance of water resources in the desert region, but these concerns do not appear to have greatly influenced BLM and CEC in their decisions to grant or deny the proposed project. The proposed ISEGS sits atop the Ivanpah Valley Groundwater Basin, which is the primary natural water supply for the region.⁵⁵⁹ The basin receives groundwater recharge from precipitation by infiltration of mountain runoff and through ephemeral washes.⁵⁶⁰ BLM California estimates the basin recharge rate at 5223 to 6538 afy.⁵⁶¹ The

⁵⁵³ U.S. BUREAU OF LAND MGMT., *supra* note 295, at 1-2.

 $^{^{554}}$ Id.

⁵⁵⁵ Id.

 $^{^{556}}$ *Id.* at 2-3 (discussing plans for 400 MW field); *id.* at 3-84 (explaining why parabolic trough technology was eliminated from consideration).

⁵⁵⁷ U.S. BUREAU OF LAND MGMT., *supra* note 295, at 2–4.

⁵⁵⁸ *Id.* at 2-5 to -6.

 $^{^{559}\,}$ Id. at 4.10-11 to -12.

⁵⁶⁰ *Id.* at 4.10-12.

⁵⁶¹ Id. at 4.10-27.

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proposed project would draw construction and operation water supplies from two wells near the northwest corner of the project site.⁵⁶²BrightSource proposes to construct a CST facility with water-saving, air-cooled condenser technology and estimates the ISEGS would draw approximately 100 afy from the basin for operations.⁵⁶³

The ISEGS FEIS stresses the significant impact water resource use manifests on the natural and human communities within the inherently parched bounds of the CDCA. The ISEGS FEIS recognizes "[w]ater resources in this area are extremely limited . . . [and] there is a need for a higher degree of water use management."564 To address these concerns, BLM California and CEC evaluated adverse impacts to determine: whether the project would substantially deplete groundwater supplies or interfere with groundwater recharge; whether the project would create a net deficit in the aquifer or lower the local groundwater table; whether the project would lower groundwater levels in preexisting public and private wells; and whether potential drawdown would affect protected species or habitat.⁵⁶⁵ The ISEGS FEIS notes that local groundwater drawdown may result in a 1.4 foot decline in wells one mile from the project.⁵⁶⁶ Despite these concerns, the agency tempers these projections by stating that groundwater recharge exceeds current and projected pumping rates in the basin.⁵⁶⁷ However, the agencies also acknowledge that groundwater resources are ambient and aquifers are often interconnected across large geographic swaths.⁵⁶⁸ Thus, reductions in basin water levels may conflate and contribute to water in disparate, unexamined areas or to gradual decline throughout the entire basin.⁵⁶⁹

Despite concern for limited water resources, however, the ISEGS FEIS recommends only minimal mitigation conditions. The ISEGS FEIS concludes that groundwater pumping from the project will not be adverse to CDCA groundwater resources.⁵⁷⁰ The ISEGS FEIS requires the project owner to monitor groundwater levels and to submit an annual groundwater level report to BLM and San Bernardino County for review and comment.⁵⁷¹ The

⁵⁶² *Id.* at 4.10-4.

⁵⁶³ *Id.* at 4.10-2 (condenser system); *id.* at 4.10-6 (annual water draw required).

⁵⁶⁴ U.S. BUREAU OF LAND MGMT., *supra* note 295, at 4.10-11.

⁵⁶⁵ *Id.* at 4.10-16. The Endangered Species Act of 1973 requires the BLM to consult with the Fish and Wildlife Service under Section 7 to get a "no jeopardy" biological opinion if such drawdowns could jeopardize species listed as threatened or endangered. *See* 16 U.S.C. § 1536(a)(2) (2006).

⁵⁶⁶ U.S. BUREAU OF LAND MGMT., *supra* note 295, at 4.10-31.

⁵⁶⁷ *Id.* at 4.10-29. However, historic recharge rates may be a poor guide in the face of climate change. *See supra* notes 357–63 and accompanying text (discussing over-commitment of water resources in Ivanpah groundwater in Nevada); *see also infra* note 653 and accompanying text (demonstrating BLM's view that historic baselines are not static and may vary due in part to climate change).

⁵⁶⁸ See U.S. BUREAU OF LAND MGMT., supra note 295, at 4.10-29.

⁵⁶⁹ See id.

⁵⁷⁰ *Id.* at 5-39.

⁵⁷¹ *Id.* at 4.10-52 to -53.

CEC ISEGS Decision echoes this analysis and proposes the same mitigation measure. $^{\rm 572}$

c. Green Jobs: Labor and Employment

Likewise, socioeconomic factors do not appear to have influenced California BLM or the CEC's decisions to grant or deny siting the ISEGS. Reflecting the project's position on the Nevada/California border, the ISEGS FEIS analyzes the regional employment impacts considering both San Bernardino County, California and its constituent twenty-four communities and neighboring Clark County, Nevada and its five constituent communities.⁵⁷³ Construction employs the second largest workforce next to services and retail operations in both counties, and the FEIS notes that 231,000 construction workers reside within the region.⁵⁷⁴ Although the project would employ a maximum 959 workers during construction, 90 permanent positions for operations, and an estimated 528 indirect positions, the FEIS states that these opportunities account for a negligible amount of the total labor force.⁵⁷⁵ Average salaries would provide approximately 60.000 per year in wages per employee and would include benefits.⁵ Furthermore, the FEIS concludes that an increase in 90 full-time positions would not reduce unemployment rates and would only account for 0.1% of the 74,800 unemployed workers in the area.⁵⁷⁷ However, the ISEGS FEIS emphasizes that the project would accrue a positive benefit to local socioeconomics by providing employment, as well as tax revenue and increased direct and indirect revenue.⁵⁷⁸

d. Collaboration and Public Participation

In comparison to Nevada and Arizona BLM's cursory EIS collaboration provisions, the ISEGS FEIS provides extensive narratives detailing each agency's relationship and responsibility in the EIS process. Highlighting this difference, the ISEGS FEIS places this description front and center alongside the FEIS purpose and need statements. In comparison, both the Silver State Project EIS and the SSEP Draft EIS locate collaboration provisions in the last section of the report—almost as an afterthought.

Moreover, the substantive relationships evidenced in these descriptions demonstrate that both California BLM and California state agencies prioritize proactive cooperation towards state and federal siting efforts. The

 $^{^{572}}$ See Cal. Energy Comm'n Ivanpah Solar Elec. Project AFC Comm., Soil and Water Resources, in IVANPAH SOLAR ELECTRIC GENERATING SYSTEM: COMMISSION DECISION 26–27 (2010) (paginating the report subsections nonconsecutively, the relevant information can be found on the pages cited under section VI(B)(9)).

⁵⁷³ U.S. BUREAU OF LAND MGMT., supra note 295, at 4.9-3.

⁵⁷⁴ Id. at 4.9-6.

 $^{^{575}\,}$ Id. at 4.9-10, 4.9-14 tbl.4.9-7.

⁵⁷⁶ Id. at 4.9-12.

⁵⁷⁷ Id.

 $^{^{578}}$ See id. at 4.9-18.

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CDCA explicitly instructs BLM to evaluate and structure environmental review based on CEC certification criteria. This is a much clearer mandate than the more general provisions that typically encourage cooperation but do not require consistency in evaluative criteria. In addition, CEC and BLM executed a MOU at the beginning of the ISEGS siting process⁵⁷⁹ and, as a result, conducted a joint technical analysis and co-authored the ISEGS draft.⁵⁸⁰ The agencies also conducted joint public meetings and workshops.⁵⁸¹ The FEIS notes that BLM prepared the ISEGS FEIS separately, while CEC independently prepared its final certification statement.⁵⁸² However, BLM and CEC staff "continued to review each other's documents in an attempt to maintain consistency between the documents."⁵⁸³ In addition, California BLM entered a MOU with San Bernardino County establishing that California BLM will conform to County codes regarding project groundwater use.⁵⁸⁴

In contrast to this coordinated collaboration, public comments submitted through both written and oral testimony do not appear to be reflected or incorporated in the Ivanpah FEIS. Six comments addressed groundwater use concerns.⁵⁸⁵ One commentator noted great discrepancies in the Ivanpah DEIS between groundwater estimates for the Ivanpah Valley Aquifer and expressed concerns that the "magnitude of long term potential declines cannot be predicted."⁵⁸⁶ The same commentator concluded, "CEC/BLM denied any impacts would result from the project's groundwater pumping. We think this is an assumption, as little appears to be understood of the groundwater in the area."⁵⁸⁷ The United States Environmental Protection Agency (EPA) also recommended the Ivanpah FEIS "clearly demonstrate whether there is sufficient groundwater for the lifetime of this Project and other reasonably foreseeable projects in the study area."⁵⁸⁸ In addition, EPA suggests the FEIS "clarify the regulatory structure for protecting groundwater"⁵⁸⁹ and describe the permitting process and roles of

- 584 *Id.* at 4.10-10 tbl.4.10-6.
- ⁵⁸⁵ *Id.* app. A-1, at A.1-192 to -196.
- ⁵⁸⁶ *Id.* app. A-1, at A.1-193.
- $^{587}\,$ Id. app. A-1, at A.1-193 to -194.
- ⁵⁸⁸ *Id.* app. A-1, at A.1-194.

⁵⁷⁹ Memorandum of Understanding Between the U.S. Department of the Interior, Bureau of Land Management California Desert District and the California Energy Commission Staff Concerning Joint Environmental Review for Solar Thermal Power Plant Projects 1 (Aug. 8, 2007) [hereinafter CEC MOU], *available at* http://www.energy.ca.gov/siting/solar/BLM_CEC_MOU.PDF. Note that the CEC MOU—entered into during the summer of 2007—was then supplemented by the REAT MOU—which included the California Department of Fish and Game as well as FWS—in November of 2008. *See generally* REAT MOU, *supra* note 542.

 $^{^{580}\,}$ U.S. Bureau of Land Mgmt., supra note 295, at 2-15.

 $^{^{581}\,}$ Id. at 2-18.

⁵⁸² *Id.* at 2-15.

⁵⁸³ Id.

⁵⁸⁹ *Id.* Except in the case of adjudicated groundwater basins, groundwater is only subject to the jurisdiction of the State Water Resources Control Board (Board) if it is part of "subterranean streams flowing through known and definite channels." CAL. WATER CODE §1200 (West 2009). *See* N. Gualala Water Co. v. State Water Res. Control Bd., 43 Cal. Rptr. 3d 821, 823 (Cal. Ct. App. 2006) (discussing whether the Board's jurisdiction to compel North Gualala to obtain a groundwater pumping permit was a proper construction of this statutory phrase).

all parties to the projects.⁵⁹⁰ One commentator provided a concise summation of these criticisms, stating, "The project consumes far more [water] than a desert can support."⁵⁹¹

Comments addressing labor and employment total thirteen written statements. These comments overwhelmingly favor the Ivanpah project as a source of anticipated construction employment. Moreover, comments criticize those that might oppose this economic influx; one commentator demanded "it should be required of local elected leaders to justify their opposition to this job-creation opportunity with their own plan to make up for the 1,000 estimate[d] jobs that Bright[S]ource would be providing."⁵⁹² These comments cite high unemployment statistics and note "[c]onstruction jobs have been hit the hardest in San Bernardino County during this Great Recession."593 One commentator draws on California's historic role as an incubator for venture capitalism and the "crucial role" entrepreneurialism has played in "generating new enterprises and new jobs."594 Furthermore. comments note that union members are available and ready to work on construction efforts and highlight that "[BrightSource]'s Engineering, Procurement and Construction contractor, Bechtel, has executed an agreement with the California Building Trades Council to ensure fair wages and benefits for the workers who contribute to this project."595

e. Approved Project

On October 7, 2010, BLM granted an ROW and approved the CDCAP amendment to construct the ISEGS in the California desert.⁵⁹⁶ The ROD limits the size and scope of the facility from 400 MW to 370 MW and prohibits BrightSource from developing a portion of the proposed facility that would compromise sensitive biological areas.⁵⁹⁷ These modifications also reduce the project's overall footprint to less than 3500 acres and reduce the need for water supplies.⁵⁹⁸ The project's smaller form will require 18.7% less groundwater than BrightSource's proposed project.⁵⁹⁹ The ROD also notes that the selected alternative will still achieve socioeconomic benefits and increases in employment.⁶⁰⁰ Moreover, the ROD emphasizes that "[t]he process for siting and evaluating the ISEGS project has included extensive efforts on the part of BLM, the applicant, CEC, public commentors [sic], and other agencies in order to identify a project that accomplishes the purpose

⁵⁹⁷ *Id.* at 17.

⁵⁹⁰ U.S. BUREAU OF LAND MGMT., *supra* note 295, app. A-1, at A.1-194.

⁵⁹¹ *Id.* app. A-1, at A.1-195.

⁵⁹² *Id.* app. A-1, at A.1-181.

⁵⁹³ Id.

⁵⁹⁴ *Id.* app. A-1, at A.1-182.

⁵⁹⁵ *Id.* app. A-1, at A.1-181.

⁵⁹⁶ U.S. BUREAU OF LAND MGMT., DEP'T OF THE INTERIOR, DOI FES 10-31, RECORD OF DECISION FOR THE IVANPAH SOLAR ELECTRIC GENERATING SYSTEM PROJECT AND ASSOCIATED AMENDMENT TO THE CALIFORNIA DESERT CONSERVATION AREA PLAN 58–59 (2010).

 $^{^{598}\,}$ Id. at 12, 18.

⁵⁹⁹ *Id.* at 18.

⁶⁰⁰ *Id.* at 29.

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and need . . . while preventing . . . any unnecessary or undue degradation of the lands." $^{\rm ^{501}}$

The collaborative approach modeled by BLM and CEC was emphasized at the project's groundbreaking ceremony on October 27, 2010: both California Governor Arnold Schwarzenegger and United States Secretary of the Interior Ken Salazar were on hand to praise the project and its benefits.⁶⁰² "Today we are breaking ground on the largest solar project in the world, right here in California," said Schwarzenegger.⁶⁰³ Salazar added that the project will result in "stimulating local economies, creating new jobs for American workers, reducing carbon emissions, promoting energy independence and strengthening our national security."⁶⁰⁴ Schwarzenegger stated that it was "further proof that it is possible to both protect the environment and grow the economy."⁶⁰⁵ The entire permitting process took just over three years.⁶⁰⁶

However, public criticism regarding the Ivanpah project shows that not all parties share these sentiments. For example, Basin and Range Watch, "a group of volunteers who live in the deserts of Nevada and California, working to stop the destruction of [their] desert homeland," believe that "the project does not justify pumping even more water in an arid region."⁶⁰⁷ Likewise, a suit filed by a Native American cultural protection group challenged another solar project's compliance with the CDCAP by arguing that solar projects do not constitute a "limited use," as required by the CDCAP on Class L lands.⁶⁰⁸ The Western Watersheds Project challenged the BLM's ROW decision in a suit filed in federal district court in January 2011 (claiming violations of NEPA, FLPMA, ESA, and the Administrative Procedure Act⁶⁰⁹).⁶¹⁰ Finally, desert tortoise concerns delayed project

⁶⁰¹ *Id.* at 28.

⁶⁰² Press Release, BrightSource Energy, BrightSource Energy Breaks Ground on Ivanpah Solar Electric Generating System (Oct. 27, 2010), *available at* http:// www.brightsourceenergy.com/images/uploads/press_releases/Ivanpah_Groundbreaking_Press_ Release.pdf.

⁶⁰³ Id.

⁶⁰⁴ Id.

 $^{^{605}}$ Id.

⁶⁰⁶ See Cal. Energy Comm'n, *Ivanpah Solar Electric Generating System*, http://www.energy.ca.gov/sitingcases/ivanpah/index.html (last visited Nov. 12, 2011) (listing key dates for the project, including the original Application for Certification (AFC) filed on August 31, 2007 and Commission approval of the AFC on September 22, 2010).

⁶⁰⁷ Basin & Range Watch, *Basin & Range Watch: Defending the Desert*, http://www.basinandrangewatch.org (last visited Nov. 12, 2011); Basin & Range Watch, *supra* note 372.

⁶⁰⁸ Complaint of Quechan Indian Tribe for Declaratory and Injunctive Relief at 13–14, Quechan Tribe of the Fort Yuma Indian Reservation v. U.S. Dep't of the Interior, 755 F. Supp. 2d 1104 (S.D. Cal. 2010) (No. 10cv2241-LAB (CAB)); *see also Quechan Tribe*, 755 F.Supp.2d at 1120 (S.D. Cal. 2010) (finding that the BLM failed to adequately consult with the Tribe under the National Historic Preservation Act and holding that the Tribe's claim that the Imperial Valley Solar project violated the CDCAP's Class L lands standards "at least raised 'serious questions' for the purposes of injunctive relief").

 $^{^{609}\,}$ 5 U.S.C. §§ 551–559, 701–706, 1305, 3105, 3344, 4301, 5335, 5362, 7521 (2006).
implementation soon after BrightSource began construction on the project: BLM issued a Decision requiring the "Immediate Temporary Suspension of Activities" on April 15, 2011⁶¹¹ while BLM sought a revised biological opinion from FWS under Section 7 of the ESA and issuance of a new ITP under Section 10 of the ESA.⁶¹² (The suspension was then lifted on June 10, 2011 after further analysis and consultation.)⁶¹³ The legal power of the ESA therefore continues to cast a long shadow over solar development—no matter how "collaborative" it may seem.

D. A Comparative Look at the Nevada, Arizona, and California Fast-Track Projects

The three projects described in this Article demonstrate that legal mandates, collaborative efforts, and articulated goals and principles each play a significant role in striking a balance between use and conservation when siting and permitting renewable energy projects.⁶¹⁴ In addition, this triad is also necessary to shepherd a proposed project efficiently through siting processes and ultimately to approve a project that successfully accommodates national and regional concerns, goals, and resources.

A perfect model, easily applicable to any and every region, coalition, or project most likely does not exist. For example, in 2010, both Nevada and California BLM managed to successfully issue thoughtful, considered FEISs, facilitating two of the first large-scale solar utility projects ever constructed in the United States.⁶¹⁵ As described above, these two regions follow two strikingly different statutory regimes. California statutes and the CDCAP both construct a strict regiment that provides a road map for interagency

⁶¹⁰ Complaint for Declaratory and Injunctive Relief at 2, Western Watersheds Project v. Salazar, No. CV 11-00492 DMG (Ex) (C.D. Cal. 2011).

⁶¹¹ Letter from Teresa A. Raml, District Manager, Bureau of Land Mgmt. Cal. Desert, to Jack Jenkins-Stark, Chief Fin. Officer, Solar Partners I, II, & VII, LLC (Apr. 15, 2011), *available at* http://www.blm.gov/pgdata/etc/medialib/blm/ca/pdf/needles/lands_solar.Par.26216.File.dat/ISEG S%20Temporary%20Suspension%20Notice.pdf.

⁶¹² See Ucilia Wang, Tortoises Lead to Halt of Part of BrightSource's Solar Project, REUTERS, Apr. 25, 2011, http://www.reuters.com/article/2011/04/25/idUS46562358120110425 (last visited Nov. 12, 2011).

⁶¹³ At BrightSource, a Sigh of Relief, RENEWABLES INT'L, June 14, 2011, http://www.renewables international.net/at-brightsource-a-sigh-of-relief/150/510/31173/ (last visited Nov. 12, 2011). The BLM's Notice to Proceed and the new biological opinion by FWS are both accessible from U.S. Bureau of Land Mgmt., Dep't of the Interior, *Ivanpah Solar Electric Generating System (CACA-48668) Federal Process & Documents*, http://www.blm.gov/ca/st/en/prog/energy/fasttrack/ ivanpahsolar/fedstatus.html (last visited Nov. 12, 2011).

 $^{^{614}}$ Of course, the different stakeholders here have widely divergent views on what constitutes a "balance" among conflicting demands for the public lands. BLM is given some discretion under its FLPMA mandate, however, to determine how to reconcile conflicting land uses and policy goals. Federal Land Policy and Management Act of 1976, 43 U.S.C. \S 1732 (2006). The legal questions involve substantive or procedural violations of statutes and regulations; we do not attempt to assess those legal questions here.

 $^{^{615}\,}$ See generally Las Vegas Field Office, supra note 307; U.S. Bureau of Land Mgmt., supra note 295.

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and public participation.⁶¹⁶ In contrast, PUCN compatibility statutes and the LVRMP provide strongly worded goals and objectives, encourage participation but do not provide a remarkably extensive protocol for interagency or public participation.⁶¹⁷ However, despite its more open-ended framework, Nevada's Silver State Project demonstrates the most progressive effort to address water resource concerns out of all three fast-track projects and also demonstrates the most progressive and comprehensive thinking regarding the project's labor and employment impacts.⁶¹⁸

Although successful models may take many forms, Arizona's collaborative process provides at least one concrete example of a model to the contrary. Efforts to approve the SSEP appear torn by conflicts in legal structure, policies, and goals.⁶¹⁹ While ACC and ADWR appear to be moving towards a more holistic environmental review, the LGSRMP remains wedded to policies that provide effective management in areas where resources are more readily available and conflicts can be avoided through separation and diffusion. As early as 1988, the LGSRMP notes a growing tension within the communities surrounding its bounds-ranchers versus snowbirds and urban conservationists.⁶²⁰ Instead of addressing this tension, the SSEP draft EIS perpetuated the 1985 LGSRMP's flaws by failing to recognize the importance of water conservation and failing to attempt to resolve the conflict between those seeking rural lifestyles and those seeking economic prosperity. To BLM's credit, however, the Final EIS incorporates significant revisions to address the water issues by considering, and then selecting, a low-water-use alternative as the Preferred Alternative. The RMP continues to view certain resource uses and lifestyles as mutually exclusive, however, making it difficult to accommodate a project that requires compromise.

Arizona BLM's lessons learned also reflect on national legal mandates and principles, policies, and goals regarding renewable energy. The national government faces an immediate recession, a crisis that demands prompt attention and a hasty delivery of jobs and prosperity. Unfortunately, thoughtful balance is a time consuming process. Although NEPA requires BLM offices to consider socioeconomic factors when completing the EIS,⁶²¹ socioeconomic factors do not seem to drive BLM decisions with the same force as biological or resource concerns. For example, both the Silver State Project and ISEGS made modifications to final design and structure based on habitat or species mitigation.⁶²² Water resource concerns also largely drive the future of a permitted project. Although detrimental to water resources and habitat, an authorization of both Silver State facilities would have employed a greater workforce for a longer period of time.⁶²³ In this

⁶¹⁶ See supra notes 575–91 and accompanying text.

⁶¹⁷ See supra notes 394-401 and accompanying text.

⁶¹⁸ See supra notes 364–93 and accompanying text.

⁶¹⁹ See supra notes 422-26, 448-49, 520-23 and accompanying text.

⁶²⁰ See supra notes 422–26 and accompanying text.

⁶²¹ National Environmental Policy Act of 1969, 42 U.S.C. § 4332(A)–(C) (2006).

 $^{^{622}}$ See supra notes 416–17, 423, 560–01 and accompanying text.

⁶²³ See supra note 355–73, 381–86, 402 and accompanying text.

case, both federal and state agencies must coordinate goals and principles that reflect regional economic, and perhaps national economic impacts as well.

Overall, BLM appears torn between the economic development goals of ARRA, the energy security goals of the EPAct, and its responsibilities under NEPA, FLPMA, and the ESA to protect environmental resources. It is therefore difficult to find a point of balance among these competing goals that achieves widespread agreement among all of the stakeholders. The agency's decisions on the individual fast-track projects above therefore reflect an attempt to maximize achievement of ARRA and the EPAct's goals within the legal constraints of NEPA, FLPMA, the ESA, and state water law. Antiquated RMP/LUP documents and analyses make it difficult, however, for BLM to reconcile these tensions with adequate information about the cumulative and aggregate impacts of the many utility-scale solar project proposals before the agency. An RMP/LUP that reflects state principles and goals or an RMP/LUP that results from a reflective collaborative process may provide enough ground to harmonize the human conflict between space, time, allegiance, and philosophy to devise a project that can harness productive energy and provide a guiding light. Updating every RMP/LUP to consider contemporary policy goals and tensions explicitly is therefore necessary in order to avoid ad hoc responses to project-specific proposals. The Solar PEIS discussed in Part VII is a first step toward achieving such an integrated approach.

VII. THE SOLAR PROGRAMMATIC ENVIRONMENTAL IMPACT STATEMENT: A POTENTIAL FOUNDATION FOR CONVERSATION AND CONSERVATION ON BLM SOLAR DEVELOPMENT PROJECTS

A. Introduction

In May 2008, BLM partnered with DOE to begin efforts to develop a widely applicable management program for siting solar energy development on public lands in six western states: Arizona, California, Colorado, Nevada, New Mexico, and Utah.⁶²⁴ The Solar Energy Development Program (SEDP) aims to "provide consistency and certainty for solar energy development and will help expedite environmental analysis for site-specific projects in the future."⁶²⁵

Because the proposed program is a major federal action significantly affecting the quality of the human environment, NEPA requires the agencies to complete an EIS (Solar PEIS).⁶²⁶ Thus, BLM and DOE's first step towards implementing the proposed SEDP includes evaluating alternative

⁶²⁴ U.S. Bureau of Land Mgmt., Dep't of the Interior, *BLM Initiates Environmental Analysis of Solar Energy Development*, http://www.blm.gov/wo/st/en/info/newsroom/2008/may_08/NR_053008.html (last visited Nov. 12, 2011).

⁶²⁵ Argonne Nat'l Lab., U.S. Dep't of Energy, *Research: Systems Analysis*, http://www.anl.gov/solar/research/systems_analysis/impact_utility_solar.html (last visited Nov. 12, 2011).

⁶²⁶ National Environmental Policy Act of 1969, 42 U.S.C. § 4332(C) (2006).

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management strategies. BLM and DOE assert that the selected program should support two missions: 1) to mitigate potential impacts, and 2) to facilitate solar energy development while carrying out their respective agency missions.⁶²⁷ To this end, BLM analyzed two alternatives (in addition to the "no action" alternative), "each of which would have [] BLM establish a comprehensive program to facilitate utility-scale solar energy development on BLM lands."⁶²⁸

BLM's preferred action in the Draft PEIS, the SEDP, would implement organized program administration and authorization policies and broadly applicable design features "with recommended environmental best management practices and mitigation measures that could be applied to all DOE-supported solar projects."⁶²⁹ In addition, this alternative would identify lands not suitable for solar development and would exclude these lands from future ROW applications.⁶³⁰ The alternative would also identify Solar Energy Zones (SEZs), specific areas prioritized for development as "best-suited for utility-scale production of solar energy."⁶³¹

BLM's second alternative, the SEZ program alternative, would implement the same administration and authorization policies and design features, but would restrict development to designated SEZs, rather than merely prioritize development in these areas, as in the preferred alternative.⁶³² The Solar PEIS analyzes and outlines the environmental effects predicted for the identified SEZs and suggests mitigating design features specific to projects implemented in these areas, in addition to the SEDP design features assigned to all projects.⁶³³ BLM made significant changes to the Draft PEIS and released a Supplement to the Draft PEIS on October 27, 2011.⁶³⁴ The new Supplement was in part a response to more than 80,000 comments received on the Draft PEIS.⁶³⁵ The BLM announced:

After analyzing those comments, gathering additional data and consulting with cooperating agencies and resource managers, the BLM has modified its

⁶²⁹ U.S. BUREAU OF LAND MGMT., DEP'T OF THE INTERIOR & U.S. DEP'T OF ENERGY, *supra* note 69, at 3-1.

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⁶²⁷ U.S. BUREAU OF LAND MGMT., DEP'T OF THE INTERIOR & U.S. DEP'T OF ENERGY, *supra* note 69, at 1-7 to -8 (2010).

⁶²⁸ *Id.* at 2-1. The "no action" alternative would continue current BLM policy without updating the language of individual RMP/LUPs. BLM has been criticized by some stakeholders for now considering a "distributed generation" alternative, where the same level of solar energy generation could be sited in urban sites (e.g., flat rooftops or parking lots) or on degraded lands (e.g., fallow agricultural land, abandoned mining sites) rather than on undeveloped and fragile desert landscapes. *See, e.g., supra* note 63 and accompanying text. We do not address this "distributed generation" alternative in our analysis here.

⁶³⁰ *Id.* at 2-7.

 $^{^{631}\,}$ Id. at 2-1.

⁶³² *Id.* at 2-14.

⁶³³ *Id.* at 2-6.

⁶³⁴ Press Release, Office of the Sec'y, U.S. Dep't of Interior, Interior Releases Updated Roadmap for Solar Energy Development (Oct. 27, 2011), *available at* http://solareis.anl.gov/documents/docs/Supplement_to_Draft_PEIS_PressRelease.pdf.

⁶³⁵ Id.

preferred alternative to include 17 solar energy zones, totaling about 285,000 acres potentially available for development within the zones. The BLM refined or removed zones that had development constraints or serious resource conflicts.

The modified preferred alternative also establishes a variance process, going forward, that will allow development of well-sited projects outside of solar energy zones on an additional 20 million acres of public land. BLM Priority Projects that are already being processed will not be subject to the proposed new variance process.⁶⁸⁶

In addition, the Solar PEIS proposes amendment language for all RMP/LUP within the six identified states.⁶³⁷ This Part will begin by exploring these proposed modifications because the language set forth in BLM's RMP/LUP will establish legally binding guidelines for future developments. This Part will then describe the administrative and design features proposed to manage water resources and socioeconomic affects arising from BLM's SEDP preferred alternative. Next, a brief overview will be provided of BLM's SEZ alternative and the predicted effects on water resources and socioeconomics arising from solar development within SEZ areas identified in Nevada, Arizona, and California. Finally, this Article's conclusion will discuss the collaborative processes applied by BLM to engage state and local government in drafting the PEIS and will provide a comparative analysis of these collaborative efforts to those employed in the three fast-track solar projects discussed above. Our analysis is based on the Draft PEIS because the Supplement to the Draft PEIS⁶³⁸ was released too close to publication to incorporate any detailed analysis of the Supplement into this Article.

B. Resource Management Plan/Land Use Plan Amendments in Solar Development Areas

Under both the BLM's preferred SEDP alternative and the SEZ alternative, BLM would undertake comprehensive amendments to the RMP/LUP in the six-state study area.⁶³⁹ BLM acknowledges that, similar to the three RMPs applicable to the previously detailed fast-track projects, "[m]ost plans currently do not address solar energy development, although solar energy resources are widespread."⁶⁴⁰ First and foremost, the amendments would identify lands to be excluded from solar development and lands designated as SEZs.⁶⁴¹ Second, the amendments would mandate

⁶³⁶ Id.

⁶³⁷ Id. app. C, at C-1.

⁶³⁸ The Supplement to the Solar PEIS can be downloaded at U.S. Dep't of the Interior Bureau of Land Mgmt. & U.S. Dep't of Energy, *Supplement to the Solar Energy Development Draft Programmatic Environmental Impact Statement*, http://solareis.anl.gov/documents/supp/index.cfm (last visited Nov. 12, 2011).

⁶³⁹ U.S. BUREAU OF LAND MGMT., DEP'T OF THE INTERIOR & U.S. DEP'T OF ENERGY, *supra* note 69, app. C, at C-1.

⁶⁴⁰ Id.

⁶⁴¹ Id.

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that designated lands available for solar ROW applications would be subject to the programmatic administrative policies and design features listed in the SEDP.⁶⁴² In this manner, during the initial application stage, RMP/LUP would serve to "establish the minimum specifications for management of individual solar energy projects and mitigation of adverse impacts."643 In addition, RMP/LUP would mandate that SEZ-specific design features apply to solar facilities in the identified SEZ areas.⁶⁴⁴ BLM states that these RMP/LUP amendments aim to "ensure that solar energy development on BLMadministered lands [will] be administered efficiently and consistently."645 BLM also anticipates amending the RMP/LUP "to adapt to changing circumstances or new information" and that the SEDP will "adapt and conform" to these future RMP/LUP decisions.⁶⁴⁶

C. BLM's Preferred Alternative: The Solar Energy Development Program

The BLM's SEDP preferred alternative lays the groundwork for both this action and the SEZ alternative. The only significant departure between the SEDP alternative and the SEZ alternative concerns the amount of land available for development across BLM lands in the six-state study region. For example, while the SEDP alternative would exclude only BLM lands that present environmental or technical obstacles to solar development, such as national monuments and areas of critical environmental concerns, the SEZ alternative would exclude all BLM lands outside designated SEZ areas.⁶⁴⁷ The SEZ alternative would reduce available acreage for project designation by nearly 97% from the 21,581,154 acres available under the SEDP alternative to 677,384 acres.⁶⁴⁸ A total of approximately 120 million acres of land are under BLM oversight in the six-state region of the study,⁶⁴⁹ so the SEDP alternative

lands that BLM directly administers.

rights on some other federal lands within each of these states; these figures are only for the

⁶⁴² Id. app. C, at C-12.

 $^{^{643}}$ Id. at 2-6.

⁶⁴⁴ Id. app. C, at C-13.

⁶⁴⁵ Id.

⁶⁴⁶ Id. at 2-7. 647 Id. at 2-7 to -8 tbl.2.2-2, 2-14.

⁶⁴⁸ Id. at 2-3 tbl.2.2-1. ⁶⁴⁹ BLM administers 8.4 million acres in Colorado, 22.9 million acres in Utah, 13.4 million acres in New Mexico, 12.2 million acres in Arizona, 48 million acres in Nevada, and 15.2 million acres in California. U.S. Bureau of Land Mgmt., Dep't of the Interior, Arizona: About Arizona BLM, http://www.blm.gov/az/st/en/info/about.html (last visited Nov. 12, 2011); U.S. Bureau of Land Mgmt., Dep't of the Interior, California: About BLM in California, http://www.blm.gov/ca/ st/en/info/about blm.html (last visited Nov. 12, 2011); U.S. Bureau of Land Mgmt., Dep't of the Interior, Colorado: About BLM Colorado, http://www.blm.gov/co/st/en/BLM_Information/about_ blm.html (last visited Nov. 12, 2011); U.S. Bureau of Land Mgmt., Dep't of the Interior, Nevada: In the Spotlight, http://www.blm.gov/nv/st/en.html (last visited Nov. 12, 2011); U.S. Bureau of Land Mgmt., Dep't of the Interior, New Mexico: About BLM New Mexico, Oklahoma, Texas and Kansas, http://www.blm.gov/nm/st/en/info/about_blm.html (last visited Nov. 12, 2011); U.S. Bureau of Land Mgmt., Dep't of the Interior, Utah: In the Spotlight, http://www.blm.gov/ pgdata/content/ut/en.html (last visited Nov. 12, 2011). BLM also oversees mineral, oil, and gas

would make 18% of all BLM land available for projects. The SEZ alternative would make only 0.56% of BLM land available.

Regardless of the potential acreage available for siting projects, under both alternatives, each development application would be subject to standardized administration and authorization policies.⁶⁵⁰ The SEDP alternative also offers standardized design features, applicable to all solar project ROWs on BLM lands within the six-state study area.⁶⁵¹ The Solar PEIS provides a holistic look at the BLM lands proposed for solar development and outlines an overview of the affected environment in the six-state study area. This review also details impacts that will likely arise from implementing SEDP administrative measures and design features and compares and contrasts these impacts with those that will likely arise from the more development-restrictive SEZ alternative.

1. Solar Energy Development Program Administrative Policies

Relevant to this Article, the proposed SEDP administrative policies address "requirements for coordination and/or consultation with other federal and state agencies ... and establish requirements for public involvement."652 These requirements aim to "ensure that all projects are thoroughly reviewed, input is collected from all interested stakeholders, and projects that could result in significant adverse impacts are eliminated early in the planning process."653 The proposed policy primarily features preapplication meetings between federal and state land managers and prospective project applicants.⁶⁵⁴ The policy mandates that applicants, "in conjunction with BLM staff," coordinate with state agencies and local land managers as early as possible.⁶⁵⁵ Although the proposed policy lists specific topics that should be covered during this preliminary meeting, including visual resource values and sensitive resources, the policy does not provide guidance for conducting ongoing coordination between federal and state agencies throughout the permitting process. Notably, the proposed policy does not reference the prepared list of agencies and applicable state and local laws in Appendix H.

2. Affected Environment, Environmental Impacts, and Solar Energy Department Program Design Features

The Solar PEIS defines "design features" as "mitigation measures that have been incorporated into the proposed action or alternatives to avoid or reduce adverse impacts."⁶⁵⁶ Mitigation measures include reducing impact by

⁶⁵⁰ U.S. BUREAU OF LAND MGMT., DEP'T OF THE INTERIOR & U.S. DEP'T OF ENERGY, *supra* note 69, at 2-4 to -5.

⁶⁵¹ *Id.* at 2-6.

⁶⁵² Id. at 2-4.

 $^{^{653}}$ *Id.* at 2-4 to -5.

⁶⁵⁴ Id. app. A, at A-26.

⁶⁵⁵ *Id.* app. A, at A-27.

⁶⁵⁶ *Id.* at 2-4.

^{10.} at 2 **1**.

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denying an action, minimizing the impact from the action, repairing or rehabilitating impacts, implementing preservation techniques, and substituting resources.⁶⁵⁷ Despite the helpful framework provided by these guidelines, BLM underscores that these design features "establish the *minimum* specifications for management of individual solar energy projects."⁶⁵⁸ Accordingly, design features often call for "project-specific plans," which would be implemented and analyzed in project-specific EISs.⁶⁵⁹

a. Water Resources

The Solar PEIS emphasizes that the affected environment, an arid climate with scarce water resources, "can make obtaining water supplies for solar energy development difficult."⁶⁶⁰ The Solar PEIS provides an outline of the legal structure and policy measures implemented in each state, however, BLM also underscores:

Several constraints in using this baseline should be recognized. Drought conditions, which have occurred in the six states since early 2000, may reduce the water supply substantially from time to time, thus affecting the pattern of water use. Water use may also be legally restricted because of water right issues and various interstate compacts. As water rights can be transferred or traded, the use of water among various sectors could also change with time. Such transfer of water rights is affected by national and local economies. Regional population growth and weather patterns related to climate change may also contribute to the variation of water supply and use. Finally, conservation measures implemented in different states change water use behaviors. All in all, water supply and use are dynamic and interdependent in nature.⁶⁶¹

In listing impacts from the SEDP alternative, BLM limits its discussion to exceptionally broad, general impacts, commonly associated with water use in the arid, southwest region.⁶⁶² For example, its analysis identifies that use of groundwater may deplete this resource, as well as result in land subsidence, and reduce aquifer recharge, while use of surface water will reduce stream flows and may deteriorate water quality.⁶⁶³

To this end, the SEDP provides a basic framework for the minimum requirements necessary to develop a solar project on southwest BLM lands. The design features and mitigation measures required for water resource impacts identify the "main objectives" to be achieved through these tools.⁶⁶⁴ First, solar development projects are required to "promote the sustainable use of water resources through appropriate technology selection and

⁶⁵⁷ Id.

 $^{^{658}}$ Id. at 2-6 (emphasis added).

⁶⁵⁹ Id.

 $^{^{660}}$ Id. at 4-58.

⁶⁶¹ Id. at 4-59.

⁶⁶² See generally id. at 5-1 to -281.

⁶⁶³ *Id.* at 5-39 to -41.

⁶⁶⁴ *Id.* app. A, at A-45 to -46.

conservation practices."665 Second, projects must protect against degradation to water quality.⁶⁶⁶ To achieve these goals, the first SEDP water resource design feature echoes the SEDP's administrative collaboration policies by requiring developers to coordinate with federal, state, and local water resource regulators.⁶⁶⁷ This design feature facilitates water service permitting for construction and operation of proposed solar facilities.⁶⁶⁸ This design feature also aims to ensure that developers will consider and implement water conservation methods and technology.⁶⁶⁹ Likewise, water resource design features require solar facility developers to develop water resource monitoring plans and to ensure that use of these resources will not affect the rights of others, water quality, or environmental resources dependant on the implicated water source.⁶⁷⁰ These features also forbid facilities that would "contribute to the significant long-term decline of groundwater levels or surface water flows and volumes."671

b. Green Jobs: Labor and Employment

The Solar PEIS presumes that the socioeconomic impacts from both proposed alternatives will impact communities within a fifty-mile radius of proposed projects.⁶⁷² To assess the impacts of solar development on socioeconomic factors, BLM compared statistics for the overall six-state region by providing brief descriptions of employment, unemployment, personal income, state and individual tax revenues, population, and state and local government services.⁶⁷³ This survey reveals that California possesses the largest work force, while other states maintain relatively small labor pools.⁶⁷⁴ However, the survey indicates that many local workers are currently unemployed and potentially available to work on solar energy facilities.⁶⁷⁵ Depending on the scale of particular projects and the technology employed, BLM predicts jobs created from construction could range anywhere from eight, at a small-scale PV facility on New Mexico BLM lands, to 7740, at a large-scale parabolic trough facility on BLM lands in California, and anywhere from 1 to 321 operations positions at facilities of the same size and location.⁶⁷⁶ Although economic activity associated with these projects would represent a relatively small portion of states' gross domestic product, this economic impact would most likely be concentrated in removed, rural

665 Id.

666 Id. app. A, at A-46.

667 Id.

668 Id.

669 Id.

670 Id. app. A, at A-49 to -50.

671 Id. app. A, at A-54.

672 Id. at 5-227.

⁶⁷³ See id. at 4-176 to -183.

 $^{674}\,$ Id. at 4-177.

675 Id.

676 Id. at 5-235, 5-238, 5-245, 5-248.

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areas and may bring significant local benefits.⁶⁷⁷ Despite these employment boons, the Solar PEIS cautions that solar development may create tensions in host communities. Although relatively new solar-based impacts, such as local recreation or environmental based economic development impacts, are difficult to assess, former studies demonstrate that energy boomtowns sometimes experience social disruption from rapid demographic changes.⁶⁷⁸ In particular, BLM predicts "a transition away from a more traditional lifestyle of ranching in small, isolated, close-knit, homogenous communities with a strong orientation toward personal and family relationships, toward a more urban lifestyle … and increasing dependence on formal social relationships within the community."⁶⁷⁹

To mitigate these impacts, the SEDP includes design features that require BLM to work with state and local governments "to develop community monitoring programs . . . [to] evaluate socioeconomic impacts resulting from solar energy development" when BLM concludes that a project will have a "substantial" impact on a community.⁶⁸⁰ Furthermore, design features permit, but do not require, BLM to include stipulations in ROW grants requiring developers to coordinate agreements with local governments.⁶⁸¹ The SEDP recommends that programs include activities such as vocational training programs and financial support to disseminate information regarding solar development and potential resultant health impacts.⁶⁸²

D. Proposed Solar Energy Zones

The Solar PEIS defines an SEZ as "an area with few impediments to utility-scale production of solar energy where BLM would prioritize solar energy and associated transmission infrastructure development."⁶⁸³ These areas are categorized by placement near existing transmission or designated corridors, roads, and a landscape with slopes of less than 1% to 2% and a minimum of 2500 acres.⁶⁸⁴ SEZs are also only located outside areas that prioritize conservation, such as lands in the National Landscape Conservation System and ACECs.⁶⁸⁵ The SEZ alternative would limit solar development activities to identified SEZ areas. However, based on the knowledge gained as projects develop in these areas, BLM would possess the power to expand, add, remove, or reduce the scope of the listed SEZs.⁶⁸⁶ The Solar PEIS presents information gleaned from site visits to these SEZs and "extensive effort[s] to collect and evaluate existing data on important

686 Id. at 2-11.

 $^{^{677}}$ See generally id. at 5-227 to -250 (discussing socioeconomic impacts of the solar development programs).

⁶⁷⁸ *Id.* at 5-231.

⁶⁷⁹ *Id.* at 5-232.

 $^{^{680}\,}$ Id. app. A, at A-99.

⁶⁸¹ Id. app. A, at A-99 to -100.

⁶⁸² Id. app. A, at A-100.

⁶⁸³ *Id.* at 2-10.

⁶⁸⁴ Id.

⁶⁸⁵ Id. at 2-8 tbl.2.2-2, 2-10.

resources."⁶⁸⁷ In conjunction with these site-specific studies, BLM identified adverse impacts to resources and proposed SEZ-specific design features to address acknowledged concerns.⁶⁸⁸ As a result, BLM hopes that this process and proposed mitigation measures may "support a streamlined environmental process for future solar development activities, with an anticipated lower-level effort at the specific site if there are no new circumstances."⁶⁸⁹

1. Nevada

The SEZ alternative proposes opening 171,265 acres of the state's 40,794,055 acres (0.4%) of BLM land to solar development.⁶⁹⁰ This would reduce the area available for solar development by 98.1% from 9,084,050 compared to that available for such development under the BLM's preferred SEDP alternative. The Solar PEIS proposes seven SEZ parcels located on BLM lands in Nevada, ranging in size from the Gold Point SEZ, 4810 acres, to the Dry Lake Valley North SEZ, 76,874 acres.⁶⁹¹ All seven parcels are located in southern Nevada.

a. Water Resources

BLM describes the environment surrounding all seven proposed Nevada SEZs as rural, undeveloped scrublands.⁶⁰³ Precipitation across the SEZs ranges from four to sixteen inches of precipitation annually in the desert basin areas that comprise the SEZs.⁶⁰⁴ These meager resource influxes are supplemented by snow melt and run off from surrounding areas of higher elevation and mountain ranges.⁶⁰⁵ However, this additional precipitation recharge may, at most, derive from sixty-one annual inches of snowfall to as little as three inches of snowfall per year.⁶⁰⁶ None of the SEZ study areas possess perennial surface waters and future solar developers will therefore need to rely on groundwater to fulfill water needs for project operations.⁶⁹⁷ Three out of seven groundwater basins underlying proposed SEZ sites are

- ⁶⁹⁴ Id. at 11.1-55, 11.2-57, 11.3-53, 11.4-59, 11.5-53, 11.6-51, 11.7-47.
- ⁶⁹⁵ Id.

⁶⁸⁷ *Id.* However, there is evidence that each state BLM office had anywhere from as few as just eight days to as many as 50 days to develop its SEZ recommendations before they were incorporated into the PEIS. Dustin Mulvaney, Sci., Tech., & Soc'y Postdoctoral Scholar, Address at University of California, Santa Cruz: Prospecting the Solar Energy Frontier: Decarbonization, Sputnik Moments, and the Political Ecology of the Green New Deal (Apr. 20, 2011) (on file with author).

⁶⁸⁸ U.S. BUREAU OF LAND MGMT., DEP'T OF THE INTERIOR & U.S. DEP'T OF ENERGY, *supra* note 69, at 2-11.

⁶⁸⁹ Id. at 2-11 to -13.

⁶⁹⁰ *Id.* at 2-3 tbl.2.2-1.

⁶⁹¹ Id. at 2-12 tbl.2.2-3.

⁶⁹² *Id.* at 11.1-1, 11.2-1, 11.3-1, 11.4-1, 11.5-1, 11.6-1, 11.7-1.

⁶⁹³ *Id.* at 11.1-1, 11.2-1, 11.3-1, 11.4-1, 11.5-193, 11.6-1, 11.6-171, 11.7-1, 11.7-17.

⁶⁹⁶ *Id.* at 11.1-55, 11.2-57, 11.3-53, 11.5-53, 11.6-51, 11.7-47.

 $^{^{697}}$ Id. at 11.1-55, 11.1-64, 11.2-57, 11.2-64, 11.4-59, 11.5-53, 11.5-61, 11.6-51, 11.7-47, 11.7-54.

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officially over-appropriated.⁶⁹⁸ Of the remaining basins, one is fully appropriated, and two are currently subjects of NDWR analysis and therefore temporarily suspended from additional allocation.⁶⁹⁹ Rights already under consideration for these suspended basins far exceed either basin's perennial yields.⁷⁰⁰ Out of seven SEZ locations, only one overlies a groundwater basin that is not over-appropriated and within sustainable perennial yields.⁷⁰¹ This basin retains a surplus recharge of 274 afy.⁷⁰² Five of the seven applicable groundwater basins are designated by NDWR.⁷⁰³ Two of these basins express preferences to apply groundwater resources first to municipal and domestic water uses.⁷⁰⁴

In light of the scarce water resources in proposed SEZs, BLM provides additional, SEZ-specific mitigation measures in the Solar PEIS to decrease adverse impacts to these resources. Water requirements for different solar technologies drastically vary.⁷⁰⁵ For example, to implement the proposed build-out scenario of 80% in Nevada's largest proposed SEZ, Dry Lake Valley North, total water use requirements for parabolic trough, wet-cooled technologies would require 61,650 to 184,605 afy.⁷⁰⁶ In contrast, dry-cooled technologies would require 4858 to 18,616 afy for power tower, dish engine would require 3492 afy, and PV panel technology would require only 349 afy.⁷⁰⁷ In all SEZs. BLM acknowledges that wet-cooling technologies are not feasible and mandate that "other technologies should incorporate water conservation measures."⁷⁰⁸ SEZ-specific measures also identify the agency or district and process that control groundwater rights.⁷⁰⁹ For example, in the Millers SEZ, "[g]roundwater rights must be obtained through coordination with NDWR and current water rights holders."710 Beyond these broad recommendations, the Solar PEIS SEZ analysis provides no further mitigation requirements or mitigation guidance.

b. Green Jobs: Labor and Employment

For each SEZ, the Solar PEIS investigates a proposed socioeconomic "region of influence" (ROI), typically a two or three county area where workers are expected to absorb project and employee expenditures.⁷¹¹ Although the SEZ analysis provides county-specific statistics regarding employment, unemployment, personal income, state and individual tax

⁷⁰⁷ Id.

⁶⁹⁸ *Id.* at 11.1-60, 11.3-57, 11.7-51.

⁶⁹⁹ *Id.* at 11.2-339, 11.4-63, 11.5-58.

⁷⁰⁰ Id. at 11.4-63, 11.5-58.

⁷⁰¹ See id. at 11.6-54.

 $^{^{702}}$ Id.

 $^{^{703}\,}$ Id. at 11.1-60, 11.3-57, 11.5-58, 11.7-51.

⁷⁰⁴ *Id.* at 11.3-57, 11.7-51.

 $^{^{705}}$ See id. at 11.1-62 & tbl.11.1.9.2-1.

⁷⁰⁶ *Id.* at 11.4-66 tbl.11.4.9.2-2.

 $^{^{708}}$ Id. at 11.1-67, 11.2-67, 11.3-63, 11.4-69, 11.5-64, 11.6-60, 11.7-57.

⁷⁰⁹ *Id.*

⁷¹⁰ *Id.* at 11.7-57.

⁷¹¹ *Id.* at 11.1-289, 11.2-279, 11.3-297, 11.4-271, 11.5-259, 11.6-221, 11.7-193.

revenues, population, and state and local government services, the analysis otherwise largely echoes the observations made in BLM's broad overview of the proposed SEDP.⁷¹² These statistics reflect that in all Nevada SEZs the leading source of employment arises either from service labor or wholesale and retail trade.⁷¹³ Construction represented an average 10% to 12% of the workforce in each SEZ ROI.⁷¹⁴ The statistics also reflect the 2009 recession and note recent higher rates of unemployment in the ROI, as well as statewide.⁷¹⁵

The Solar PEIS also predicts the amount of employment generated in each SEZ ROI associated with each form of potential solar technology. Overall, parabolic trough technology requires the largest labor force for both construction and ongoing operation.⁷¹⁶ In order of descending labor force power tower, dish engine, and PV fields—would create fewer positions.⁷¹⁷ For example, BLM estimates that an 80% build-out of the Dry Lake North SEZ with solar trough technology would create 9071 construction positions and 4126 operations positions.⁷¹⁸ In comparison, applying PV technology in the same area would create only 685 construction positions and 182 operations positions.⁷¹⁹ The SEZ analyses note how many public service employees would need to be hired by the community to maintain the current ratio at which public services are being provided to community citizens.⁷²⁰ Echoing the SEDP analysis, BLM reiterates that impacts to recreational factors are difficult to predict and that an influx of a significant outside population may create a cultural shift from small rural community to a more formal, urban lifestyle.⁷²¹ BLM does not provide any SEZ-specific mitigation measures and defers to the design features recommended in the SEDP.⁷²²

c. Public Participation

The public comment period for the draft Solar PEIS closed on May 2, 2011.⁷²³ BLM had not released either these public comments or its analysis of those comments as of the writing of this Article. We therefore rely here on public comments submitted during the pre-drafting, scoping meetings to develop some insights into the concerns of local, regional, and national citizens who voiced their opinions either through written statements or oral

714 Id.

 $^{^{712}}$ See, e.g., id. at 11.1-289 tbl.11.1.19.1-1, 11.2-279 tbl.11.2.19.1-1, 11.4-271 tbl.11.4.19.1-1, 11.5-259 tbl.11.5.19.1-1, 11.6-221 tbl.11.6.19.1-1, 11.7-193 tbl.11.7.19.1-1.

⁷¹³ *Id.* at 11.1-289, 11.2-279, 11.3-297, 11.4-271, 11.5-259, 11.6-221, 11.7-193.

 $^{^{715}}$ Id. at 11.1-290 tbl.11.1.19.1-3, 11.1-291, 11.2-281, 11.3-297, 11.4-273 & tbl.11.4.19.1-3, 11.5-261, 11.6-221 to -223 & tbl.11.6.19.1-3, 11.7-195 & tbl.11.7.19.1-3.

⁷¹⁶ See id. at 11.1-301 to -308.

⁷¹⁷ Id.

⁷¹⁸ *Id.* at 11.4-286, 11.4-288.

 $^{^{719}\,}$ Id. at 11.4-293.

⁷²⁰ See id. at 11.1-303, 11.1-305, 11.1-307 to-308.

⁷²¹ See id. at 11.1-300.

 $^{^{722}\,}$ See id. at 11.1-310.

⁷²³ Solar Energy Dev. Programmatic EIS Info. Ctr., *Getting Involved*, http://solareis.anl.gov/ involve/index.cfm (last visited Nov. 12, 2011).

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testimony at public hearings. Public comments regarding Nevada's SEZs demonstrate a concern for conserving water resources throughout the state's BLM lands.⁷²⁴ Commentators recommended that BLM remove both the Delamar Valley SEZ and the Dry Lake Valley North SEZ because groundwater is fully appropriated in these areas.⁷²⁵ Likewise, the East Mormon Mountain SEZ and Millers SEZ raised concerns regarding limited water resources, and commentators recommended that in the Amargosa Valley SEZ a "no-net-water-drawdown stipulation should be implemented."⁷²⁶ However, only the Bullard Wash SEZ was eliminated in the Supplement to the Draft PEIS.⁷²⁷

2. Arizona

Of the 9,218,009 acres of BLM lands in Arizona, the Solar PEIS SEDP proposes opening 4,485,944 acres (48.7%) for solar development potential.⁷²⁸ The SEZ alternative would limit this area to 13,735 acres of these federal lands (a 99.7% reduction in potential solar development area on Arizona BLM lands).⁷²⁹ This alternative proposes three SEZ areas within Arizona, ranging in size from 2618 acres to 7239 acres.⁷³⁰ All three SEZs are located in west-central Arizona, within 100 miles of Phoenix.⁷³¹

a. Water Resources

Like the proposed Nevada SEZs, Arizona's proposed SEZs all lie in areas characterized as "undeveloped and rural," and "scrubland characteristic of a semiarid basin" or valley.⁷³² Precipitation is likewise limited in these areas, ranging between four and fourteen inches per year and six and twenty-two inches in surrounding elevations and mountain ranges.⁷³³ Evaporation is high in the identified basins and ranges from 105 to 115 inches per year.⁷³⁴ As in Nevada, none of the proposed SEZs feature perennial surface waters, and developers must satisfy water requirements from underlying groundwater basins.⁷³⁵ However, unlike Nevada, the majority of proposed SEZs, two out of three, are not located above AMAs or

 $^{^{724}}$ See U.S. BUREAU OF LAND MGMT., DEP'T OF THE INTERIOR & U.S. DEP'T OF ENERGY, supra note 69, at 14-4.

⁷²⁵ Id. at 14-5.

 $^{^{726}\,}$ Id. at 14-4 to -5.

⁷²⁷ U.S. BUREAU OF LAND MGMT., DEP'T OF THE INTERIOR & U.S. DEP'T OF ENERGY, SUPPLEMENT TO THE SOLAR DRAFT PEIS at app. B (October 21, 2011), *available at* http://solareis.anl.gov/documents/supp/Appendix_B.pdf.

⁷²⁸ U.S. BUREAU OF LAND MGMT., DEP'T OF THE INTERIOR & U.S. DEP'T OF ENERGY, *supra* note 69, at 6-2 tbl.6.1-1.

⁷²⁹ Id.

⁷³⁰ Id. at 8.1-1, 8.2-1, 8.3-1.

⁷³¹ Id.

⁷³² Id.

 $^{^{733}\,}$ Id. at 8.1-53, 8.2-53, 8.3-51.

⁷³⁴ Id.

⁷³⁵ See id. at 8.1-59, 8.2-59, 8.3-58.

otherwise conservation-restricted basins.⁷³⁶ In these basins, the SEZ analysis notes "it is legal to pump groundwater without a permit."⁷³⁷ However, this apparent leniency in state law does not signify that water resources are less scarce in Arizona than in Nevada. To the contrary, in all three SEZs, annual water use from underlying groundwater basins greatly exceeds annual recharge.⁷³⁸ For example, the Ranegras Plain groundwater basin that underlies the Brenda SEZ has "declined up to 40 ft (12 m) since irrigation began in 1949 in the basin . . . [and these] withdrawals from the basin have caused a cone of depression to form in the eastern part of the basin . . . where the highest drawdown has occurred."⁷³⁹ In the third SEZ, Gillespie SEZ, the Lower Hassayampa groundwater basin is designated as an AMA and therefore subject to greater restrictions on water use and stringent water conservation requirements.⁷⁴⁰

Despite these discrepancies in Arizona state law, the SEZ-specific design features parrot those in the Nevada SEZ analysis and mandate that, for all three Arizona SEZs, "wet cooling for the full build-out scenario" is not deemed feasible and developers should "incorporate water conservation measures" to limit water needs.⁷⁴¹

b. Green Jobs: Labor and Employment

The Solar PEIS provides an analysis of socioeconomic impacts to the ROI surrounding Arizona BLM lands that is structured identically to the report describing these impacts in neighboring Nevada.⁷⁴² Due to SEZ placement near the southeastern California border, the Arizona SEZ ROIs detail information for nearby communities in both Arizona and California.⁷⁴³ The Solar PEIS provides SEZ-specific statistics and reiterates the BLM's SEDP discussion regarding impacts to recreational factors and potentially negative boomtown cultural transition.⁷⁴⁴ Similar to Nevada, Arizona's leading source of employment in all three SEZ ROIs is either service labor or wholesale and retail trade.⁷⁴⁵ Construction positions provide between 10% and 13% of all employment in these areas.⁷⁴⁶ Unemployment rate in most ROI counties within Arizona is slightly lower on average than the unemployment rate within the state as a whole.⁷⁴⁷ Notably, in the Branda SEZ ROI, Yuma and La Paz Counties, Arizona and Riverside County, California, all three counties

⁷⁴⁵ *Id.* at 8.1-239, 8.2-273, 8.3-265.

⁷³⁶ *Id.* at 8.1-58, 8.2-58, 8.3-56.

⁷³⁷ Id. at 8.1-58, 8.2-58.

⁷³⁸ See id. at 8.1-55 to -56, 8.2-55 to -56, 8.3-55 to -56.

⁷³⁹ *Id.* at 8.1-55.

⁷⁴⁰ Id. at 8.3-56.

⁷⁴¹ Id. at 8.1-64, 8.2-64, 8.3-63.

 $^{^{742}}$ See id. at 8.1-239 & tbl.8.1.19.1-1, 8.2-273 & tbl.8.2.19.1-1, 8.3-265 & tbl.8.3.19.1-1.

⁷⁴³ See id.

⁷⁴⁴ See id. at 8.1-254, 8.2-283, 8.3-276.

⁷⁴⁶ Id.

 $^{^{747}}$ Id. at 8.1-241 tbl.8.1.19.1-3, 8.2-275 tbl.8.2.19.1-3, 8.3-265.

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possess higher unemployment rates than their respective states.⁷⁴⁸ Strikingly, Yuma County unemployment was recorded at 21.3% compared to Arizona's post-2009 unemployment rate of 8.4%.⁷⁴⁹ The Solar PEIS does not address this discrepancy between socioeconomic conditions in the SEZ ROIs by providing mitigation measures or otherwise discussing this phenomenon. Indeed, echoing the Nevada SEZ analysis, BLM does not provide any SEZspecific mitigation measures and defers to the design features recommended in the SEDP.⁷⁵⁰

c. Public Participation

BLM's summary of scoping comments for solar development on Arizona BLM lands does not reflect concerns regarding water resource use or socioeconomic impacts.⁷⁵¹

3. California

Although California possesses the fourth largest acreage of BLM lands (11,067,366 acres) in the six-state area and, correspondingly, the fourth largest acreage of lands available for solar development under the SEDP alternative at 1,766,543 acres (16% of all BLM land in the state), the proposed SEZs on California BLM lands would place California as the largest area for solar development on BLM lands in the southwest.⁷⁵² The SEZ alternative proposes 339,090 acres for solar development (an 80.8% reduction compared to the SEDP alternative) with four SEZs ranging in size from 5722 acres to 202,896 acres.⁷⁶³ The Imperial East, Iron Mountain, and Riverside East SEZs are located in southeastern California near the Arizona border.⁷⁵⁴ The Pisgah SEZ is located north of Los Angeles.⁷⁵⁵ Both the Iron Mountain and Pisgah SEZs were eliminated in the Supplement to the Draft PEIS⁷⁵⁶

a. Water Resources

The proposed BLM California SEZs are characterized as desert flatlands, spanning both the Sonoran and Mojave deserts.⁷⁵⁷ Similar to proposed Nevada and Arizona SEZs, these areas receive little annual precipitation, between three and six inches per year, and experience high

⁷⁴⁸ *Id.* at 8.1-241.

⁷⁴⁹ Id.

 $^{^{750}\,}$ Id. at 8.1-264, 8.2-299, 8.3-286.

⁷⁵¹ See id. at 14-3.

⁷⁵² Id. at 6.2 tbl.6.1-1.

⁷⁵³ *Id.* at 9.1-1, 9.2-1, 9.3-1, 9.4-1.

 $^{^{754}\,}$ Id. at 9.1-1, 9.2-1, 9.4-1.

⁷⁵⁵ Id. at 9.3-1.

⁷⁵⁶ U.S. BUREAU OF LAND MGMT., DEP'T OF THE INTERIOR & U.S. DEP'T OF ENERGY, *supra* note 727, at app. B.

⁷⁵⁷ U.S. BUREAU OF LAND MGMT., DEP'T OF THE INTERIOR. & U.S. DEP'T OF ENERGY, *supra* note 69, at 9.1-1, 9.2-1, 9.3-1, 9.4-1.

evaporation rates, seventy-four to more than 150 inches per year.⁷⁵⁸ None of the four proposed California SEZs contain perennial surface waters available for use.⁷⁵⁹ Two out of four SEZs are sited on over-drafted groundwater basins and three out of four basins are governed by local county regulations.⁷⁶⁰ The Riverside East SEZ is not governed by local county regulations and therefore permits landowners to "withdraw groundwater for beneficial use without approval from the State Water Board . . . so long as their use does not impair the availability of neighboring water rights."⁷⁶¹ Despite these discrepancies in state management, for all four SEZs, BLM provides the same SEZ-specific mitigation method provided for SEZs in Nevada and Arizona: water cooling options are deemed not feasible and other technologies should incorporate water conservation measures.⁷⁶²

b. Green Jobs: Labor and Employment

The Solar PEIS provides an analysis of socioeconomic impacts to the ROI surrounding California BLM lands that is structured identically as the report written to describe these impacts in neighboring Nevada and Arizona.⁷⁶³ Similar to these states, California's SEZ ROIs employ the greatest work force in services and wholesale or retail trade.⁷⁶⁴ The ROIs, as a whole in this area, featured slightly lower employment rates in the construction field than Nevada or Arizona, spanning between 7% and 13% of the overall work force.⁷⁶⁵ Interestingly, the counties featured in the California SEZ ROIs feature the greatest discrepancy in unemployment rates both before and after the 2009 recession of the three states addressed in this Article. The California SEZ ROIs overlay Riverside County, San Bernadino, Imperial County, California, and Yuma County, Arizona.⁷⁶⁶ Riverside and San Bernadino counties experienced relatively low unemployment both before and after the 2009 recession, approximately 6% in both counties in 2008 and 13% following 2009, roughly equal to the state's average unemployment figures in both these periods.⁷⁶⁷ In contrast, Yuma and Imperial Counties have been experiencing high and increasing unemployment, approximately 17% in both counties 2008 and rising to 21.3% and 29.3% respectively in 2009.⁷⁶⁸ Similar to Arizona's SEZ analysis, the Solar PEIS does not address this discrepancy between socioeconomic conditions or state jurisdictions in the SEZ ROIs by providing mitigation measures or otherwise discussing this phenomenon. Likewise, echoing the Nevada and Arizona SEZ analyses, BLM

⁷⁶⁵ Id.

⁷⁵⁸ *Id.* at 9.1-57, 9.2-59, 9.3-57, 9.4-65.

⁷⁵⁹ See id. at 9.1-63, 9.2-65, 9.3-64, 9.4-73.

 $^{^{760}\,}$ Id. at 9.1-61, 9.2-63, 9.3-60, 9.3-68, 9.4-71.

⁷⁶¹ Id. at 9.4-71.

⁷⁶² *Id.* at 9.1-68, 9.2-70, 9.3-69, 9.4-78.

⁷⁶³ See id. at 9.1-231, 9.2-269, 9.3-269, 9.4-337.

⁷⁶⁴ Id.

 $^{^{766}}$ Id. at 9.1-231, 9.1-233, 9.2-271, 9.3-269, 9.4-337.

⁷⁶⁷ *Id.* at 9.3-269, 9.4-337.

⁷⁶⁸ Id. at 9.1-233.

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does not provide any California SEZ-specific mitigation measures and defers to the design features recommended in the SEDP.⁷⁶⁹

c. Public Participation

BLM's summary of scoping comments for solar development on California BLM lands does not reflect concerns regarding water resource use or socioeconomic impacts.⁷⁷⁰

E. Collaborative Processes for the Solar Programmatic Environmental Impact Statement

The Solar PEIS explicitly notes that these efforts were prepared "by the BLM Washington Office" in coordination with BLM state and field offices in the six-state study area "to ensure that the analysis adequately reflects stateand local-level concerns and issues regarding solar energy development."771 BLM executed MOUs with nineteen state and federal agencies, which expressed an interest in cooperating to prepare the Solar PEIS.⁷⁷² In Nevada, although neither PUCN nor NDWR chose to act as a cooperating agency, local governments from all counties listed for SEZ siting (Clark, Esmeralda, Nye, Eureka, and Lincoln counties) signed MOUs with BLM in order to participate in the Solar PEIS.⁷⁷³ In Arizona, neither state agencies (ACC and ADWR) nor local governments participated in drafting efforts.⁷⁷⁴ In California, CEC and CPUC served as cooperating agencies.⁷⁷⁵ Agencies and local governments that opted to execute MOUs with BLM were able to review the draft Solar PEIS before publication. The Solar PEIS does not discuss the extent of participation between BLM and these coordinating entities or the nature, outcome, positive or negative aspects of these relationships.⁷⁷⁶ BLM notes that, following draft PEIS review and before ROD approval, the governors of the six-state study area "will be given the opportunity to identify any inconsistencies between the proposed plan amendments and state or local plans."777

F. Environmental Assessment of Specific Solar Energy Zones in the Solar Programmatic Environmental Impact Statement

Not surprisingly, the adequacy and depth of the environmental assessment and analysis in the Solar PEIS varies across the complex geography of the BLM's holdings in the desert southwest. In general, there is

⁷⁶⁹ *Id.* at 9.1-253, 9.2-292, 9.3-289, 9.4-357.

 $^{^{770}\,}$ Id. at 14-3 to -4.

 $^{^{771}\,}$ Id. at 14-7 to -8.

⁷⁷² *Id.* at 14-8.

⁷⁷³ *Id.* at 1-19 to -20.

⁷⁷⁴ See id.

⁷⁷⁵ Id.

⁷⁷⁶ Id. at 1-19.

 $^{^{777}\,}$ Id. at 14-9.

a fairly detailed inventory of key resource issues for the SEZ areas as well as analysis of the likely visual impacts of SEZ development on wilderness areas, ACECs, important hydrologic resources, and wildlife listed under the ESA. We were unable to evaluate every SEZ analysis in detail, but the Pisgah SEZ in California shows an impressive level of detail for a programmaticlevel EIS.⁷⁷⁸ The analysis of desert tortoise habitat and distribution appears quite coarse, however, and there is little discussion of how a relatively high density of desert tortoises on the northeastern boundary of the SEZ would be affected by Pisgah SEZ development.⁷⁷⁹ Metapopulation analyses of how "islands" of desert tortoise habitat might become isolated with SEZ development, thereby threatening metapopulation viability, are also not addressed in adequate detail for full PEIS tiering (especially for purposes of complying with the ESA).⁷⁸⁰ We are therefore unsure if the SEZ analysis is adequate to expedite project-level review under NEPA or the ESA. (The Pisgah SEZ was eliminated in the Supplement to the Draft PEIS, however, so the Pisgah SEZ may not have been representative of the adequacy of the NEPA analysis conducted for other SEZ areas. We were unable to review other SEZ areas in detail so we cannot offer conclusions about their adequacy for NEPA tiering.)

Areas designated as part of the SEDP alternative have much less specific analysis, so it is highly likely that PEIS tiering would be of relatively little value for projects proposed outside the SEZ areas if the BLM's preferred SEDP alternative is selected in the BLM ROD. The vast majority of currently proposed projects are outside of SEZs, so it is understandable why BLM would prefer the SEDP alternative to the SEZ alternative in order to maximize achievement of ARRA and EPAct policy goals. It is doubtful that the Solar PEIS provides adequate analysis of these non-SEZ areas to expedite project-level review under NEPA,⁷⁸¹ however, so adoption of the SEDP alternative may result in less immediate project development than adoption of the more comprehensive SEZ alternative. The adequacy of the PEIS analysis for each SEZ area. We have not attempted to evaluate the SEZ-level analyses except to briefly review the Pisgah SEZ.

In short, the SEZ alternative may allow PEIS tiering and therefore expedited NEPA review for *some* projects in *some* SEZ areas—but will probably still require supplemental analyses under NEPA, the ESA, and possibly state water law requirements in many cases. The SEDP alternative is unlikely to allow PEIS tiering for expedited NEPA review for any projects outside of SEZ areas—but the PEIS does provide useful information that can be the foundation for NEPA and ESA analyses that could lead BLM to reject some ROW grant applications through a coarse filter. More detailed and time-consuming project-level analysis will probably be necessary in most

⁷⁷⁸ See id. at 9.3-1.

 $^{^{779}\,}$ Id. at 9.3-123, 9.3-139 tbl.9.3.12.1-1.

⁷⁸⁰ See id.

 $^{^{781}}$ See id. at 2-5, 2-9 (discussing the need to perform site-specific analyses before projects can be approved).

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cases for individual projects if they are located outside of SEZ areas compared to those located within SEZ areas (this will be true regardless of which alternative is adopted). Such detailed NEPA analysis is also likely in some of the SEZ areas with weaker documentation. Based on the Ivanpah project experience, moreover, more detailed species- and population-specific analysis is probably necessary to address ESA concerns.⁷⁸²

VIII. CONCLUSION: THE SOLAR PROGRAMMATIC ENVIRONMENTAL IMPACT STATMENT IS ONLY A STARTING POINT FOR FUTURE SOLAR DEVELOPMENT ON BLM LANDS

The Solar PEIS will serve as a useful reference point and strong source of preliminary, centralized guidance for utility-scale solar development on BLM lands in the desert southwest. This overarching document will provide a needed baseline for agency efforts to manage its multiple-use mandate and its task to balance development and conservation. This benefit is evidenced by comparing the three fast-track projects reviewed by this Article and the administrative policies, design features, and mitigation measures recommended and mandated by the SEDP and SEZ programs outlined in the Solar PEIS.

A. The Solar Programmatic Environmental Impact Statment: The Benefits of Regional BLM Multi-Use Guidelines

Most importantly, the Solar PEIS provides an essential geographic overview of the BLM's proposed six-state study area. This document offers a perspective of the regional landscape as a greater whole and provides undeniable land use planning benefits, which may fail to materialize from individual project EISs. In this manner, the Solar PEIS provides a centralized source of baseline environmental data for the region. This culmination of data presents BLM, the public, and developers with an opportunity to assess potential adverse impacts beyond the borders of specific projects, to brainstorm wide-ranging mitigation measures, and to anticipate and plan for environmental and legal restrictions that extend beyond site-specific or state-specific borders. For example, Solar PEIS analyses include information regarding "[d]rought conditions, which have occurred in the six states since early 2000," and provide information and mitigation measures for interstate legal paradigms, including "water right issues and various interstate compacts."⁷⁸³

The Solar PEIS confronts the tension between the national, state, and regional interests in rapidly developing renewable energy technology and BLM's mandate to conserve environmental resources. The PEIS sets forth a national policy regarding how the agency should balance these tensions. For

⁷⁸² Cf. Wang, supra note 612.

⁷⁸³ See BUREAU OF LAND MGMT., DEP'T OF THE INTERIOR & U.S. DEP'T OF ENERGY, *supra* note 69, at 4-59.

example, the Solar PEIS clarifies that when conflicts arise between optimizing megawatt-hours, renewable energy initiatives, and conserving water resources, water resource conservation should take precedence, even when not so mandated by state water statutes and regulations.⁷⁸⁴ The Solar PEIS clarifies for BLM that the message delivered by proposed projects on BLM lands should reflect efforts to obtain water conservation before obtaining greater access.⁷⁸⁵ This guidance is specified in SEDP water resource mitigation measures and objectives, including the requirement to "promote the sustainable use of water resources through appropriate technology selection and conservation practices" and the prohibition against facilities that would "contribute to the significant long-term decline of groundwater levels or surface water flows and volumes."786 For areas where states do not impose legal restrictions or conditions on groundwater withdrawals, these mandates, including the prohibition on wet-cooling technology in all SEZs in Nevada, Arizona, and California, provide guidance on how BLM should balance its multi-use mission on federal lands, while providing an additional conservation benefit to the state.⁷⁸⁷ Thus, the Solar PEIS suggests that the decision made by Arizona BLM to favor wet-cooling in the draft SSEP likely does not comply with the Solar PEIS mandate. However, BLM's subsequent incorporation of a dry-cooling alternative in the Final EIS is consistent with the Solar PEIS.

B. Proposed Improvements to the Solar Programmatic Environmental Impact Statment

Although a regional guidance document that provides centralized information regarding national policies and guidelines for federal, nationally promoted efforts offers, at a minimum, the above mentioned benefits, the Solar PEIS fails to live up to its potential to approach land use issues in a proactive and innovative manner. The following provides examples of some actions and research BLM may wish to consider in order to address potential impacts, conflicts, and tensions that arise from utility-scale solar development.

 $^{^{784}}$ See *id.* at 8.1-64, 8.2-64, 8.3-63, 9.1-68, 9.2-70, 9.3-69, 9.4-78, 11.1-67, 11.2-67, 11.3-63, 11.4-69, 11.5-64, 11.6-60, 11.7-57 (finding wet-cooling technology infeasible in all SEZ regions in Nevada, Arizona, and California, although wet-cooling options provide for the most megawatthours); *see also supra* notes 82–85.

 $^{^{785}}$ OFFICE OF SEN. JON KYL, *supra* note 82, at 12; *see* U.S. DEP'T OF THE INTERIOR BUREAU OF LAND MGMT. & U.S. DEP'T OF ENERGY, *supra* note 69, at 8.1-64, 8.2-64, 8.3-63, 9.1-68, 9.2-70, 9.3-69, 9.4-78, 11.1-67, 11.2-67, 11.3-63, 11.4-69, 11.5-64, 11.6-60, 11.7-57 (calling for technologies to incorporate conservation).

⁷⁸⁶ U.S. BUREAU OF LAND MGMT., DEP'T OF THE INTERIOR & U.S. DEP'T OF ENERGY, *supra* note 69, app. A, at A-45 to -46, A-54.

 $^{^{787}}$ Id. at 8.1-64, 8.2-64, 8.3-63, 9.1-68, 9.2-70, 9.3-69, 9.4-78, 11.1-67, 11.2-67, 11.3-63, 11.4-69, 11.5-64, 11.6-60, 11.7-57.

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1. Water Resources

The Solar PEIS fails to draw on conservation measures already mandated and implemented by statute or regulation in states within the sixstate study area. For example, in Arizona, statutes permit the ADWR director to require the use of effluent for industrial project water needs, if effluent is available at comparable cost to groundwater.⁷⁸⁸ Likewise, at least one recently approved, fast-track solar project also mandates the use of effluent to recharge groundwater to ensure that project water needs do not threaten water resource preservation.⁷⁸⁹ To authorize the current fast-track Silver State Solar Project on BLM lands in Nevada, NDWR requested that Nevada BLM require the developer, NextLight, to recharge groundwater with effluent from a nearby correctional facility, if the project compromises basin needs.⁷⁹⁰ The Solar PEIS does not consider the use of effluent to meet water use or recharge needs for solar projects. BLM should consider this conservation alternative as one of a myriad of options to address the tension between solar facility development and water resource preservation. Furthermore, when considering how to balance competing interests, BLM should thoroughly research state and local law, as well as previous federal, state, or private solar siting efforts, for previously enacted, successful mitigation measures that help balance these competing interests.

2. Green Jobs: Labor and Employment

The Solar PEIS provides an excellent opportunity for workers, governments, and communities to contemplate the labor practices and policies that should be considered when executing renewable energy development. The Draft Solar PEIS falls short of facilitating this opportunity. DOI's statutory authority for developing solar projects on public lands, the EPAct, states that the Act's central purpose is "[t]o ensure jobs for our future with secure, affordable, and reliable energy."⁷⁹¹ Likewise, the extension of DOE funding to utility solar development on BLM lands is authorized by ARRA, which focuses on preservation of employment for the American workforce.⁷⁹² Public comments submitted regarding current fast-track projects also reflect this national goal. For example, public comments submitted regarding Nevada's Silver State Solar project and California's Ivanpah project emphasize a desire to see these efforts mature into plentiful and lucrative job opportunities.⁷⁹³ Considering this emphasis on employment, BLM should take pains to look for creative ways to leverage solar

⁷⁸⁸ ARIZ. REV. STAT. ANN. § 45-515(A)(2) (2003).

⁷⁸⁹ LAS VEGAS FIELD OFFICE, *supra* note 307, at 4-26.

⁷⁹⁰ Id.

 $^{^{791}}$ Energy Policy Act of 2005, Pub. L. No. 109-58, pmbl., 119 Stat. 594 (codified primarily in scattered sections of 42 U.S.C.).

 $^{^{792}}$ American Recovery and Reinvestment Act of 2009, 42 U.S.C. $\$ 16516(a), (c) (Supp. III 2009).

⁷⁹³ LAS VEGAS FIELD OFFICE, *supra* note 307, app. F, at 0065-11 to -12, 0066-10 to -11; U.S. BUREAU OF LAND MGMT., *supra* note 295, app. A-1, at A.1-8, A.1-182.

development's potential to ameliorate current unemployment rates. Furthermore, BLM should utilize the Solar PEIS as a means to mitigate potential problems arising from labor disagreements and to ensure that developers create high-end, well-paying jobs.

BLM's suggested mitigation measures to mandate community monitoring programs in socioeconomic ROIs for solar projects and encouragement to developers to initiate community outreach programs provide a starting point for these efforts.⁷⁹⁴ BLM should amend the Draft Solar PEIS by mandating these community outreach programs and requiring additional measures that address the quality, not just the quantity of labor generated by solar projects on federal lands. Consequently, BLM should provide more specific guidance regarding the implementation of these programs.

In addition, BLM should use the Solar PEIS as an opportunity to build a new body of information regarding the intersection of fair labor concerns and renewable energy development. For example, in the PEIS, BLM should provide a checklist of mandated factors that a more specific, detailed review in project-specific EISs must take into account. These factors would address labor standards and would include, at a minimum, potential unions in the area that may bid on solar projects; any agreements between developers and labor contractors; any applicable Project Labor Agreements; and, state and federal laws such as the Davis-Bacon Act, which require employers to pay prevailing wages to workers employed on federally funded projects.⁷⁹⁵ These factors are strikingly absent from the canon of socioeconomic factors that appear in project-specific EISs. For example, public comments for the California Ivanpah project note that BrightSource's Engineering, Procurement, and Construction Contractor executed an agreement with the California Building Trades Council "to ensure fair wages and benefits for the workers who contribute to this project."796 However, the Ivanpah FEIS does not mention this agreement.

The Solar PEIS should also require BLM project-specific EISs to consider innovative techniques to solving fair labor and unemployment problems. For example, California SEZ areas reflect striking contrasts in local employment patterns.⁷⁹⁷ While Riverside County and San Bernadino County experienced 13% unemployment following the 2009 recession, Yuma County, Arizona and Imperial County, California experienced unemployment rates as high as 29%.⁷⁹⁸ BLM should encourage project-specific EISs to consider and recommend to developers innovative labor agreements such as those utilized by the Apollo Project in Los Angeles, which combats local

⁷⁹⁴ U.S. BUREAU OF LAND MGMT., DEP'T OF THE INTERIOR & U.S. DEP'T OF ENERGY, *supra* note 69, app. A, at A-99 to -100.

⁷⁹⁵ Davis-Bacon Act, 40 U.S.C. § 3142(b) (2006).

⁷⁹⁶ U.S. BUREAU OF LAND MGMT., *supra* note 295, app. A-1, at A.1-182.

⁷⁹⁷ See, e.g., U.S. DEP'T OF THE INTERIOR BUREAU OF LAND MGMT. & U.S. DEP'T OF ENERGY, supra note 69, at 9.1-233, 9.3-269, 9.4-337.

⁷⁹⁸ Id.

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unemployment by requiring publically funded projects to employ a certain percentage of workers from the area directly impacted by these projects.⁷⁹⁹

3. Resource Management Plan Amendments: The First Tier of Management

The RMP/LUP serves as the primary mechanism to ensure BLM acts according to the mission set forth in FLPMA: to balance multiple-use and conservation goals when managing public lands.⁸⁰⁰ The difference in outcome between current fast-track projects demonstrates the important and influential impact of these legally binding guidance documents. For example, the water resource conservation ethos promoted by Nevada's LVRMP implements statements encouraging water conservation in the Silver State Solar Project; in contrast, Arizona's LGSRMP provides no guidance towards water conservation and has led to a project that sacrifices this scarce resource, until the BLM modified its Preferred Alternative in the Final EIS.⁸⁰¹

The Solar PEIS fails to address adequately the role of RMP/LUP in the planning process. BLM should emphasize the importance, if not mandate, *full* updates of RMP/LUP that do not currently provide for renewables development on public lands. The RMP/LUP is a holistic guidance document that should look towards the interactions of different uses across public lands. Therefore, BLM should seek to update RMP/LUPs that address all foreseeable uses and mitigate other uses in such a way that is compatible and accounts for future solar developments.

4. The Solar Programmatic Environmental Impact Statement Should Mandate Increased Efforts Towards Interagency Coordination and Collaboration

FLPMA requires BLM to comply with applicable state laws when granting ROWs.⁸⁰² Furthermore, regulations encourage BLM to go beyond this bare minimum, to reach out, and to coordinate "to the fullest extent possible" with state and local governments when authorizing ROWs.⁸⁰³ Although the Solar PEIS takes an encouraging step by mandating pre-application meetings with developers (otherwise only encouraged by FLPMA regulations), the Solar PEIS should mandate contact between BLM and other agencies or local governments that oversee implicated legal

⁷⁹⁹ See Beach, *supra* note 104, at 3–4, 14–15; CAL. APOLLO ALLIANCE, THE CALIFORNIA APOLLO PROGRAM: CREATING AND KEEPING CLEAN ENERGY JOBS IN CALIFORNIA 10 (2010), *available at* http://apolloalliance.org/Downloads/TheCaliforniaApolloProgram.pdf.

⁸⁰⁰ U.S. BUREAU OF LAND MGMT., *supra* note 136, at 1.

⁸⁰¹ See LAS VEGAS FIELD OFFICE, *supra* note 308, at 2-8 to -9, 3-19; LAS VEGAS FIELD OFFICE, *supra* note 307, at 4-26; LOWER SONORAN FIELD OFFICE, *supra* note 458, at 3-111, 3-115, 3-119; LOWER SONORAN FIELD OFFICE, *supra* note 411, at ES-1, ES-9, 2-2; *supra* note 418 and accompanying text.

 ⁸⁰² Federal Land Policy and Management Act of 1976, 43 U.S.C. § 1765(a)(iii)–(iv) (2006).
⁸⁰³ 43 C.F.R. § 2801.2(d) (2010).

mandates regarding resource development.⁸⁰⁴ Furthermore, although the Solar PEIS encourages BLM to include other affected agencies in preapplication meetings, the Solar PEIS does not set up a specific protocol for establishing contact with these agencies.⁸⁰⁵ A model practice could echo CDCAP mandates requiring BLM to "participate to the maximum extent possible in State Energy Commission hearings on powerplants proposed for siting in the CDCA."806 Likewise, similar to the CEC MOU and the Renewable Energy Action Team (REAT) MOU agreements, the Solar PEIS could encourage or mandate BLM to execute MOUs detailing agency-specific responsibilities with affected state and local agencies when siting future solar facilities on BLM lands.⁸⁰⁷ This practice not only ensures that all voices and governing constituents are considered when developing projects, but also serves to streamline efforts to authorize projects. As previously mentioned, states also may devise innovative measures to address potential conflicts based on regional knowledge unavailable to a national agency. In developing the Draft Solar PEIS, it is surprising to find both Nevada's electric utility agency, PUCN, and Arizona's ACC absent from the coordinating agencies list.⁸⁰⁸ Although BLM possesses sole jurisdiction to approve land uses on BLM lands, both state agencies oversee environmental standards or certificates, which must be met before utility developers may proceed with proposed projects.⁸⁰⁹ Likewise, water resource managers in Nevada, Arizona, and California did not serve as participating agencies.⁸¹⁰ BLM should make all attempts possible to engage these groups and should outline a programmatic system to initiate this engagement (e.g., MOUs, formal notification requirements). Without collaboration efforts, especially concerning water resource access, solar project development proposals may face a deadlock between state and federal authorities.

C. The Solar Programmatic Environmental Impact Statement and Solar Energy Zone-Specific Analysis Cannot Replace Project-Specific Environmental Impact Statements and Should Not Serve as a Rubber Stamp for Future Projects

The more specific the guidance for a particular project and the greater the direction provided towards navigating the legal mandates, political agreements, and policy concerns, the faster solar projects will be approved to meet the nation's current economic urgency and the better these projects will serve the community and the nation.

 $^{^{804}}$ U.S. BUREAU OF LAND MGMT., DEP'T OF THE INTERIOR & U.S. DEP'T OF ENERGY, supra note 69, app. A, at A-26 to -30.

⁸⁰⁵ See id.

⁸⁰⁶ BUREAU OF LAND MGMT., *supra* note 1, at 95.

⁸⁰⁷ CEC MOU, *supra* note 579, at 1; REAT MOU, *supra* note 546, at 2.

⁸⁰⁸ U.S. BUREAU OF LAND MGMT., DEP'T OF THE INTERIOR & U.S. DEP'T OF ENERGY, *supra* note 69, at 1-19 to -20.

⁸⁰⁹ NEV. REV. STAT. § 704.865 (2009); ARIZ. REV. STAT. ANN. § 40-360.02 (2011).

 $^{^{810}}$ U.S. BUREAU OF LAND MGMT., DEP'T OF THE INTERIOR & U.S. DEP'T OF ENERGY, supra note 69, at 1-19 to -20.

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To this end, the BLM's SEZ alternative is the better choice for providing guidance for solar development on public lands compared to the SEDP (BLM's preferred alternative in the original Draft PEIS). The SEZ alternative limits development to areas with known environments and investigated effects. The conversations regarding the tensions between development and conservation in these areas has already begun and relationships have already been formed. We are pleased that BLM has made the SEZ approach its preferred alternative in the Supplement to the Draft PEIS, but we have not been able to analyze the new SEZ preferred alternative for this Article.

However, the SEZ alternative should not serve as a rubber stamp for future solar projects. BLM needs to take a close look at each project on a case-by-case basis and should attempt to apply innovative answers to regionally specific resource/development tensions. The Solar PEIS above all should establish a framework that facilitates this process on all projects and provides guidance towards how these conflicting interests should be addressed.

D. Reconciling Conflicts over Water, Work, Wildlife, and Wilderness

Our analysis of the institutional setting and fast-track project evaluation and decision process for BLM ROW grants shows significant variation across BLM state offices as well as state legal regimes for addressing water issues. Collaboration takes many forms, and the substantive result of BLM's collaborative planning process varies across the region. The Solar PEIS offers an important first step toward greater consistency in the BLM's decision making, but it is not a panacea for the challenge of cumulative impacts analysis or expedited NEPA review through the tiering provisions of the CEQ guidelines. It is nevertheless an excellent starting point for more systematic RMP/LUP updating and the development of more consistent policies across BLM's holdings in order to adopt "best practices" to reconcile the competing mandates driving BLM's fast-track review of utility-scale solar project ROW grants.

The next step is to update the RMP/LUP documents within each state BLM office to incorporate the data and analysis that has been brought together through the Solar PEIS effort. The Solar PEIS is a good birds-eye view of the issues raised by utility-scale solar development in the desert southwest, but the hard choices of addressing tradeoffs must be made through the RMP/LUP updates. Only then will BLM have the level of analysis necessary to assure that project proponents will be directed to the most appropriate locations for ROW grants and that those project proposals can be expedited through NEPA review through RMP/LUP tiering.⁸¹¹

⁸¹¹ As Glennon and Reeves put it, "A cynic might suggest that what the PEIS will have accomplished is to say: 'Here is some land where maybe we will let you build.'" Robert Glennon & Andrew M. Reeves, *Solar Energy's Cloudy Future*, 1 ARIZ. J. ENVTL. L. & POL'Y 91, 114 (2010). Unfortunately, more site-specific analysis at the RMP/LUP level will probably be necessary after the PEIS for BLM decisions on ROW grants.