RENEWABLE ENERGY DEVELOPMENT ON STATE TRUST LANDS[1]

Ada C. Montague, Samuel J. Panarella**, and Peter Yould****

TABLE OF CONTENTS

[1] This article is slated to be published by the Duke Environmental Law Forum in 2022 and may be further edited prior to that date (see https://delpf.law.duke.edu/).

I. INTRODUCTION

The enormous growth in installed capacities of renewable energy sources, primarily wind and solar energy projects, in the United States, the European Union, and China over the last ten years shows no signs of slowing as we enter the third decade of the millennium. Indeed, even in the midst of a worldwide pandemic that wreaked havoc on manufacturing capacities, construction timelines, and supply chains for steel, PV-grade glass and silicon, copper, and other key components for renewable energy projects, global installations of renewable energy sources in 2020 grew by 45 percent from 2019 levels.[2] Globally, 261 gigawatts (GW) of new renewable energy capacity was added in 2020, 50 percent more than the previous record for annual global renewable energy additions.[3] The vast majority of this new installed capacity was wind and solar projects, which together accounted for 91 percent of new global installed capacity in 2020.[4] New installations of renewable energy sources also far outstripped installations of nonrenewable energy sources, accounting for 82 percent of total global installed power capacity from all sources in 2020.[5] Looking forward, renewables are projected to account for 90 percent of total global power capacity increases in both 2021 and 2022.[6]

These global trends are reflected in the rosy projections for continued growth of renewables in the United States. In its Annual Energy Outlook 2021, the U.S. Energy

---

* Attorney at the Montana Department of Natural Resources and Conservation, with special thanks for final formatting to Aliselina Strong, paralegal at Morrison Sherwood Wilson & Deola, PLLP.
** Professor of Law & Director of the Max S. Baucus Institute, Alexander Blewett III School of Law at the University of Montana
*** J.D. 2021 Alexander Blewett III School of Law at the University of Montana
[2] International Energy Agency (IEA), *Renewable Energy Market Update 2021*, IEA, Paris (2021), https://www.iea.org/reports/renewable-energy-market-update-2021.
[3] International Renewable Energy Agency (IRENA), *Renewable Capacity Highlights* (Mar. 31, 2021), https://www.irena.org/-/media/Files/IRENA/Agency/Publication/2021/Apr/IRENA_-RE_Capacity_Highlights_2021.pdf?la=en&hash=1E133689564BC40C2392E85026F71A0D7A9C0B91.
[4] *Id*.
[5] *Id*.
[6] International Energy Agency, *Renewable Energy Market Update 2021*, IEA, Paris (2021), https://www.iea.org/reports/renewable-energy-market-update-2021.

Information Administration (EIA) projected a doubling of the share of renewables in the United States' electricity generation mix in the next 30 years, from 21% in 2020 to 42% in 2050.[7] Wind and solar projects are expected to be responsible for much of this growth.[8] The EIA projects 21.3 GW of new wind capacity and 32.1 GW of new utility-scale solar capacity will be installed in the United States in the next two years alone.[9]

The average utility-scale wind or solar energy project has an installed capacity of nearly 100 megawatts, meaning hundreds of new utility-scale wind and solar projects are likely to be built in the United States in the next two years alone, with thousands more constructed in the following decades to meet the United States' growing electricity needs as the use of non-natural gas fossil fuels to generate electricity is expected to decline rapidly during this period.[10] These new wind and solar projects will require the leasing of tens or even hundreds of thousands of acres of land by renewables developers to site wind turbines and solar facilities, much of it in the western United States where most of the best wind and solar resources in the U.S. are found, as well as large tracts of relatively unencumbered land.[11] With many of the best (most energetic) sites for wind and solar projects already hosting operating wind and solar farms, the already fierce competition for what remains is likely to intensify with the growing demand for renewable electricity in the coming years. For reasons discussed later in this article, renewable energy developers have long favored leasing privately-owned land for their wind and solar projects. In

[7] U.S. Energy Information Administration, *EIA projects renewables share of U.S. electricity generation mix will double by 2050* (Feb. 8, 2021), https://www.eia.gov/todayinenergy/detail.php?id=46676.
[8] *Id*.
[9] U.S. Energy Information Administration, *Short-Term Energy Outlook* (July 21, 2021), https://www.eia.gov/outlooks/steo/report/electricity.php.
[10] Samantha Gross, *Why There's No Bringing Coal Back*, Brookings Institute (Jan. 16, 2019), https://www.brookings.edu/blog/planetpolicy/2019/01/16/why-theres-no-bringing-coal-back/.
[11] National Renewable Energy Lab, *Land Use by System Technology*, https://www.nrel.gov/analysis/tech-size.html (Typical solar energy projects require 6.1 acres of land per MW of installed capacity and typical wind energy projects require 44.7 acres of land per MW on installed capacity).

the future, however, the growing scarcity of prime, privately-owned sites will force some developers to take a closer look at public lands for their projects, including state trust lands.

The unique land management requirements of state trust lands, including, most importantly, providing funding for state public school budgets, makes these lands well-suited for leasing to developers for renewable energy and motivates state land managers to seek out such leases in fulfilling their fiduciary duties to school trust beneficiaries. However, the various states' land management styles, regulatory landscapes, and permitting requirements, as well as the energy potential of the state trust land being considered, all factor into developers' decisions of whether to locate all or a portion of a renewable energy project on state trust lands. This article looks at the opportunities and challenges presented by leasing state trust lands for renewable energy projects.

Over the course of several months in 2021, the authors compiled data and anecdotal information from interviews with five renewable energy developers and thirteen state trust land managers. The land managers were selected from the National Association of State Trust Lands (NASTL) member states that currently have renewable energy projects in their portfolios.[12] The interviews provide an on-the-ground view of current renewable energy development on state trust lands from the individuals most closely involved in the process, and helped identify best practices in leasing these lands, from both developer and land manager perspectives, for renewable energy development. The interviews surfaced common challenges in the state trust land leasing process, as well as opportunities for process improvements to attract developers and increase the use of state trust lands for renewable energy. The importance of protecting trust interests in negotiating renewable energy leases was also highlighted, and managers shared some

[12] National Association of State Trust Lands (NASTL), https://www.statetrustland.org/.

best management practices to address concerns common among trust land managers, including how to balance the potential for increased renewable energy development on state trust lands with the leasing of these same lands for mineral extraction and the public's right to access them for recreation. Many of the lessons learned apply equally to wind and solar leasing on private lands, as state trust land managers must protect interests similar to those of concern to a private landowner.

This article focuses on the states where solar and wind energy development is occurring on trust lands to provide examples and tools for state trust land managers and renewable energy developers, though it will be useful to anyone interested in getting acquainted with renewables leasing in general. It looks to regulatory and statutory law, case law, and anecdotal and experiential information from state trust land managers and renewable energy developers to reach its conclusions and offer its solutions. Part II of this article gives a brief overview of state trust lands in general and the states with renewable energy leasing as part of their state trust lands' portfolio. Part III discusses strategies that state trust land managers can implement to attract renewable energy development. Part IV details the terms and conditions for renewable energy leases on state trust lands, analyzes approaches to the parties' reaching agreement on unique or specialized terms, and offers a guide for how to structure these types of leases on state trust lands to benefit both renewable energy developers and trust beneficiaries. Part V briefly discusses leasing state trust lands for other renewable energy resources, such as geothermal and hydropower. The article concludes with a brief discussion of the future of leasing state trust lands for renewable energy development.

II. OVERVIEW OF STATE TRUST LANDS

Public school budgets rely on state decisions about land use management in many ways. One that is often overlooked is the public-school funding generated from state school trust lands.

State trust lands exist in thirty states and make up a collective land mass that is double the holdings of the U.S. Park Service and rivals that of the US Forest Service.[13] As one author put it, "State trust lands exist in a quiet corner of public resources management, only occasionally coming into view. Their obscurity conceals both important lands and resources, and the opportunity to extract from their management significant lessons for public resource management more generally."[14]

State trust lands are a unique part of a state's land holdings, reserved to the public at the time of statehood and encumbered by a trust.[15] The lands are to be used and managed for the purpose of funding state schools and are therefore revenue generating lands typically overseen by a commissioner or land board, charged with serving as the fiduciary for the trust beneficiaries, the residents of the state. Typically, this fiduciary duty requires balancing the revenue generating potential of the land with its long-term viability as a trust asset. Renewables leasing on state trust lands offers a revenue expansion opportunity for state trust land managers while also increasing the diversification of trust revenues. State trust lands, in turn, offer developers a public relations benefit by supporting public school systems when they build their projects on state trust lands. While each state has different developable renewable resources within its school trust lands, where these resources are abundant the trust beneficiary stands to realize a significant profit. Arizona, for example, currently brings in more than nine million dollars per

[13] JON SOUDER & SALLY FAIRFAX, THE STATE TRUST LANDS: HISTORY, MANAGEMENT, AND SUSTAINABLE USE 5 (1996).
[14] *Id*. at 1.
[15] Washington Department of State Lands (for the Western State Land Commissioners Association), *The Federally Granted Trusts: What Makes Them Unique* 4 (Jan. 5, 1999), https://www.statetrustland.org/uploads/1/2/0/9/120909261/fedtrusts.pdf; *compare with State of Alabama v. Schmidt*, 232 U.S. 168, 173, 34 S. Ct. 301, 302, 58 L. Ed. 555 (1914) ("As long ago as 1856 it was decided 'the trusts created by these compacts relate to a subject certainly of universal interest, but of municipal concern, over which the power of the state is plenary and exclusive;' and it was held that the state of Michigan could sell its school lands without the consent of Congress.") (citations omitted).

year from renewable energy development on its state trust lands, Colorado nearly two million dollars, and New Mexico a little over one million dollars per year.[16] With the potential of co-locating renewables with other uses of state trust lands in some instances, as well as creating leases for energy project support infrastructure, like battery storage, significant potential for revenue growth remains as renewables take on a larger role in the United States' energy supply sector.[17]

Entering into renewable energy leases on state trust lands offers the possibility of creating a new stream of revenue from the land once the project is operational. Often, however, the path from signing a lease to an operational renewables project that generates electricity and associated revenue to the state is lengthy and uncertain. State trust land managers, who seek to maximize every dollar for the trust, must dedicate scarce time and resources to the leasing effort, which may not ultimately result in an operational project. In contrast, it is standard practice among national renewable energy developers to secure leasehold interests in parcels of land (private, state, and federal) with enough identified resource, be it average wind speed or solar exposure, to potentially support a utility-scale renewables project in many locations across the country.[18] These projects are placed in a portfolio of potential projects that the developer maintains and selects from to move forward to subsequent stages of development (permitting, financing, constructing, and so on) based on a myriad of considerations, including the availability of a purchaser of the electricity, access to transmission lines to move the electricity to market, and the availability of state and federal incentives and credits. No renewable energy developer builds

[16] National Association of State Trust Lands (NASTL), *FY20 Member State Data* (Feb. 28, 2021), https://www.statetrustland.org/uploads/1/2/0/9/120909261/report_-_topic_compilations_02-28-21.pdf.
[17] Marlene Motyka, *2021 Renewable Energy Outlook Report*, Deloitte, https://www2.deloitte.com/us/en/pages/energy-and-resources/articles/renewable-energy-outlook.html.
[18] Telephone interview with Ty Dual, CEO, Primergy Solar (Mar. 16, 2021) (hereinafter *Dual Interview*).

even a quarter of the potential projects in their portfolio, meaning many renewable energy leases will never provide the lessor with lease revenues beyond whatever is paid by the lessee as a signing bonus and monthly or annual pre-operational rent. These twin realities – a state trust manager's need to carefully allocate resources in fulfilling their fiduciary obligations, and a renewable energy developer's need to secure leasehold rights to many more potential projects than it could or would ever build to give it options to respond to dynamic market and regulatory conditions, can create friction between the parties when discussing leasing state trust lands for renewable energy projects.

There is also a significant difference between the constraints and opportunities presented by utilizing state trust lands for renewable energy development, particularly in comparison with private lands, but also when compared to federal lands. State trust lands must always first be evaluated by their creation document, a state's enabling act. These acts contain various limitations on how these lands can be used that can vary from state to state and that do not apply to a state's privately held lands. Because these lands are meant to generate revenue to be used for a state's public schools, and often are required to follow state constitutional mandates for prudent investing and sustainable yield, they can be more developer friendly than federal lands.[19] However, parcels of state trust lands are often found in a checkerboard pattern, interspersed among private and federal lands, as they were typically conveyed in portions through a state's enabling act as every "sixteenth and thirty-sixth section of land."[20] Thus, unlike some federal land holdings that cover larger, contiguous areas and can host an entire renewable energy project within their boundaries, state trust lands are much more likely to be combined with adjacent private and/or federal lands to make up the project area of a renewable energy project.

[19] Uma Outka, *State Lands in Modern Public Land Law*, 36 STAN. ENVTL. L.J. 147, 173 (2017).
[20] Act of February 22, 1889, Ch. 180, 25 Statutes at Large 676, Mont. Code Ann. § Enabling Act 1889.

Of the twenty-one NASTL member states, twelve are currently engaged in renewable energy leasing. The states with the most abundant wind, solar, geothermal and hydropower potential, not surprisingly, have the most activity. These states include Arizona, Wyoming, Oklahoma, New Mexico, and Colorado. There are other NATSL states that have significant renewable resources on their state trust lands, but have comparatively lower renewable energy leasing activity, including Montana, Oregon, and California. Interest in developing these resources on state trust lands in these states exists, but for various reasons discussed below, relatively few projects have come to fruition. The following chart provides state-by-state information about the number of installed and pending renewable energy projects on state trust lands and annual revenues generated from the installed projects for each NASTL state. The information compiled is current as of the date of publication and offers a starting point for further research as well as a snapshot in time of renewables leasing on state trust lands in 2021.

Figure 1.1: NASTL Member States Renewables Leasing Summary[21]

NASTL Member State	Number of Renewable Energy Projects	Installed Megawatt Capacity	Revenue to State School Trust Generated in FY2020	State Trust Land Renewables Program website (or related)
AZ	17 wind (136 turbines) 4 solar	577 MW wind 1,810 MW solar	$9,555,945.00	https://land.az.gov/applications-permits
CA	1 wind 1 solar	0 MW (all in planning or construction phases)		https://www.slc.ca.gov/renewable-geothermal-energy/
CO	25 wind (90 turbines) 41 solar 1 geothermal	200 MW wind 25 MW solar	$1,893,981.00	https://slb.colorado.gov/lease

[21] Compiled with assistance from NASTL and all state interviewees; NASTL, *supra* note 15; NASTL, *Renewable Energy*, https://www.statetrustland.org/renewable-energy.html.

NASTL Member State	Number of Renewable Energy Projects	Installed Megawatt Capacity	Revenue to State School Trust Generated in FY2020	State Trust Land Renewables Program website (or related)
ID	1 wind 2 geothermal			https://www.idl.idaho.gov/leasing/energy-resource-leasing/
MT	1 wind (13 turbines)	19.5 MW wind	$109,971.26	http://dnrc.mt.gov/divisions/trust/real-estate/commercial-leasing/available-for-lease-now
NM	14 wind 6 solar 2 geothermal	95MW wind 71MW solar (On deck – 524MW wind 232 MW solar)	$1,227,854.00	https://www.nmstatelands.org/divisions/commercial-resources/renewable-energy/announcements-and-open-procurements-office-of-renewable-energy/
ND	4 wind (14 turbines)	22.9 MW wind		https://www.land.nd.gov/surface-minerals-management
OK	8 wind (29 turbines)	96.9 MW wind	$355,709	https://clo.ok.gov/services/special-use-leasing/wind/
OR	1 solar 1 geothermal (on hold currently)			https://www.oregon.gov/dsl/Land/Pages/Land.aspx
SD	5 wind (3 turbines)		$75,000.00	https://www.statetrustland.org/south-dakota.html
TX	1 wind		$436,063.00	https://www.glo.texas.gov/energy-business/renewables/index.html.
UT	20 solar 3 geothermal		$1,218,871.00	https://trustlands.utah.gov/business-groups/surface/special-use-

NASTL Member State	Number of Renewable Energy Projects	Installed Megawatt Capacity	Revenue to State School Trust Generated in FY2020	State Trust Land Renewables Program website (or related)
				leases/renewable-energy-facility-leases/.
WA	19 wind (155 turbines)		$1,247,541.00	https://www.dnr.wa.gov/programsservices/product-sales-and-leasing/energy.
WY	20 wind	532.8 MW wind	$724,187.00	Wind leasing - https://lands.wyo.gov/trust-land-management/surface-leasing/wind-energy-leases.
Total	116 wind 73 solar 9 geothermal	2.3 GW wind 1.9 GW solar	$16,845,122.30	

III. IMPEDIMENTS AND OPPORTUNITIES TO LEASING STATE TRUST LANDS FOR RENEWABLE ENERGY DEVELOPMENT

To understand the factors a renewable energy developer considers when deciding whether to lease state trust land for a renewable project, interviews were conducted with developers from the renewable energy companies Ecoplexus, Paragon, Primergy Solar, SunPower, and AES. These individuals collectively have almost a hundred years of experience in the renewables industry.

In the course of these interviews, several themes became apparent from the developer's perspective: (1) uniformity, consistency and predictability of leasing and permitting processes are critical to engage developers in leasing discussions for state trust lands; (2) major barriers to pursuing renewables projects on state trust lands are often related to accessible transmission and the special review needs associated with state trust lands; and (3) mapping the resource and the transmission potential on state trust lands is key to attracting developers and making siting renewable energy projects on state trust lands easier.

Interviews were also conducted with state trust land managers and staff for thirteen states that have school trust lands with active renewable energy leasing in some form.[22] The purpose of these interviews was twofold: First, to develop a state-by-state inventory of current renewable energy leasing activity on school trust lands, including quantifying the number of existing and planned renewable energy projects located entirely, or in part, on school trust lands. Second, and most importantly, to (i) identify existing impediments to increased leasing of school trust lands for renewable energy development, and (ii) develop a list of actions that a state can take to increase renewable energy development of state trust lands. It is important to note upfront that these recommended actions are not appropriate for, or even applicable to, every state. There is a tremendous amount of variability among the NASTL states in nearly every attribute that is a necessary or desirable condition for renewable energy development. For example, the amount and quality of the renewable resource on trust lands within the state, the availability of transmission infrastructure on or near these lands to move the generated electricity to load, and the existence of staff in the state land manager's office with the resources, time and mandate to engage in the often long and time-consuming leasing process, to name just a few. That said, the interviews did reveal several potential actions that are likely applicable to most NASTL states interested in growing the amount of renewable energy development on their trust lands. These actions will likely also be relevant to anyone interested in better understanding the leasing process for renewable energy projects in general.

Taken together, these two sets of interviews showed significant areas of overlap between renewable energy developers and state trust land managers in their thinking about actions that can be taken to increase renewable energy leasing of state trust lands. The recommended actions

[22] These states are Arizona, California, Colorado, Idaho, Montana, North Dakota, New Mexico, Oklahoma, Oregon, Texas, Utah, Washington, and Wyoming.

include (a) specialized staff, (b) consolidation of land ownership, (c) inventorying lands suitable for renewable energy development, (d) permitting guides and application timelines, (e) front-loading project review, (f) thinking through multiple uses issues, such as mineral estate access, existing lessees, and recreational use, and (f) alternative lease arrangements to accommodate things like wind-solar hybrid leases and battery storage.

A. Specialized Staff

State trust land managers and renewable energy developers both benefit from the presence of staff with specialized knowledge about renewable energy project development in the state land manager's office. Developing a renewable energy project from beginning to end - from conducting early resource studies to securing land rights to obtaining a building permit to constructing the renewable facilities - is a long, complicated, and expensive process, often taking several years and costing tens or even hundreds of millions of dollars. As a partner in this process when state trust lands are within the project footprint, the state land manager's office can add tremendous value to the project development team by bringing expertise to bear in lease negotiations and land approval processes.

In states where renewable resources are plentiful and state trust land is in high demand from renewable energy developers, it may make sense for the state land manager to dedicate one or more staff members at least part time to renewables leasing and project management, including investing the time and resources necessary to train these staff members on renewable energy project development. In other states, where renewable resources are limited and demand for state trust lands is low, states may find that having a staff member with working knowledge of renewable energy projects is sufficient.

Currently, most state trust lands administrations manage renewable energy development within one of their existing land management divisions.[23] This often means the same staff handling agriculture and grazing leases, commercial leases, or oil and gas leases are also working on renewable energy leases. The complex nature of renewable energy leasing, due in-part to the multi-party negotiations between trust land managers, developers, utility companies and their regulators, strains the labor resources of state trust lands, especially in those states where staff is expected to simultaneously work across various other fields of expertise.

Conversely, state trust land administrators may have specialized staff working exclusively on renewable energy projects. New Mexico is a good example of what can happen when a state dedicates an entire department to renewable energy development on state trust lands. In 2019, Stephanie Garcia Richard, New Mexico's Commissioner of Public Lands, received funding to create the Office of Renewable Energy, a separate wing of the state trust lands management department dedicated entirely to renewable energy projects on state trust lands.[24] Since its establishment, the Office of Renewable Energy has attracted talent from other state agencies[25] and helped New Mexico trust lands become a target for renewable energy development, bringing in $1,227,854 in revenue last year and reaching an installed capacity of 95 MW of wind power and 71 MW of solar power.[26]

B. Consolidate Landownership

[23] *E.g.*, California State Land Commission, Colorado State Land Board, Idaho Dept. of Lands, Montana Dept. of Natural Resources and Conservation, North Dakota Dept. of Trust Lands, Oklahoma Commissioner of Land Office, Oregon Dept. of State Lands, Texas General Land Office, Utah School and Institutional Trust Lands Administration, Wyoming Office of State Lands and Investments.
[24] *State Land Office Hires Office of Renewable Energy Director Analyst Position*, THE VALLEY DAILY POST, https://valleydailypost.com/blog/state-land-office-hires-office-of-renewable-energy-director-analyst-position/.
[25] Telephone interview with Jeremy Lewis, Director, Office of Renewable Energy, Office of the Commissioner of State Lands (Mar. 16, 2021) (hereinafter *NM Interview*) (Mr. Lewis worked with NM Department of Energy before beginning work with NM Office of Renewable Energy).
[26] *NM Interview*, *supra* note 24; NASTL, *supra* note 15.

A longstanding issue for management of state trust lands in general is the scattered, checkerboard nature of state trust land ownership across a state, as derived from the enabling acts.[27] An effective, albeit complicated, way to attract renewable energy development to state trust lands may be to consolidate isolated parcels of state trust lands into one or more large contiguous parcel in areas with abundant renewable resources, ideally near transmission lines. Without this consolidation, the large geographic footprint required to build and operate many utility scale renewable energy projects, particularly wind energy projects, often means there is not enough available trust land to locate a project solely on state trust lands, forcing developers to cobble together land leases from multiple landowners - private, federal, and state – to create a viable project footprint.[28] By consolidating state trust lands into larger contiguous parcels, developers have the ease of working with just one landowner, one review process, and one set of permitting criteria when putting the project together.

One option for consolidation is for a state to exchange stranded trust lands with federal Bureau of Land Management (BLM) lands to consolidate state trust ownership into a larger tract in an area more suited for renewable energy development. Some environmental groups have raised concerns about the risks of these exchanged federal lands losing their protection under the National Environmental Policy Act (NEPA) and other federal environmental laws in favor of a state's potentially less restrictive environmental regulations, leading to degradation of the land.[29]

---

[27] Telephone interview with Ron Torgerson, Deputy Assistant Director – SW Area Land Sales and Government Leases, and Keli Beard, Legal Counsel, Utah Trust Lands Administration (Mar. 17, 2021); Telephone interview with Randy Collins, Public Land Manager Specialist, Vicki Caldwell, Public Land Manager – School Lands/Lease Compliance & Enforcement/ Special Projects, Patrick Huber, Legal Counsel, Kenneth Foster, Public Land Manager – Southern California and Bay Area, State Land Commission (Mar. 16, 2021) (hereinafter *CA Interview*); see also California State Lands Commission, *Renewable Energy*, https://www.slc.ca.gov/renewable-geothermal-energy/.

[28] Telephone interview with Scott Piscitello, Senior Vice President, Ecoplexus, Inc. (Mar. 6, 2021) (hereinafter *Piscitello Interview*).

[29] Keitner, Robert B., *The Evolution of Federal Public Land and Resource Law in the 21st Century*, 1 RMMLF-INST 1, 1-16 (2017).

State trust land managers should be thoughtful in which lands they seek from BLM, so as to protect cultural heritage and other environmentally sensitive areas from development.

Despite the concerns of swapping federal land for state land, some states have used land swaps to attract renewable energy development. For example, Utah successfully swapped lands with BLM in a recent Congressional open lands bill.[30] In part because Utah's environmental review process is less stringent than NEPA requirements on federal lands, Utah has been able to quickly and easily attract renewable energy developers to these contiguous parcels of land, which are now competing well against private lands for developer attention.[31] The size of the consolidated state trust land parcels allows developers to build entire renewable energy projects exclusively on state trust lands and avoid the multi-party negotiations that often occur with utility scale renewable energy projects.

On the other hand, California has been in the process of negotiating a land swap with BLM to consolidate state trust lands in the desert southwest for close to 6 years.[32] Only recently has the plan started to build momentum.[33] California's environmental review process for state lands is more stringent in many respects than the NEPA process on federal lands,[34] so

---

[30] Telephone interview with Ron Torgerson, Deputy Assistant Director – SW Area Land Sales and Government Leases, and Keli Beard, Legal Counsel, Utah Trust Lands Administration (Mar. 17, 2021) (hereinafter *UT Interview*); *see also* Amy Joi O'Donoghue, *Got renewable energy? Massive lands bill means more potential projects for Utah schools trust lands*, DESERET NEWS, Mar. 31, 2019, https://www.deseret.com/2019/3/31/20669744/got-renewable-energy-massive-lands-bill-means-more-potential-projects-for-utah-school-trust-lands#located-in-beaver-county-the-escalante-solar-project-covers-189-acres-of-school-trust-lands-and-generates-17-megawatts-of-electricity-that-is-put-in-the-electrical-grid-for-rocky-mountain-power.

[31] *UT Interview*, *supra* note 29.

[32] California State Lands Commission, *Renewable Energy*, https://www.slc.ca.gov/renewable-geothermal-energy/ ("In October 2015, the Commission and the Bureau of Land Management signed a Memorandum of Intent to exchange approximately 61,000 acres of non-revenue generating school lands in federal wilderness and other conservation areas for approximately 5,600 acres of federal lands with the potential for, or previously developed with, renewable energy facilities."); Cal. Pub. Res. Code § 8723 (2011).

[33] Kelsey Misbrener, *Biden administration restores amendments to Desert Renewable Energy Conservation Plan*, SOLAR POWER WORLD, Feb.18, 2021, https://www.solarpowerworldonline.com/2021/02/biden-administration-restores-amendments-desert-renewable-energy-conservation-plan/.

[34] Kellen Zale, *Changing the Plan: The Challenge of Applying Environmental Review to Land Use Initiatives*, 40 ECOLOGY L.Q. 833, 841-844 (2013).

development of a renewable energy project on this land might take longer and cost more in regulatory compliance than it would have if the project was developed exclusively on federal lands. Of course, the nuances of political change at the federal and state level are a consideration, and even if the regulations are more stringent, a developer may nevertheless be attracted to working with the state as a single landowner because of the high demand for renewable energy in states like California that have lofty renewable energy portfolio standards (RPS) and populous metropolitan areas in need of reliable power sources.[35]

Consolidation of lands helps state trust lands attract renewable energy development because it provides developers with the uniformity of a single landowner to negotiate with, a single review process, and one set of permitting criteria to meet. In evaluating a potential land swap with the federal government, however, state trust land managers should consider whether the challenges of negotiating the transaction outweigh the benefits of consolidating state trust lands to attract renewable energy development.

C. Inventory Lands

State trust land managers may attract more renewable energy development by identifying the trust lands under their management best suited for renewable energy development. This inventorying of lands could occur before a renewable energy developer approaches state trust land managers, or as part of a re-assessment after a developer proposes a project that fails to move forward.

States with a high demand for renewable energy development, and plenty of land to meet that demand, may initially be able to avoid inventorying lands; instead relying on expressions of

[35] *CA Interview*, *supra* note 26; Cal. Pub. Util. Code § 399.11 (2019).

interest from renewable energy developers to identify the most desirable lands.[36] However, as the most attractive trust lands are developed, inventorying the remaining trust lands may help stimulate development of the rest.[37] Washington State, for example, is focused on increasing the value of state trust lands to developers and reducing back end opposition to projects. As a result, Washington has begun the process of mapping its state trust lands to proactively identify parcels with the best potential for renewable energy, when considering a host of other factors such as endangered species, environmental and cultural concerns, access to transmission, as well as slope, soil type, and depth.[38] The state is also using its extensive data on its trust lands to incorporate local zoning, tribal concerns, and availability of utility interconnection in its inventory, with the anticipated goal of marketing to developers the trust lands best suited for renewable energy projects.[39]

Even state trust land managers that are only beginning to see interest in renewable energy development may benefit from having a catalog of trust parcels suitable for renewable energy development. For example, Texas state trust land managers, after being approached by a renewable energy developer interested in leasing state trust lands for a potential project, were

[36] Telephone interview with Tyler Seno, Commercial Leasing Program Manager, and Holly Dyer, Legal Counsel, Wyoming Office of State Lands and Investments (Mar. 6, 2021) (hereinafter *WY Interview*) (Wyoming has some of the best wind resource in the U.S., so trust land managers have been able to rely on developers to identify which parcels of state trust lands they want to develop); *NM Interview*, *supra* note 24 (NM has numerous renewable energy developers looking for land to lease for projects, so state trust lands have not needed to identify specific parcels of land that it intends to auction for renewable energy development).
[37] *NM Interview*, *supra* note 24 (As state trust lands that are suited for renewable energy become scarce, NM may be more active in its inventorying process and may even begin auctioning specific parcels it has identified as suited for renewable energy).
[38] Telephone interview with Dever Haffner-Ratliffe, Clean Energy Program Manager, and Tyson Thornburg, Senior Policy Advisor, Washington Forest and Trust Lands, Washington Department of Natural Resources (Apr. 5, 2021) (hereinafter *WA Interview*).
[39] *WA Interview, supra* note 37.

able to redirect the developer to a better suited parcel in an area where new high voltage transmission lines were being constructed.[40]

What makes lands well suited for renewable energy development? The obvious, but incomplete, answer is abundance of a given renewable resource, be it wind, sun, water, or some other renewable source. However, the renewable energy developers and state trust land managers interviewed who have successfully inventoried lands explained availability of the resource is only one of several other important factors to consider when identifying lands ripe for renewable energy development. Additional key characteristics to assess when evaluating a parcels suitability for renewable energy development include: (1) proximity to high voltage transmission lines; (2) availability of the renewable resource; (3) the presence (or ideally absence) of cultural resources and endangered species habitat; and (4) existing land uses of the parcel.

1. Proximity to Transmission Lines

While the prevalence of distributed generation (i.e., using electricity at or near the generation source) is increasing in the United States, an overwhelming percentage of electricity generated in the United States each year still comes from large power plants that rely on the electrical power grid to move electrons across the often-great distances between plants to end users. The electricity, generated at lower voltage at the source, is more efficiently transmitted at higher voltage. Transformers located at a substation at or near the power plant step-up the voltage for transmission.[41] In this centralized electricity system, the ability to transmit electricity from the point of generation to the purchaser is critical to the viability of a power project.

[40] Telephone interview with Alan McWilliams, Deputy Director, Leasing Operations, and Brice Finley, Texas General Land Office (Mar. 15, 2021) (hereinafter *TX Interview*).
[41] Telephone interview with Troy Gagliano, former wind and solar developer (Mar. 15, 2021) (hereinafter *Gagliano Interview*).

Without a secure and reliable pathway over high-voltage transmission to an electricity purchaser, even the most energetic power plant will soon founder. This is as true for a wind farm or solar project as it is for a power plant that relies on burning coal or natural gas to produce electricity. For this reason, the closer a proposed energy project is to high-voltage transmission lines, especially transmission lines with available capacity, the better.

Historically, these transformers and high-voltage transmission lines were placed near power plants so that energy could be quickly ramped up in voltage and transmitted efficiently to the customer. However, unlike centralized fossil fuel powered plants that can be placed near high-voltage transmission lines because the fuel for the plant (coal, oil, or natural gas) is capable of being transported to the generation site, renewable energy generation relies on fuel (wind, sun, water) that is tied to a specific geographic area with abundant renewable resources. These areas may not be in close proximity to high-voltage transmission lines, which means the developer decides whether the project can economically support incurring the substantial expense required to build new transmission lines and related infrastructure to reach the nearest point of interconnection with existing high-voltage transmission. For this reason, the "holy grail" of renewable energy development is a windy or sunny project area, on private land, near high-voltage transmission lines, with available capacity to carry the electricity generated by the project to market. Over the last two decades of the renewable energy boom in the United States,[42] almost all these ideal sites have been developed, forcing renewable energy developers to look further afield for less attractive, but still workable locations for their projects. Many of

[42] Timmons, David, Jonathan M. Harris & Brian Roach, *The Economics of Renewable Energy; A GDAE Teaching Module on Social and Environmental Issues in Economics*, Box 4 at 15, Table 2 at 17, Global Development and Environment Institute, Tufts University (2014).

these potential project sites are located on federal and state lands in the western U.S., including on state trust lands.

Proximity to transmission lines often plays a bigger role in siting solar projects than wind projects. Solar resources are relatively stable and predictable within certain areas, compared with wind resources, which are more variable based on a variety of factors, including the micro-geography of an area such as ridges and valleys.[43] The cost of building new transmission lines is more burdensome for a solar project than a wind project because the solar developer will likely be able to generate the same amount of power from the same size plot of land anywhere within a given region provided the solar resource is generally consistent. Building a solar farm far from existing high-voltage transmission lines adds significant cost to the project without significantly increasing the amount of power that can be generated and sold to customers.[44] Conversely, a wind farm built high on a windy ridge far from high-voltage transmission lines may generate enough electricity from its favorable location to offset the costs of building the new transmission lines to reach the high-voltage line when compared to the power generated from a wind farm built on a less windy valley floor, but near existing high-voltage transmission lines.[45]

Aside from identifying where existing high-voltage transmission lines are in relation to state trust lands, the available capacity on those lines is also a relevant piece of the puzzle to consider. A high-voltage transmission line already subscribed at 80% or greater capacity has little room for new sources of energy. Unfortunately, utilities that own transmission lines are sometimes reluctant to disclose capacity information until developers can show they have control of the land where they plan to build their project. The state trust land managers with the most

[43] *Piscitello Interview*, *supra* note 26.
[44] *Dual Interview*, *supra* note 17 (Note, however, that solar developers typically avoid developing on land that is at more than a 20 percent slope and prefer to develop on land that is sloped less than a 10 percent grade).
[45] *Piscitello Interview*, *supra* note 26.

success in identifying available capacity in transmission lines have developed transparent relationships with the utility companies in their area, such that the utilities feel comfortable disclosing available capacity on their transmission lines.[46]

2. Map Available Resources

The availability and intensity of the renewable resource on state trust lands is another critical factor when identifying which lands are best suited for renewable energy development. This information can be gathered through several different channels. There are many reputable sources that publish maps online showing state specific locations of the best wind and solar resources.[47] These maps can be cross-referenced against widely available maps of the system of high-voltage transmissions lines that make up the U.S. electrical grid.[48] New Mexico, for example, created basic maps identifying which of its state trust lands have the best wind and solar resources and how close those areas are to existing transmission lines.[49]

Another good source for this information is from the developers themselves. Most renewable energy developers employ or contract with meteorologists and other experts in assessing wind speeds and solar availability in geographic areas of interest to the developer. In many instances, a state land manager can obtain a good sense for the state trust lands under its

[46] Telephone interview with Christopher Smith, Real Estate Section Manager, and David Rodenberg, ROW and Tower Sites Manager, Colorado State Trust Land Board (Mar. 18, 2021) (hereinafter *CO Interview*) (Excel, a utility company that services Colorado, has taken the step to set its own RPS, whereas most RPS are typically set by state legislatures).

[47] Underwriters Laboratories, *Windnavigator*, https://dashboards.awstruepower.com/ (wind maps); National Renewable Energy Laboratory, *Solar Resource Data, Tools, and Maps*, https://www.nrel.gov/gis/solar.html (solar maps).

[48] Homeland Infrastructure Foundation-Level Data (HIFLD), *Electric Power Transmission Lines*, https://hifld-geoplatform.opendata.arcgis.com/datasets/electric-power-transmission-lines?geometry=-149.221%2C25.044%2C-42.522%2C49.180.

[49] New Mexico State Land Office, *Project and Maps – Office of Renewable Energy*, https://www.nmstatelands.org/divisions/commercial-resources/renewable-energy/project-and-maps-office-of-renewable-energy/.

purview with the best potential for renewable energy development simply by tracking the parcels of trust lands that receive the most expressions of interest (formal and informal) from developers.

3. Cultural Resources and Endangered Species

Additional factors to consider and document when inventorying state trust lands for possible renewable energy development is whether the parcel being assessed contains archeological or historical sites or items of cultural concern, provides critical habitat for any threatened or endangered species under the Endangered Species Act or similar applicable state wildlife protection laws, or has cultural significance to an Indian tribe.[50] The existence of any one of these characteristics does not necessarily exclude a parcel from consideration for development, but at a minimum each create a likely need for mitigation, minimization, or avoidance measures, and consultation with tribes, the federal government, and other interested parties.[51] Documenting these factors in a land inventory will benefit an interested developer in

[50] *NM Interview*, *supra* note 24 (NM has a tribal consultation requirement for after applications are submitted for a project and before approval by the commissioner); *CO Interview*, *supra* note 45 (Colorado Parks and Wildlife is brought in during planning phase lease to manage any endangered species); Telephone interview with Shawn P. Zumwalt, Property Manager, Proprietary Coordinator, and Amber McKernan, Property Manager, Proprietary Coordinator, Oregon Department of State Lands (Mar. 11, 2021) (hereinafter *OR Interview*) (sage grouse habitat is managed by Oregon FWS and US FWS and usually identified during 3-5 year demonstration period as a condition of the renewable energy lease being fully executed); *WY Interview*, *supra* note 35 (Wyoming has not needed to inventory lands because developers have been willing to take on the burden of identifying suitable areas due to the abundance of wind resource in the state, but Wyoming does have the Natural Resource and Energy Explorer (NREX) (https://nrex.wyo.gov/), a web-based GIS service that is used by developers and planners to identify energy, environmental, cultural, socioeconomic and infrastructure assets).

[51] U.S. FISH & WILDLIFE SERV., *Land-based Wind Energy Guidelines: Training Materials*, https://www.fws.gov/ecological-services/energy-development/wind-training-materials.html,; *see also* U.S. FISH & WILDLIFE SERV., *U.S. Fish and Wildlife Service Land-Based Wind Energy Guidelines*, https://www.fws.gov/ecological-services/es-library/pdfs/WEG_final.pdf; AM. WIND WILDLIFE INST., *WEGs Training*, https://vimeo.com/535933348/bccb929717; AM. WIND WILDLIFE INST., *Recommendations to Reduce Bat Fatalities at Wind Energy Facilities in Montana*, https://awwi.org/wp-content/uploads/2021/04/Recommendations-to-reduce-bat-fatalities-at-wind-energy-facilities-in-MT.pdf; ENERGY STRATEGIES, *Western Flexibility Assessment: Investigating the West's Changing Resource Mix and Implications for System Flexibility*, https://www.westernenergyboard.org/wp-content/uploads/2019/12/12-10-19-ES-WIEB-Western-Flexibility-Assessment-Final-Report.pdf; BONNEVILLE POWER ADMIN., *Montana Renewables Development Action Plan*, https://www.bpa.gov/Projects/Initiatives/Montana-Renewable-Energy/Documents%20Montana/Montana-Renewables-Development-Action-Plan-June-2018.pdf.

deciding whether to lease the land for development, as well as the state by reducing time and resources spent in fruitless lease negotiations.

4. Existing Land Use

Existing land uses on state land trust parcels are also relevant when identifying which lands may be best suited for renewable energy development.[52] Documenting any existing land uses on state trust land parcels will help identify any impacts to existing uses from siting a renewable energy project nearby and will assist in deciding whether to move forward with leasing the parcel for renewables development.

Understandably, a renewable energy developer will be wary of any restrictions on its ability to construct and operate a renewable energy project because of existing land uses. A well-known and much-publicized benefit of wind energy development is its compatibility with existing uses of the lands that make up the wind farm project footprint; most often uses related to farming and ranching the land, such as crop cultivation and animal grazing. However, this compatibility can be overstated, because wind energy developers often insist on the landowner refraining from any activities on the leased land that interfere in any respect with wind flow across the property or the construction or operation of the wind farm. That said, it is true the footprint of the installed wind facilities is usually a small fraction of the total leased property, leaving much of the land available for other uses that do not interfere.

Compare solar energy projects, which, because of their larger footprint, often are the only use that can fit on the leased land. Other than a relatively small number of existing uses, such as

[52] See Section III(f) for particulars on how various states have managed to develop renewable energy projects on lands with existing uses, including multiple party negotiations and resulting accommodation and subordination agreements.

sheep grazing, a utility-scale solar energy project is not compatible with multiple uses of land.[53] One notable anomaly is lateral drilling for oil and gas from deposits underneath solar arrays, with some using solar energy to power associated pumps.[54]

D. Permitting Guides and Clear Application Timelines

Another helpful tool that state trust land managers can put together to make a prospective renewable energy developer's required tasks clearer is a permitting guide or an application timeline. These guides can be in the form of a simple checklist of what the developer needs to do and when, or it can be more detailed and include the steps that the state trust lands department will take in the interim. Wyoming has gone with the latter approach, creating a permitting guide that walks the developer through each of the seven steps that the developer must take to obtain the rights necessary to site its project on state trust land, as well as the seventeen steps the state trust lands will take before the lease is executed.[55] Oklahoma has taken a similar approach by creating an outline of the long-term lease application process that specifies time frames a developer can expect in each stage of the process and an estimated total time from initial inquiry to lease approval ranging from ten to twenty-eight weeks.[56]

E. Front-loading Project Review

The permitting/project review phase of developing a renewable energy project on private lands nearly always comes after the land rights for the project have been secured through lease or purchase. For renewable energy projects sited on private lands the landowner and the permitting

[53] AM. PLANNING ASS'N, *Planning for Utility-Scale Solar Energy Facilities*, (Sept./Oct. 2019), https://www.planning.org/pas/memo/2019/sep/.
[54] *TX Interview*, *supra* note 39; Arpan Varhese, *The Permian paradox: Texas shale players go green to drill more*, REUTERS (Nov. 8, 2019), https://www.reuters.com/article/us-usa-energy-renewables/the-permian-paradox-texas-shale-players-go-green-to-drill-more-idUSKBN1XI1HH.
[55] WY. OFFICE OF STATE LANDS & INVS., *Wind Leases*, *Wind Energy Development Leasing Process*, https://drive.google.com/file/d/1ektMQV_FlS7TjcbtUL0fdTP1aDFtXGmi/view (hereinafter *WY Wind Leases*).
[56] COMM'RS OF THE LAND OFFICE, STATE OF OK., *Long Term Commercial Lease Process* (Sept. 2020), https://clo.ok.gov/wp-content/uploads/2015/02/LTCL-Process-Public-1.pdf.

authority are never the same party, meaning the developer does not need to directly factor permitting requirements into its lease negotiations. The situation for renewable projects on state trust lands is different. Because the landowner (the state) is also a key evaluator and decisionmaker in the project review and permitting process, in many cases the lease negotiations and project review are necessarily combined into a single process. Such concurrence can offer a benefit in terms of being a "one-stop shop," should a state work to coordinate among agencies and consolidate permitting requirements. If this approach is taken, a developer can be assured that by leasing state trust lands all permitting requirements are vetted upfront and therefore limit or even eliminate the risk of later permitting impediments.

Conducting project review during lease negotiations can be a double-edged sword, though. On one hand, a developer's willingness to invest the time, money, and resources required for obtaining a permit to build the project demonstrates that the developer is serious about following through on the project. On the other hand, requiring developers to make this investment up front, without any guarantee that their application will be approved, deters some developers from siting renewables projects on state trust lands.[57] Finally, there is also a burden on the state from early project review, as it requires significant staff time dedicated to a project that may not come to fruition. This section looks at a few states' approaches in front-loading project review.

In California, shortly after the state land commission receives the application for a renewable energy project on state trust lands, the state must begin the California Environmental Quality Act (CEQA) environmental review process.[58] The CEQA environmental review process can be lengthy and expensive, which does work to separate the serious from the non-serious

[57] *Dual Interview*, *supra* note 17; *Piscitello Interview*, *supra* note 26; *Gagliano Interview*, *supra* note 40.
[58] *CA Interview*, *supra* note 26; Cal. Pub. Res. Code § 21001.1 (1984).

developers, but also may be so onerous in some situations that it will cause even a serious developer to withdraw an application.[59]

Despite California's regulatory hurdles, it has successfully formulated the Desert Renewable Energy Conservation Plan (DRECP), an inter-agency plan between the California Energy Commission, the California Department of Fish and Wildlife, the BLM, and the U.S. Fish and Wildlife Service (FWS) that identifies areas where utility-scale development of renewable energy projects may occur without significant impacts to the long-term conservation of plant and wildlife habitat as well as preservation of recreational and scenic areas.[60] Environmental groups lauded the DRECP as "a landmark model for balanced conservation and clean energy."[61] Despite the positive reception that the DRECP received, to date no renewable energy project has broken ground in the area covered by the plan.[62]

New Mexico took a different approach to front-loading project review for renewable energy projects on its state trust lands. While New Mexico hasn't gone as far as formulating a plan like the DRECP, it has developed a system to thoroughly and timely review a proposed renewables project on state lands once an application is submitted. After the developer pays a $500 application fee, the New Mexico Office of Renewable Energy (ORE) completes an internal due diligence on the proposed project. This process includes a physical site inspection, review of all other encumbrances on the land, analysis of the potential renewable project on any agricultural leases on the site, cultural resource/ARMS review, identification of any critical plant

[59] *CA Interview*, *supra* note 26.
[60] CA ENERGY COMM'N, *Desert Renewable Energy Conservation Plan*, https://www.energy.ca.gov/programs-and-topics/programs/desert-renewable-energy-conservation-plan.
[61] Joe Bebon, *Biden's DOI revokes Trump-era attack on Desert Renewable Energy Conservation Plan*, PV MAGAZINE (Feb. 18, 2021), https://pv-magazine-usa.com/2021/02/18/bidens-doi-revokes-trump-era-attack-on-desert-renewable-energy-conservation-plan/#:~:text=Team-,Biden's%20DOI%20revokes%20Trump%2Dera%20attack%20on%20Desert%20Renewable%20Energy,and%20providing%20outdoor%20recreation%20opportunities.
[62] *CA Interview*, *supra* note 26.

and wildlife habitat on the proposed project site, the existence of valuable mineral interests, and other current uses of the land.[63] ORE also requires confirmation from the developer that it is a qualified applicant, which requires the developer, or the parent company guaranteeing the project, to have at least a $5 million net worth and experience developing or operating a similar project.[64] This vetting of applicants helps the ORE weed out applicants that lack the resources to develop and operate such projects. Obtaining assurance that the developer is willing and able to bring the project to fruition also helps justify the cost to the ORE of completing its internal project due diligence. New Mexico is also likely benefiting from economies of scale, because it has such an abundance of renewable resources and many proposed projects, it can use its specialized staff to carry out the due diligence on many proposed projects simultaneously. If one project fails to pass muster, the other projects that are successfully developed cover the costs of staff completing required due diligence.[65] Compare with Montana, where the state's sunshine laws limit the state's ability to provide a developer with confidentiality, and so trust land managers have found it challenging to obtain financial information to adequately review project viability, and get planning documents that would be helpful for measures such as preliminary site evaluations and revenue projects.[66]

Colorado takes yet another approach to front-loading the project review – a separate planning lease, covering all aspects of the project development prior to going operational, which, in turn, requires a production lease.[67] Colorado begins vetting projects before the application is even submitted in what it deems the "pre-application phase," when developers express interest

[63] *NM Interview*, *supra* note 24.
[64] *Id*.
[65] *Id*.
[66] *MT Interview*, *supra* note 73.
[67] Part IV of the article discusses planning leases, option contracts, and other exploration permits in depth.

and provide a general idea of what type of project they want to build and where. State trust land staff then conduct a line of business review, where the real estate, recreation, oil and gas, and other surface lease state departments give feedback and, if warranted, an informal approval to move forward with lease negotiations for the state trust lands being considered. At this point the developer applies to lease the trust lands and the state will do all it can to let any existing agricultural lessees of the land know about the project, be it an application for a planning lease or a production lease.[68] If existing lessees object, they can bring their concerns to the land board, which has the ultimate authority on whether to approve the project and execute a planning or production lease.[69] Often there is not a conflict when the lease is for a wind project as there is a smaller footprint for the wind turbines and the existing lessee may well be leasing neighboring lands for the same wind project and therefore benefitting similarly to the trust lands. Solar leases, however, are more contentious because the leased property is typically completely occupied by the solar facilities, which can lead to displacement of the existing lessee.[70]

Once the planning lease is executed, the developer has the opportunity to conduct interconnect studies for transmission of the power, seek a Power Purchase Agreement (PPA) with a purchaser of the electricity to be generated by the renewables project, and conduct any necessary environmental review.[71] These contingencies must be met if the developer is to move from the planning lease to an operations lease.

The fact that a developer has a planning lease does not guarantee that the developer will obtain an operations lease. Most developers would be deterred by such a prospect, and rightly

[68] Colo. Rev. Stat. Ann. § 36-1-118; *CO Interview*, *supra* note 45.
[69] *CO Interview*, *supra* note 45.
[70] *Id*.
[71] *CO Interview*, *supra* note 45 (Colorado does not have a state procedural environmental review law, so any environmental review typically arises only if part of the project or new transmission lines are on federal lands).

so, because utility companies typically require developers to show control of the land making up the project footprint before negotiating a PPA for the output for the project.[72] However, Colorado's state trust lands department is in a rather unique position where it has a strong working relationship with the local investor owned utilities.[73] These utilities are obligated to meet state mandated RPS standards for renewable energy in their electricity mix and have found that working with the state on renewable energy development of state trust lands helps them meet these standards more efficiently. For example, Colorado's utilities are willing to negotiate a PPA with a developer of state trust lands based on assurance from the state indicating the developer has control or will have control of the project site once certain contingencies of the planning lease are met. In most other states, utilities will not begin negotiations with a renewable energy developer until either an option to lease, or a full-term lease, for the state trust lands is executed.[74] In this respect, Colorado has front-loaded not only the project review but also the tacit approval of the utilities for such projects.

F. Managing Multiple Uses

Another way for states to attract renewable energy developers to state trust lands is to effectively manage multiple uses of the land. As the fiduciary for the public school beneficiaries of trust lands, the state trust land manager prefers to have multiple sources of revenue generation from a single parcel of land.[75] These revenue sources could include, for example, lease payments from lessees of the land for farming and ranching, grazing livestock, forestry, real

[72] *Gagliano Interview*, *supra* note 40 (PPAs are critical to secure because otherwise the renewable energy project will produce no revenue).
[73] *CO Interview*, *supra* note 45.
[74] *Gagliano Interview*, *supra* note 40; *CO Interview*, *supra* note 45.
[75] *TX Interview*, *supra* note 39, *CO Interview*, *supra* note 45, Telephone interview with Cory Shaw, Property Management Section Supervisor, and Mark Harvel, Lands Section Supervisor – Retired, Montana Board of Land Commissioners, Montana Department of Natural Resources and Conservation (Mar. 16, 2021) (hereinafter *MT Interview*).

estate, and oil and gas exploration.[76] Adding an additional revenue stream in the form of lease payments from a renewable energy developer is welcome, but often this additional use of the land must be compatible with existing uses to avoid conflicts between lessees and claims against the lessor.

As discussed above, renewable energy projects, in particular wind energy farms, can often coexist relatively peacefully with other uses of the leased land. The same can be true, albeit to a lesser extent, for solar energy and other types of renewable energy projects, such as rooftop solar projects coupled with big box retail in a commercial lease. That said, many states have laws that require protecting the land use and development rights of existing lessees of the mineral estate beneath the land, as well as a myriad of legal and policy protections for the access to and recreational use of these lands by the general public.[77] Additionally, if a state determines that it wants to lease trust land for renewable energy development and that this development requires canceling some or all existing leases on the property because they are incompatible with this new use, compensation may be required to be paid to the holders of the canceled leases.[78] A state may try to pass those costs onto renewable energy developers. Some renewable energy developers may be deterred from siting their projects on state trust lands because of the additional time and resources required to navigate these competing interests. Because of this, the states with the most success in getting renewable energy projects developed on state trust lands often have crafted creative ways to manage multiple uses.

1. Managing the Mineral Estate

[76] *Id*.
[77] *MT Interview*, *supra* note 73.
[78] *WA Interview, supra* note 37.

Some states' trust lands departments are required by state law to refrain from allowing competing surface uses of their state trust lands that interfere with access to the minerals underneath those lands.[79] The purpose of these laws is to preserve the value of the mineral estate to the trust, but if enforced too rigidly, they can diminish the usability of the trust lands' surface estate for development.[80] Of course, this tension between users of the surface and mineral estates is not limited to state trust lands. Many owners of the surface estate of private lands do not own and/or control the mineral estate in those lands. When this bifurcation of ownership occurs, and the respective owners of the surface and mineral estates wish to develop their estates (either themselves or by leasing these development rights to a third-party developer), conflicts over whose rights to use the surface of the parcel predominate can occur.

The most common scenario arises where the renewable energy developer leases the surface estate of a parcel that is already encumbered by a lease with an oil and gas developer that allows for exploration and extraction of minerals under the parcel. While horizontal drilling has allowed most modern oil and gas exploration and extraction activities to occur underneath the land with only minimal impact to the surface, the mineral estate is nonetheless dominant under common law and its owner may use the surface of the land to access its mineral interests. The renewable energy developer, and any lender providing funds for the construction of the renewable energy project, will be understandably concerned about the potential for interference with the construction and operation of the renewable project from this competing use.

---

[79] *MT Interview*, *supra* note 73, *TX Interview*, *supra* note 39; Mont. Code Ann. Enabling Act 1889 §§ 11 & 18; *see also* State ex rel. Hughes v. State Bd. of Land Com'rs, 137 Mont. 510, 353 P.2d 331 (1960); Toomey v. State Board of Land Com'rs, 106 Mont. 547, 81 P.2d 407 (1938).

[80] *MT Interview*, *supra* note 73; *UT Interview*, *supra* note 29; Telephone interview with John Fischer, Director of Commercial Real Estate, Commissioners of the Land Office, State of Oklahoma (Mar. 8, 2021) (hereinafter *OK Interview*) (Renewable energy developers have declined to pursue renewable energy projects on state trust lands because their insurers or financial backers have been unwilling to support a project on land that may upon the whim of the state trust land managers host a working mine).

Commonly, the renewable energy developer will offer compensation to the mineral lessee to enter into an accommodation or subordination agreement that establishes the primacy of the renewable energy developer's use of the surface estate, but limits it in such a fashion that the surface estate can be developed for the renewable energy project. On state trust lands, some states have attempted to resolve this issue by limiting drilling activities to only specified areas on the land, freeing up the remainder for use by only surface estate lessees, or by selling to the developer a restrictive covenant on the land, as described below.

The Texas General Land Office uses the first approach – an accommodation agreement. This agreement, between the renewable energy developer and the mineral lessee, sets aside a specific portion of the renewable energy footprint on the state trust land parcel, usually near the corners or a "lollipop" shaped area in the center, where the mineral lessee can drill to any oil or gas deposit.[81] This horizontal drilling is compatible with renewables projects sited on the surface of state land trust parcels because it uses only a small portion of the surface and drills deep below the surface before moving horizontally, which prevents significant disturbance to the renewable energy facilities above.[82] However, not all oil and gas deposits are deep enough to benefit from horizontal drilling. In situations where the oil and gas deposits are within 500 feet of the surface, horizontal drilling is not possible, and standard vertical drilling procedures are likely to destabilize the renewable energy facilities on the surface of the parcel.[83] So, in states such as Utah, where few oil and gas deposits are deeper than 500 feet, these accommodation agreements are of limited utility.[84] Utah instead tries to site renewable energy projects in areas where there is low demand for minerals and seeks an accommodation agreement from the

[81] *TX Interview*, *supra* note 39.
[82] *UT Interview*, *supra* note 29.
[83] *Id*.
[84] *Id*.; *see also OK Interview*, *supra* note 78.

mineral estate holder to forego any extraction activities within the five hundred feet of a project.[85]

New Mexico ORE addresses potential conflicts between developers of the mineral and surface estates by selling Land Use Restrictive Covenants (LURCs) to renewable energy developers to provide them (and their lenders and insurers) legal assurance that the mineral estate will not be developed during the term of the renewable energy lease.[86] Such a covenant is uniquely possible for state trust lands because often the state is the sole owner of the mineral estate. By covenanting away access to the mineral estate for a price, a state can fulfil its mandate to preserve the value of the mineral estate by monetizing its conservation. Additionally, a LURC meets the developer's need to assure its financers and insurers that the renewable energy project will not be disrupted by mining or drilling operations on the parcel during its useful life. This approach can be quite lucrative for state trust lands; New Mexico recently secured a payment of $221,000.00 for a LURC.[87] States with laws that require the preservation of their state trust lands' mineral estate may consider using the sale of covenants to both add revenue and attract renewable energy developers.

2. Managing Existing Leases

Typically, existing leases on state trust lands where developers are proposing to build renewable energy projects are agricultural or grazing leases.[88] As explained above, wind energy

[85] *UT Interview*, *supra* note 29.
[86] *NM Interview*, *supra* note 24.
[87] *Id*.
[88] Telephone interview with Angela Calabrasi, Attorney, Arizona State Land Department (May 27, 2021) (hereinafter *AZ Interview*); *CA Interview*, *supra* note 26; *CO Interview*, *supra* note 45; Telephone interview with Mike Murphy, Minerals Leasing Program Manager, and John Purkiss, Real Estate Program Manager - Boise Staff Office, Idaho Department of Lands (Mar. 17, 2021) (hereinafter *ID Interview*); *MT Interview*, *supra* note 73; Telephone interview with Michael Humann, Surface Division Manager, and Kayla Spangelo, Natural Resources - (Rights of Ways & Sales), North Dakota Trust Lands (Apr. 1, 2021) (hereinafter *ND Interview*); *NM Interview*, *supra* note 24; *OK Interview*, *supra* note 78; *OR Interview*, *supra* note 49; *TX Interview*, *supra* note 39; *UT Interview*, *supra* note 29; *WA Interview, supra* note 37; *WY Interview*, *supra* note 35 (collectively, hereinafter *All State Interviews*).

projects, though presenting some challenges to an agricultural lessee in farming around the wind turbine pads, roads, and transmission lines that make up the project, are fairly compatible with existing farming and ranching-type uses on the land. Solar projects, on the other hand, with their comparatively larger footprints, are more difficult to make work with other contemporaneous land uses, often requiring these existing uses to be postponed or permanently stopped.

Solar project displacement of agricultural and grazing leases generally makes economic and fiduciary sense for the state trust lands manager. Revenue from agricultural and grazing leases ranges anywhere from $2 per acre for a grazing lease to $15 per acre for irrigated crop land, depending on the quality of the land for the specific use and the market rate for leases in the area.[89] Compare a solar energy project on state trust lands, which typically pay the state rent of several hundred dollars per acre in its first year of operation, with payments escalating annually from there.[90]

Given this enormous disparity in revenue, state trust lands managers may be willing, if possible under the terms of the existing agricultural and grazing leases, to terminate them early for a renewable energy project.[91] Agricultural and grazing lessees of state trust lands have pushed back on this as an unfair practice, and in some instances have been successful in getting state legislatures to pass laws that offer some protection to existing agricultural and grazing lessees of state trust lands.[92] For example, Montana recently passed a law to allow for the stacking of uses on state trust land to better meet the highest and best use of the land. This allows the existing lease to remain in place; as long as there is no competing interest between the two uses. The

[89]Mandy Godwin, *WA ranchers are losing land to solar farms and wine — but help is on the way*, CROSSCUT (Mar. 9, 2020), https://crosscut.com/2020/03/wa-ranchers-are-losing-land-solar-farms-and-wine-help-way.
[90] *CO Interview*, supra note 45 ($375 per acre with 2 percent escalator each year); *OK Interview*, *supra* note 78 ($480 per acre with 15 percent escalator every five years).
[91] *CO Interview*, *supra* note 45; *NM Interview*, *supra* note 24.
[92] *WA Interview, supra* note 37.

improved approach allows for more collaboration between the developer and the agriculture or grazing lessee, while providing protections for all interested parties.[93]

For example, Washington State has a statute that requires its Department of Natural Resources (WDNR) to give existing agricultural and grazing leases of state trust lands 180 days-notice of cancellation.[94] And the Washington legislature recently passed legislation that goes further, requiring that the WDNR compensate existing state trust land agricultural and grazing lessees if the state cancels the lease.[95] The WDNR will work with developers to find the best site for their project and plans to focus on locations that do not cancel existing leases.[96] With solar energy projects alone in Washington generating approximately 100 times the per acre revenue of grazing leases, this cost should be easily absorbed.[97] That said, the first question Washington state trust land managers ask themselves when evaluating a proposed renewable energy project proposal is whether they can identify land without an existing lease, or if an existing lease will soon expire, as there can be overlapping compatible use such as continued grazing during the development phase.[98]

Wyoming uses what it calls Surface Impact Payments (SIPs) to compensate existing lessees for any negative impacts to their approved uses of state trust lands caused by developing and operating renewable energy projects on those lands.[99] The SIPs cover "destruction of forage, disruption of grazing, agricultural, or commercial operations, nuisance, inconvenience, and for incidental use of the land surface."[100] Renewable energy leases contain a provision that

[93] *MT Interview*, *supra* note 73; MT LEGIS 313 (2021), 2021 Montana Laws Ch. 313 (S.B. 63); *see also* Mont. Code Ann. § 77-1-902.
[94] Wash. Rev. Code Ann. § 79.13.420 (2021).
[95] 2021 Wash. Legis. Serv. Ch. 36 (H.B. 1199).
[96] *Id*.
[97] *See Godwin, supra* note 87.
[98] *WA Interview, supra* note 37.
[99] *WY Wind Leases, supra* note 54.
[100] *Id*.

the developer must pay any required SIPs to existing lessees on the parcel prior to beginning construction of the renewable energy project.[101] Unlike in Washington, where the amount of compensation is statutorily imposed, in Wyoming the amount of compensation is negotiated between the renewable energy developer and the existing lessee(s).[102] If the two parties can't agree on the SIPs amount, the director of the state trust lands determines an amount.[103]

New Mexico takes yet another approach to the existing lessee challenge. Historically, its agricultural and grazing leases did not have provisions allowing the state to unilaterally cancel them, which meant the state had to obtain the lessee's consent to early termination if it wanted to make the land available for a renewable energy developer.[104] Not surprisingly, the existing lessee often required payment in return for giving its consent. To address this, New Mexico now requires new and renewing agricultural, grazing, and mineral lessees on its state lands accept a lease provision giving the state early termination rights in the event a renewable energy developer wants to lease the land for development.[105]

3. Managing Recreational Uses

As public lands often contain ample recreational opportunities within their borders, many people take for granted the ability to access state trust lands for hiking, fishing, biking, and other leisure activities, even though the state retains the right to limit such access if doing so is in the best interests of the trust beneficiary. For their part, renewable energy project operators are understandably loathe to have members of the general public within the boundaries of their wind or solar farms, fearing the potential for damage to the renewable energy facilities from

[101] *Id*.
[102] Wyo. Admin. Code 060.0002.4 § 15; *WY Wind Leases, supra* note 54.
[103] *Id*.
[104] *NM Interview*, *supra* note 24.
[105] *Id*.

vandalism, accident, or malicious acts, as well as liability for injuries suffered while on the project site.

The laws of some states, such as Montana, protect the right of the public to use state lands for recreational purposes, with certain restrictions and carveouts for habitat protection, cultural resources, fire suppression, and general public safety.[106] Other states, such as Colorado, only allow recreation on specific parcels of state trust lands that are leased to Colorado Parks and Recreation.[107] In contrast, Montana's legislature recently passed a statutory amendment that removes a categorical closure to recreational use previously in place, in the hope that is this will allow for consideration of appropriate restriction areas instead of a blanket closure and will ultimately increase flexibility in negotiating renewables leases.[108] The new statute also moves ground leasing of state trust land for wind and solar resources out of a statute tailored for traditional commercial ground leasing and into its own subchapter. The statute controlling traditional commercial ground leasing for retail, hotel, office space, and other similar uses includes administrative processes that are not appropriate for wind or solar development, as well as fee structures that do not recognize the expansive nature and market of wind and solar development. While the new law protects recreational use access it also opens the potential to tailor renewables leases better to both developer and trust land needs.[109]

G. Alternative Lease Arrangements

Meeting the needs and objectives of developers, seeking to obtain a PPA and have an operational project, and trust land managers, seeking to maximize revenues to the trust while

[106] *MT Interview*, *supra* note 73; See also Title 77, Chapter 1, Part 8, MCA; ARM §§ 36.25.126, 132, 139, & 143.
[107] *CO Interview*, *supra* note 45 (One-third of Colorado state trust lands are leased to Colorado parks and recreation department for recreational use); *see also* Colorado State Land Board, *Recreation*, https://slb.colorado.gov/lease/recreation.
[108] MCA § 77-1-902(3)(b)(iii) (2020).
[109] *Id*.; *MT Interview*, *supra* note 73.

maintaining the long-term viability of the land, have led to some alternative leasing arrangements worth expanding on here. Additionally, the market for renewable energy is still taking shape as the U.S. increasingly relies on this sector to meet energy demands. As a result, energy storage and the ability to supply energy from multiple resources within one project area are gaining traction and can provide useful vehicles to meet multiple interests.

1. Rooftop Solar on Existing Commercial Leases

Another potential way to maximize revenue on state trust lands would be to place rooftop solar or small-scale wind energy capture technologies on state trust lands already occupied by a rent-paying commercial facility. For example, placing rooftop solar on a big box store located on state trust lands. The dual revenue stream of renewable energy lease payments and commercial lease payments is appealing to state trust land managers, but this model is limited in its applicability. This type of small-scale distributed generation, where the energy produced from the rooftop solar or small wind turbines is used to power the underlying property, also sometimes involves "spinning the meter backwards" by sending any electricity that is not used on the property flowing back onto the grid in exchange for a rebate or credit from the utility company. This is called "net metering" because it focuses on the difference in the amount of energy produced by a customer versus the amount consumed. When determining whether rooftop solar is a viable option for existing commercial property, state trust lands need to look to their state's net energy metering laws. Often the size of projects that are eligible for net metering is capped at a certain wattage.[110] If, for example, the project wattage cap for net metering eligibility is 25kw, then eligible projects will likely be limited to small residential rooftop systems and commercial rooftop solar will likely not be an option. Even if the project cap is

[110] NAT'L CONFERENCE OF STATE LEGISLATURES, *State Net Metering Policies* (Nov. 20, 2017), https://www.ncsl.org/research/energy/net-metering-policy-overview-and-state-legislative-updates.aspx.

generous enough to include a commercial rooftop solar system, rooftop solar is limited by economies of scale. A 2kw rooftop project has very little return on investment when compared to a large utility scale project. In addition, there are insurance and lease term issues that may arise for the lessee who constructed the building on which the rooftop solar is to be located.[111]

Community solar gardens may offer an alternative somewhere between rooftop and utility scale solar. Community solar gardens are a smaller grouping of solar arrays used to generate enough power for a discrete use. They often use what is called "virtual net energy metering" which is nearly the same as net energy metering, in that it provides customers with a credit for solar energy delivered to the grid, but instead of the solar panels being on the customer's rooftop they are located off the building in a small plot of land, or "garden," on the ground, sometimes on an adjoining piece of property. The solar garden is made up of several participating customer's solar panels who all obtain power from the garden for a rent or subscription fee. A typical community solar garden has between 2 to 5MW of total installed energy capacity. The customer can either own a solar array in the community garden or rent the use of a solar array in what is effectively a subscription for solar power. These solar gardens have gained traction by allowing tenants of multi-family apartment buildings, who do not have the ability to place a solar array on the roof of a privately-owned home, to benefit from solar energy generation. Moreover, due to the relatively small size of community solar gardens, they

[111] *See* Luis Esteves, *Where Solar Panels Fit In Property Insurance*, FORBES (Mar. 22, 2021), https://www.forbes.com/sites/forbesbusinesscouncil/2021/03/22/where-solar-panels-fit-in-property-insurance/?sh=690383f04069; *see also* U.S. DEP'T OF ENERGY, *Better Buildings*, *Promoting Solar PV on Leased Buildings Guide: Benefits, Barriers, and Strategies* (Oct. 2015), https://betterbuildingssolutioncenter.energy.gov/sites/default/files/attachments/Promoting-Solar-PV-on-Leased-Buildings-Guide-.pdf.

generally have far less impact on wildlife habitat and viewshed than utility scale solar projects, making the permitting process for them easier.[112]

State trust lands can, and have, benefited from leasing land for community solar gardens.[113] For example, after the Colorado state legislature passed laws incentivizing community solar gardens, Colorado state trust lands executed sixteen production leases for these types of small-scale solar projects, with 4 more currently under planning leases. In these arrangements, the state trust lands collect revenue from leasing the land underneath the community solar garden, with a third-party owner of the solar panels covering installation and maintenance costs and collecting subscription payments from customers.[114] In states where community solar gardens have yet to flourish, state trust land managers could lobby their legislature to pass laws that make it easier to develop such an option.

2. Solar-Wind Hybrid Lease

Another way state trust lands can maximize revenue is by leasing trust lands for joint use by both solar and wind projects. Wind turbines are usually spaced out among many acres with the land between the wind facilities remaining undeveloped or leased for agricultural or grazing purposes. Placing solar arrays between the wind turbines is becoming more popular among developers because it balances the variability in the energy produced.[115]

Combining solar and wind can help address the challenges associated with the intermittent nature of each of the resources. The sun does not always shine, and the wind does not always blow. This creates times of high energy generation and times of low energy

[112] Telephone interview with Suzanne Leta, Head of Policy and Strategy, SunPower (Apr. 5, 2021) (hereinafter *Leta Interview*).
[113] *CO Interview*, *supra* note 45.
[114] *CO Interview*, *supra* note 45; *Leta Interview, supra* note 110 (SunPower is such a 3rd party company).
[115] Ben Jervey, *Wind and Solar are Better Together*, SCIENTIFIC AMERICAN (Dec. 5, 2016), https://www.scientificamerican.com/article/wind-and-solar-are-better-together/.

generation for each resource. Usually, solar energy production peaks during the middle of the day and falls off at night, but even daytime solar generation varies based on cloud cover and other weather patterns. Wind often has fairly predictable seasonal patterns across a region, but wind speeds may also change hourly based on local weather dynamics. This unpredictability in the fuel sources of solar and wind energy can pose challenges to renewable energy operators because they are bound by the contract terms of their PPA to supply a certain amount of power to the utility company for any given time period. The PPAs typically set a maximum and minimum amount of power that the renewable energy company is expected to supply to the utility purchaser each month and if too much or too little power is supplied, penalties may be imposed under the PPA.[116]

Depending on the local sun and wind patterns of a proposed renewable energy project, combining wind and solar may help to provide a more stable and predictable source of energy to the utility company purchaser. For example, if the region where a solar farm is proposed has dependable evening winds, as the solar energy generation drops off, the wind energy generation could fill the gap. Alternatively, if an established wind farm has empty space between the turbines, adding solar arrays will make it easier for the renewable energy operator to deliver the power it committed to in its PPA.[117]

State trust lands will typically be able to amend their solar and wind lease templates to accommodate both systems under a single lease. However, some states may need to amend their administrative rules to allow for this.[118] State trust land managers should consider proactively

[116] U.S. ENVT'L PROTECTION AGENCY, *Physical Power Purchase Agreements (Physical PPAs)*, https://www.epa.gov/greenpower/physical-power-purchase-agreements-physical-ppas.
[117] *Gagliano Interview*, *supra* note 40.
[118] *OR Interview*, *supra* note 49 (Oregon trust land administrative rules do not allow for solar and wind to be on the same lease).

making any needed amendments to administrative rules to enable the state to enter a solar-wind hybrid lease should the opportunity arise.

3. Energy Storage – Batteries

Energy storage systems, such as batteries, are even more beneficial than solar-wind hybrid projects in helping provide stable sources of energy, and state trust land managers should be prepared to integrate them into existing and future renewable energy projects on state trust lands. While solar-wind hybrids help fill the gaps for renewable energy operators that need to produce more energy to meet the terms of their PPAs, batteries are able to store the energy that would otherwise have been curtailed when peak production occurs. At the brightest part of a clear day or through a gusty period of wind, a renewable energy operator may be generating more power than it has contracted to provide. To avoid overloading the grid, and suffering penalties for providing more power than agreed upon in the PPA, the renewable energy operator may be required to curtail the energy. However, if the project has battery storage, the renewable energy operator can use the batteries to store the excess energy, then, when the project has a shortfall of energy production or the grid operator needs additional electricity to balance the system during periods of high electricity demand, the renewable energy operator can release the stored energy to the grid and be paid for it. A note, battery storage should be sited near substations to ensure the most efficient use of the stored energy.[119]

Batteries are already playing a critical role in renewable energy production as the cost of battery storage continues to fall and the battery technology is constantly improving.[120] Provisions for battery storage in renewable energy leases will likely become an increasingly

[119] *Gagliano Interview*, *supra* note 40.
[120] *Id.*; *Dual Interview*, *supra* note 17; INT'L RENEWABLE ENERGY AGENCY, *Battery Storage Paves Way for a Renewable-powered Future* (Mar. 26, 2020), https://www.irena.org/newsroom/articles/2020/Mar/Battery-storage-paves-way-for-a-renewable-powered-future.

common element going forward.[121] In fact, in 2021, New Mexico state trust lands leased land along the border of New Mexico and Texas to NextEra Energy, Inc. for development of a solar and battery project.[122] State trust land managers could also see renewable energy lessees seeking to add batteries to existing wind or solar projects.[123]

4. Joint-Venture Approach

The idea of a joint venture between state trust lands and renewable energy developers may sound appealing, but trust land managers should be wary when entering such agreements. A true joint venture where both parties share in the profits of an operation poses the risk of legally creating a general partnership between the parties.[124] In such a case, the state trust lands would potentially become liable for any debts owed by the developer, which could violate the state's fiduciary duties vis à vis its trust lands. Careful drafting of the agreement between the two parties may avoid this legal pitfall but should be approached with caution.

Moreover, the typical finance structure of renewable energy projects does not currently lend itself to joint ventures with state trust lands. Generally, private investors provide financing to renewable energy developers, who use these dollars to pay for the construction of the project. Just before the projects become operational, the developer typically sells the project to a company that operates the project. This sale typically occurs right before operations because both the Investment Tax Credit[125] and Production Tax Credit[126] become available at operations. The

[121] CITY OF PUEBLO COLORADO, *Solar Energy and Energy Storage Lease Agreement*, https://www.pueblo.us/AgendaCenter/ViewFile/Item/34751?fileID=128356 (Example of a solar and energy storage lease).
[122] *NM Interview*, *supra* note 24.
[123] See Part IV for more on the specifics of leasing land for energy storage.
[124] 12 Am. Jur. Proof of Facts 2d 295 § 2 (Originally published in 1977; updated Apr. 2021).
[125] 26 U.S. Code § 48 (ITC are allocated based on investment cost of project and 100% of ITCs become available on day one of project operations).
[126] 26 U.S. Code § 45 (Production tax credits are based on amount of wind energy produced and are available during the first 10 years of project operations).

purchasers of the renewable energy projects are typically intermediary entities that form partnerships with businesses or individuals with large appetites for tax credits, i.e., lots of income. Because renewable energy development is driven primarily by these tax incentives, state trust lands as tax-exempt entities may not be in the best position to enter into a joint venture early in the project timeline.[127] State trust lands may be best suited to be landlords and avoid expending lots of resources on joining in the development of projects.

IV. LEASE PHASES AND PROVISIONS

This section discusses the common leasing phases and contract terms seen in renewable energy projects on state trust lands. Our interviews with state land managers and renewable energy developers revealed there are many different lease structures and terms used for wind or solar energy projects on state trust lands across the country. In this nuance and variety are excellent lessons that may well inform projects located outside of state trust land management and be useful in general to renewable energy developers and private landowners alike. For developers, leasing state trust lands may offer an incentive in terms of tax benefits, as all rent payments made under a ground lease can be deducted as a business operating expense by the lessee, just like leasing private land.[128] Furthermore, lease fees on state trust lands fund public education in the state, which can be a selling point to a developer's customers or shareholders and may even meet a developer's own mission statement. For trust land managers, the advantageous rates of return on a solar or wind energy lease, particularly once the project is producing and selling electricity, offer excellent diversification of the state's trust land portfolio.

[127] Telephone interview with Ben Almy, Senior Associate for Domestic Tax Planning and Renewable Structures, AES Clean Energy (May 26, 2021).
[128] *MT Interview*, *supra* note 73; 26 U.S.C.A. § 38 (2019).

While the names given to the various phases of renewable energy projects may differ from one lease to the next, these projects generally have four phases that will be referred to here as the planning, construction, operations, and reclamation phases. How these phases are described and demarcated in any given lease varies, but a few main types of lease structures predominate when it comes to state trust lands, each with its own unique features. In addition to the chosen lease structure, the terms of the lease offer insight into the various interests and goals at stake for both state trust land managers and developers. This part will cover (a) types of real property agreements, (b) lease fees or payments, (c) the lease application process, (d) contract terms relevant to each of the four project phases, and (e) miscellaneous lease provisions.

A. Types of Real Property Agreements

When discussing the form and content of a renewable energy lease agreement for state trust lands, all interviewees mentioned the importance of balancing the developer's competing needs with those of the trust land managers. The developers interviewed all highlighted the need to secure an appropriate (and financeable) level of control over the leased land to construct and operate the renewable energy project free from unreasonable interference. While the state trust land managers interviewed all pointed to their fiduciary obligation to realize the maximum revenue potential of the land and adhere to legal requirements imposed by statute, which may require preserving the viability of other uses of the land, such as developing its mineral rights, public recreation access, and agricultural and grazing uses by existing lessees. For parcels of state trust lands that do not contain valuable minerals, are not desirable recreation spots, or suitable for agricultural use, striking this balance is relatively easy. Once a mutually satisfactory financial arrangement is reached between the parties, the absence of competing uses of the land that must be accounted for in the lease usually makes for relatively straightforward negotiations.

But where one or more of these competing uses is present on a parcel of state trust land, lease negotiations between the state and an interested renewable energy developer can be more difficult and the use of the appropriate real property agreement is of particular importance.

One component of developing a renewable energy project where the friction between the needs of the parties can become apparent is the requirement for a developer to show proof of secure land control (including, importantly, the right to prohibit interfering uses of the land) to secure a PPA. Without this showing of control, a power purchaser will not execute a PPA, because it cannot be assured the project operator will be able to meet its electricity delivery obligations.

The PPA process also requires conducting what are known as interconnection studies to evaluate the feasibility of connecting the project with the electrical grid at the proposed point of interconnection.[129] Understanding interconnection studies can provide insight into why projects fail. These studies, which are funded by the developer, involve significant engineering work and can cost tens of thousands of dollars to complete.[130] As part of this process, the relevant grid operator (usually the investor owned utility that is purchasing the project's output) and, if applicable, the Regional Transmission Organization (RTO) or Independent System Operator (ISO) in charge of making sure consumers have reliable access to electricity, require developers

[129] CA. INDEPENDENT SYSTEM OPERATOR, *ISO Interconnection Study*, http://www.caiso.com/planning/Pages/GeneratorInterconnection/InterconnectionStudy/Default.aspx ("They [interconnection studies] include study reports, resource adequacy deliverability studies and options, impacts on affected (neighboring) systems, and the relationship between generation interconnection and the ISOs transmission planning process.").

[130] *UT Interview*, *supra* note 29, *CO Interview*, *supra* note 45, *NM Interview*, *supra* note 24, *Gagliano Interview*, *supra* note 40, *Piscitello Interview*, *supra* note 26, *Dual Interview*, *supra* note 17; *see also* U.S. ENVT'L PROTECTION AGENCY, *Solar Interconnection Standards & Policies,* https://www.epa.gov/repowertoolbox/solar-interconnection-standards-policies; CA. INDEPENDENT SYSTEM OPERATOR, *ISO Interconnection Request*, http://www.caiso.com/planning/Pages/GeneratorInterconnection/InterconnectionRequest/Default.aspx (provides overview of components of an interconnection study); *see also* Lori Bird et al., *Review of Interconnection Practices and Costs in the Western States*, NAT'L RENEWABLE ENERGY LABORATORY (Apr. 2018), https://www.nrel.gov/docs/fy18osti/71232.pdf.

provide proof of appropriate site control as a way to check the sincerity of the developer in building the project and to minimize the number of speculative projects under review.[131] While each grid operator and RTO or ISO has its own requirements as to what constitutes adequate proof of site control, a developer typically must provide either an executed lease or an option to lease the proposed project site before the interconnection studies can move forward.[132] This period in the project development process is an expensive one for the developer, who must pay a variety of fees to secure land control while also paying the costs associated with interconnection studies and other processes involved in obtaining a PPA, not to mention any concurrent environmental review, all well before receiving any revenue from the renewable energy project itself.[133]

The state trust land managers interviewed all recognize a developer's need for early evidence of land control, but emphasized their need to balance this developer requirement with the cost of staff hours used to draft and negotiate a lease up front, the consequences to any existing lessees of the state trust lands from this new use of the lands, and the potential opportunity costs from locking up the land with a single developer that may or may not secure the PPA and interconnection rights required for a viable project. There are several different real property agreements that can be used by state trust land managers to address these opposing interests.

1. Lease

[131] *See generally* 169 FERC ¶ 61, 173, U.S. FED. ENERGY REGULATORY COMM'N, *Order Accepting Tariff Revisions*, https://www.ferc.gov/sites/default/files/2020-06/20191203151524-ER20-41-000.pdf.
[132] *Dual Interview*, *supra* note 17; *Gagliano Interview*, *supra* note 40; *CO Interview*, *supra* note 45; *ISO Interconnection Study*, *supra* note 127.
[133] *Dual Interview*, *supra* note 17.

A common approach taken by state trust land managers to leasing state trust lands for a renewable energy project is to grant the developer a lease over the entire project area at the outset of the project, requiring agreement on all terms prior to granting the developer access or rights to the land. For example, Utah state trust lands includes all phases of the project from planning to reclamation in a single lease that must be executed before developers have any access to the land.[134] It does not use option contracts or temporary access permits. However, the lease does provide the developer with the ability to terminate the lease so long as the state trust lands receives 30-days prior notice and the developer has not broken ground on the project.

In addition to giving the developer a leasehold interest in the land, this form of agreement typically includes easements in favor of the developer for it to construct and use roads, transmission lines, and other ancillary facilities, including, if necessary, a substation, on the land. An exclusive easement in favor of the developer to use, convert, maintain, and capture the free and unobstructed flow of wind currents and wind resources over and across the leased property is another common feature of these leases. The lease also provides for payments to the lessor that are keyed to different phases of the renewable energy project. For example, the lease may require monthly lease payments from the developer during the project planning and construction phases that are calculated by multiplying the number of leased acres by a predetermined per leased acre fee. The fee structure then shifts to royalty-type lease payments tied to revenues generated from the sale of electricity produced by the project once the project is operational. The lease will also typically include many other negotiated terms and conditions, including insurance requirements, assignment rights, indemnity provisions, default and cure provisions,

[134] *UT Interview*, *supra* note 29.

termination rights, and the developer's land restoration obligations when the project is decommissioned.

Entering into a lease agreement at the outset of the project that covers the entire project site and provides for all the rights and obligations of the parties, including payments, for the life of the renewable energy project has advantages for both parties. For the state trust land manager, a full-term lease front loads the staff work required to negotiate the agreement. Once the lease is negotiated and signed, there should be relatively little to do during the potentially decades-long life of the project other than accepting payments and standard lease administration tasks. It also provides a projectible stream of revenue from the leased state trust land for this period, assuming the renewable energy project is built, generates, and sells electricity as expected. For the renewable energy developer, being able to demonstrate site control for the life of its proposed project is important (and sometimes required) to obtain financing to build the project and secure a PPA to sell the electricity generated. The primary disadvantage from this approach is shared by both parties, namely investing considerable and time and resources up front in lease negotiations for a project that may never come to fruition.

2. Option Contract

An option contract is a commonly used alternative to outright leasing at the beginning of the project.[135] Unlike a full renewable energy lease, which often has a term that lasts for thirty years or more and includes all of the negotiated terms and conditions described above, an option contract is usually limited to two or three years and gives the developer the ability to access the property to conduct studies and engage in other low impact activities. An option does not allow the developer to construct or operate a renewable energy project, and, because it grants a much

[135] *MT Interview*, *supra* note 73.

more limited set of rights to the developer to use the land, has many fewer negotiated provisions. Options are attractive to both parties because they offer secure land rights should the option be executed, but at the same time the developer's rights to use the land under the option are limited and unlikely to interfere with any existing uses. The payments under an option are generally lower than planning and development payments required in a full lease. The "option" part of an option contract refers to the developer's ability to exercise a right granted in the contract to lease the land under a full lease should it decide, based on resource studies it conducts on the land during the option period, market conditions, and other factors, that doing so makes sense.

In some cases, the parties may negotiate only the option contract at the beginning of their relationship, leaving the many details of the full lease to be negotiated and agreed upon should the developer exercise its option during the term of the contract. This approach has the benefit of lower transaction costs, as the parties are not committing to a long-term agreement and have many fewer items to come to agreement on as compared to those required for a full lease. While this comparative transactional ease can be attractive to a state land trust manager, who is typically resource constrained, it simply delays, not eliminates, the significant work of negotiating a lease if the developer exercises its option under the option contract. The same is true for the developer.

The alternative to the bare option contract is to negotiate the full lease at the same time as the option contract, so that it can be executed and go into immediate effect should the developer exercise its option to lease the land in the option contract. While this approach has the advantage of avoiding time-consuming lease negotiations when the developer decides to move forward with the project, the upfront transaction costs in terms of time and resources expended are significant, as both the option contract and lease must be fully negotiated prior to the start of the option

period. From a developer's standpoint, the costs of negotiating lease terms up front and paying the option fee during the term of the option contract is relatively small when considering the revenue generating potential of operating an energetic project.[136] Similarly, the state land trust manager may be willing to spend scarce resources in this way to properly secure the necessary approvals from those entrusted with the decision-making power in the management of state trust lands. In the last several years, state trust land managers in Oklahoma, Wyoming, Utah, New Mexico and Arizona have been pleasantly surprised by the increased instances of options being exercised and renewable projects being built.[137] In other states such as Montana, California, and Oregon, however, limitations on access to transmission, requirements for public auction of state trust land leases, and the requirements of environmental permitting often conspire to result in unexercised options as developers choose not to or are prevented from moving forward with proposed renewable energy projects.[138] Despite those hurdles, in the spring of 2020 Montana did sign an option contract with NextEra Energy, Inc., doing business as Clearwater Energy in this instance, for 5,120 acres of school trust lands that, if built, will be the largest wind project on state trust lands in the state's history.[139]

3. Planning Lease

Yet another approach to structuring land rights is to utilize a renewable energy planning lease that is separate from the production lease. Colorado State trust lands uses this approach quite successfully. Its planning lease has a 3-year term with the option for a 1-year extension and the developer pays an annual fee equal to $10 per leased acre as consideration for the

[136] *Dual Interview*, *supra* note 17.
[137] *See CO Interview*, *supra* note 45.
[138] *MT Interview*, *supra* note 73.
[139] Tom Lutey, *Analysts see Montana wind farm benefits for school trust lands*, BILLINGS GAZETTE (June 9, 2021), https://billingsgazette.com/news/state-and-regional/analysts-see-montana-wind-farm-benefits-for-school-trust-lands/article_40319a8c-4fd0-5678-b21f-33130578bc2f.html.

lease.[140] During the term of the planning lease, the developer is expected to seek an interconnection agreement for the proposed project, undertake required environmental review of the project, and negotiate a PPA with a purchaser of the power to be generated by the project.[141]

Unlike an option contract, nothing in the planning lease binds the state to enter a production lease for the trust lands at the behest of the developer. In fact, Colorado, has in several instances executed planning leases for the same parcel of trust land with several different renewable energy developers who are all competing for the ultimate right to develop a project on the land, which would be legally inadvisable with option contracts.[142] Most developers are unable to obtain a PPA under such conditions because the utility purchaser will require a showing of exclusive control of the project site for renewable energy development before entering into a PPA. However, as explained earlier in Part III(e), Colorado is in a rather unique position where its utility companies are willing to accept a letter from the state trust lands division indicating that a developer has control. When there are multiple planning leases on a single plot of state trust land, the utilities and state trust lands have come to an agreement that, although none of the developers have exclusive control of the land, they all may conduct interconnect studies, and the developer's project that is the best fit for the utility's and state trust lands manager's needs will be granted the interconnect agreement, PPA, and production lease.[143] The success of Colorado in monetizing this aspect of solar and wind energy projects on state trust lands highlights the benefits to state trust land managers of cultivating a good working

[140] *CO Interview, supra* note 45 (Colorado currently has 200 MW of wind power and 25 MW of solar power installed on its state trust lands).
[141] *CO Interview*, *supra* note 45 (The planning lease requires lessee to work with Colorado Parks and Wildlife and other state agencies. Colorado does not have a procedural environmental review, such as NEPA, but many of the projects on Colorado state trust lands also cover federal lands which trigger NEPA. Colorado trust land managers require copies of any such environmental review that occurs across the scope of the project.).
[142] *CO Interview*, *supra* note 45.
[143] *CO Interview*, *supra* note 45.

relationship with local utilities. Furthermore, building such relationships can set trust lands apart from other landowners, as these separate planning leases are not common on private lands because private landowners usually lack the close working relationships with utility companies, grid operators, and RTOs/ISOs needed to provide the necessary assurances. In the right situation, utilizing pre-production planning leases can provide guarantees and additional revenue to state trust land coffers, while also allowing developers flexibility as they line up the necessary agreements and authorizations to move to construction and operation of a renewable energy project.

4. Other Real Property Agreement Types – Easements, Licenses, and Rights of Way

While most renewable projects on state trust lands are carried out under either the lease, or option to lease structure, other types of real property agreements have their place as well. These include easements, licenses, rights-of-way, and temporary use permits. Most commonly, these alternative agreements are used not for development of an entire renewable energy project but for granting access at the project planning phase for environmental review, meteorological tower analysis, and general project planning activities. In some cases, a right-of-way or easement may also be granted for installation of new transmission lines or access roads crossing state trust lands to serve the renewable energy project.[144]

While easements are typically used when granting access to and across state trust lands, they can also serve as an alternative to traditional leases and options to lease for giving the developer the rights it needs to construct, operate, maintain and decommission the renewable energy project.[145] For example, North Dakota's state constitution limits the use of the state trust

[144] *CO Interview*, *supra* note 45 (Colorado only uses easements for transmission lines, not entire renewable energy projects).
[145] *CO Interview*, *supra* note 45.

land surface estate to leases for pasture and meadow purposes so instead of a lease, an easement is used when granting access for wind power projects.[146] North Dakota currently has fourteen wind turbines located on state trust lands, all of which were built and are being operated pursuant to an easement agreement.[147] These easement agreements include many terms, conditions, and provisions that are found in a traditional renewable energy lease, such as a per acre base rent, installation fees, and reclamation bonding.[148] While distinct in the form of conveyance, the functional differences between an easement and a lease for a renewable energy project appear to be largely negligible in terms of the compensation mechanisms, as well as access and use rights.[149]

Licenses and permits can be used to grant temporary access to lands for planning, energy resource evaluation, or environmental review purposes. Montana's state trust lands division issues Land Use Licenses to renewable energy developers for exploration and planning as well as temporary licenses up to sixty days in length to perform studies and undertake other activities required by state and federal environmental review requirements.[150] Wyoming state trust lands use Temporary Use Permits to allow developers access to state trust lands in the renewable energy project planning phase while giving notice to existing grazing lessees of when the developer will be on the land conducting surveys.[151]

B. Fees

[146] *ND Interview, supra* note 86; *see* N.D. Const. Art. IX, § 8; N.D.C.C. 15-04-01; N.D.Admin.R. 69-06-08; 85-04-04.
[147] *ND Interview, supra* note 86.
[148] ND DEP'T OF TRUST LANDS, *Wind Energy Boilerplate Easement* (Feb. 27, 2020), https://www.statetrustland.org/uploads/1/2/0/9/120909261/wind_-_nd_-_wind_energy_easement_-boilerplate.pdf.
[149] *Id*.
[150] *MT Interview*, *supra* note 73.
[151] *CO Interview*, *supra* note 45.

Generally, states with trust lands potentially attractive for solar and wind energy development fall into two different camps when it comes to fees for leasing the land: (1) those who want to maximize upfront financial gain, usually because they have yet to see any renewable energy projects come to fruition, and (2) those who are willing to forgo substantial initial fees in return for larger payments in the production phase of the project, usually because they have seen a series of projects come on line. The following will provide a rundown of the various fees across the states with active renewables projects on state trust lands.

1. Application fees

It is beyond the scope of this article to provide an accounting on the application fee structure for each of the fourteen states with renewable energy programs on state trust lands. As an overview, though, total application fees for temporary access rights through permits, licenses, and rights of entry that do not involve any ground disturbance are on average less than $100.[152] For applications that require more substantial staff time in terms of review and may also require board or commissioner approval – necessitating public notice, possibly a public auction, permit review, and environmental review – range from $250 on the low end up to $2,000 on the high end.[153] Applications for renewable energy leases or easements that have terms extending for several decades typically incur application fees at the higher end.[154] These numbers are current as of the date of publication of this article and likely to change.

2. Option Fee

[152] *All State Interviews*, *supra* note 86.
[153] *Id*.
[154] NM COMM'R OF PUB. LANDS, *Application for Renewable Energy*, https://www.nmstatelands.org/wp-content/uploads/2020/01/Renewable-Energy-Application-Packet.pdf, (Applications for agreements with terms of five years or less incur a $250 application fee, while applications for agreements with terms exceeding five years incur a $500 application fee).

In states using option contracts to cover the planning phase of renewable energy project development prior to leasing, a per acre fee is assessed for the option itself based on either an appraisal or other land valuation information available. Montana, for example, executed the option previously mentioned with NextEra, through its subsidiary Clearwater Energy Resources, LLC., for $40,000 for 5,120 acres based on a limited land valuation approach.[155]

3. Other fees

Other fees that states may assess on renewable energy developers include fees for lease execution, facility installation, assignment, and mineral access. Lease execution fees may be added when a developer exercises an option to lease or executes an easement. For example, in North Dakota, a $4 per acre execution payment is due at the time of easement execution as well as a $5,000 per MW installation payment when renewable energy facilities are placed on the land.[156] In New Mexico, this per MW installation fee is $2,000.[157] Utah assesses a signing bonus at lease execution and an operations bonus when the project begins producing electricity in lieu of an installation fee.[158]

Some states assess an assignment fee when the developer/lessee assigns the lease to another party.[159] From the perspective of one of the interviewed developers, assignment fees should not be assessed on these transactions, because the developer views the imbedded value of a lease as theirs to market and it is one of the rewards for the risks they take on as markets shift

[155] *MT Interview*, *supra* note 73 ("A limited land valuation is an estimation of value, for use in establishing an easement value or subsequent lease or license fee, through other means than contracting for an appraisal with a Montana-licensed certified general appraiser. Limited valuations must be conducted in a manner that ensures that full market value is received for the interest conveyed in the use of state trust lands.")
[156] *ND Interview, supra* note 86.
[157] *NM Interview*, *supra* note 24.
[158] *UT Interview*, *supra* note 29.
[159] *NM Interview*, *supra* note 24.

and the value of a lease is potentially lost.[160] Nevertheless, in New Mexico an assignment of a lease incurs a $500 fee.[161] And New Mexico typically requires that any lease assignee meet the same requirements of the original lessee ($5 million net worth of any assignee, and experience operating a similar sized MW project on the ground) before it will consent to the assignment.[162] Wyoming assesses a $40 fee for a lease assignment.[163] Often assignment will, at a minimum, require consent of the entity managing state trust lands.[164]

Fees associated with the state trust lands mineral estate are not common, though as explained above in Part II(f)(1), New Mexico does charge a fee for a covenant not to explore the mineral estate during the time of the renewable energy project.[165] A fee-like assessment related to the mineral estate could also take the form of a bond, as is the case in Arizona, where a mineral lessee restoration bond might be used to cover the value of the minerals or lands impacted as a result of the renewable energy project.[166]

C. Application Process

Application processes for renewable energy projects on state trust lands vary from state to state. In general, they all follow a similar playbook, with the differences between the states involving some substantive variations in what is required of the developer to complete a step and how the steps in the approval process are sequenced. Generally, these steps are application submittal, internal review, notice and public auction, permit review, and final approval.

[160] Telephone interview with Raimund Grube, Senior Advisor, Paragon Energy Capital (Mar. 25, 2021) (hereinafter *Grube Interview*).
[161] *NM Interview*, *supra* note 24.
[162] *Id*.
[163] *WY Interview*, *supra* note 35; *WY Wind Leases, supra* note 54.
[164] *UT Interview*, *supra* note 29.
[165] *NM Interview*, *supra* note 24.
[166] *AZ Interview, supra* note 86.

The significant variation in permitting and approval processes from state to state (and even county to county) is a common point of frustration for renewable energy developers that develop projects in many different parts of the country.[167] The lack of uniformity in what is required to obtain a permit to build a renewable energy project, even one built entirely on privately owned land, means developers cannot easily adapt a permitting strategy from one location to another, which adds additional time and expense to the process. And when federal or state-owned lands make up all or a portion of the proposed project site, additional permitting complexity is introduced by federal and state requirements related to environmental review and land use restrictions.

This section offers an overview of the application process for renewable energy projects on state trust lands, identifies some common requirements among state trust land management agencies, and describes key distinctions between states' application processes. One such distinction relates to the availability of information about the state's application process for siting a renewable energy project on trust lands. Some states have easily accessible information about their process. For example, Wyoming maintains a website that describes the application processes for solar and wind energy projects on its state trust lands, with key application provisions and a list of relevant deadlines for approvals.[168] Many other states, however, have very little to no publicly available information on their application processes.

Western state trust land management agencies are governed by the language of their state's enabling act, by which states were granted trust lands for the purpose of fulfilling the Equal Footing Doctrine.[169] Compare the state trust lands in the Northeast and Upper Midwest of

[167] *Dual Interview*, *supra* note 17.
[168] *WY Interview*, *supra* note 35; *WY Wind Leases, supra* note 54.
[169] Uma Outka, *State Lands in Modern Public Land Law*, 36 STAN. ENVTL. L.J. 147, 176 (2017); *see* Mont. Code Ann. § Enabling Act 1889 ("That upon the admission of each of said States into the Union sections numbered

the United States, which were amassed in a more piecemeal fashion, "through a painstaking and often expensive process of purchases, condemnations, and tax forfeitures."[170] To date, the states with renewable energy programs on state trust lands are all located in western states, and so this article assumes all function under their respective states' enabling acts. The purpose of a state's enabling act is to fulfill the Equal Footing Doctrine's mandate that all new states enter the union on a similar foundation in terms of infrastructure as the original thirteen colonies.[171] One component of meeting this requirement was the creation of state-owned trust lands within the new state to provide a revenue stream for its public school system.[172] While each western state's enabling act is unique, all created state trust lands for these states encumbered by a fiduciary duty to manage them for the benefit of the trust beneficiary, the citizens of the state. Often that duty is delegated to a state trust lands commissioner or board within the state that is charged with overseeing the management of these lands.[173]

---

sixteen and thirty-six in every township of said proposed States, and where such sections, or any parts thereof, have been sold or otherwise disposed of by or under the authority of any act of Congress, other lands equivalent thereto, in legal subdivisions of not less than one-quarter section, and as contiguous as may be to the section in lieu of which the same is taken, are hereby granted to said States for the support of common schools, such indemnity lands to be selected within said States in such manner as the legislature may provide, with the approval of the Secretary of the Interior: Provided, That the sixteenth and thirty-sixth sections embraced in permanent reservations for national purposes shall not, at any time, be subject to the grants nor to the indemnity provisions of this act, nor shall any lands embraced in Indian, military, or other reservations of any character be subject to the grants or to the indemnity provisions of this act until the reservation shall have been extinguished and such lands be restored to, and become a part of, the public domain.").

[170] Steven M. Davis, *Preservation, Resource Extraction, and Recreation on Public Lands: A View from the States*, 48 NAT. RESOURCES J. 303, 304 (2008).

[171] Uma Outka, *State Lands in Modern Public Land Law*, 36 STAN. ENVTL. L.J. 147, 184 (2017), citing PPL Mont. LLC v. Montana, 565 U.S. 576, 132 S.Ct. 1215, 1227 ("The equal footing doctrine developed to recognize state sovereignty over lands and waters for all states upon accession to the U.S. to the same extent it was recognized among the original states, because they are "coequal sovereigns under the Constitution."); *see also* Idaho v. United States, 533 U.S. 262, 336 (2001) ("[I]n contrast to the law governing surface land held by the United States, the default rule is that title to land under navigable waters passes from the United States to a newly admitted state"--a rule that allowed "new States to enter the Union on an 'equal footing' with the original States ...").

[172] *See* Erin Pounds, *State Trust Lands: Static Management and Shifting Value Perspectives*, 41 ENVTL. L. 1333, 1362 (2011); *see also* Souder, *supra* note 12, at 32 ("The early enabling acts ... left major issues to the legislature to sort out, providing merely for the establishment and preservation of a permanent fund whose income would be devoted to the support of common schools."); Sally K. Fairfax et al., *The School Trust Lands: A Fresh Look at Conventional Wisdom*, 22 ENVTL. L. 797, 807 (1992) (discussing the early problems states faced in the management of statehood grant lands, including finding anyone willing to lease the lands).

[173] *Souder, supra* note 12, at 1.

Most state land offices are governed by a state land board which may consist of ex officio elected officials such as the state treasurer (as in Oregon), people appointed by the governor (as in Colorado and Utah), or a combination of both (as in California and Washington).[174] Two states, New Mexico and South Dakota, do not have a state land board. The power of the board, if there is one, ranges from almost complete control over day-to-day operations of the state land office, as in Colorado, to minimal involvement in land management, as in Wyoming.[175] The head of the state land office is typically designated the state land commissioner and this person may be elected by the people (as in Washington and New Mexico), appointed by the state land board (as in Idaho and Oregon), or appointed by the governor (as in Arizona and Montana).[176] The state land commissioner's powers vary widely among the states.[177]

Depending on the type of real property agreement used, an application for a renewable project on state trust lands may require some form of approval from the state land board. For example, if a renewable energy developer is seeking to lease state trust lands, approval from the state land board will likely be required, adding an additional step (and more time) to the development cycle. For example, Montana's Board of Land Commissioners votes on certain leases to comport with the board's fiduciary duty to ensure the highest and best use of the land for the trust beneficiaries.[178] Getting before the board for such approval requires notice and a vetting process before the board's staffers, which can add a few months to the application process and includes the opportunity for public comment.[179] In Utah, by comparison, the director of the state land office does not need approval from Utah's state land board to enter into

[174] *Id*.
[175] *Id*.
[176] *Id*.
[177] *Id*.
[178] Mont. Code Ann. § 77-1-204 (2021).
[179] *MT Interview*, *supra* note 73.

a renewables lease, which speeds up the process considerably.[180] Finally, less comprehensive types of real property agreements for renewable energy project exploration and planning activities, such as licenses and rights-of-way, usually do not rise to the level of requiring board approval and can be issued by the trust land management office as part of its delegated administrative duties.[181]

1. Competitive bidding

An important consideration for renewable energy developers considering building projects on state trust lands is the potential for competitive bidding to complicate the application process. Due to the trust mandate to achieve the highest and best use of state trust lands, some states are required by law to put certain lease interests out for a public bid or auction.[182] Often the bid process will take place only after a developer has expressed interest in leasing state lands for renewable energy development and completed preliminary work to prove out the project's viability. There is an understandable frustration by developers that they will be required to bid against other would-be project developers after spending the time and money to identify the potential project. Typically, however, the developer who pursues the project initially ends up being the successful bidder, particularly if they have a PPA in hand.[183] That said, state trust land managers should be aware the notice requirements alone can cause concern for developers who may be in competition with others seeking to build renewables projects in the same geographic area.[184] Indeed, one developer related that the notice and bidding requirements associated with developing on state trust lands led his company to develop all the land around a state trust

[180] *UT Interview*, *supra* note 29.
[181] *MT Interview*, *supra* note 73; *NM Interview*, *supra* note 24; *WY Interview*, *supra* note 35.
[182] *ID Interview, supra* note 86; *MT Interview*, *supra* note 73; *see also* Ariz. Rev. Stat. Ann. § 37-281.02 ("All state lands are subject to lease as provided in this article for a term in excess of ten years, but not more than ninety-nine years, for commercial purposes to the highest and best bidder at public auction.").
[183] *WY Interview*, *supra* note 35.
[184] *Piscitello Interview*, *supra* note 26.

section first, and only after the risk of any other developer coming in was eliminated then apply for a lease of the state trust land parcel. This was done to avoid its competitors learning of the project before the company could secure land rights to the non-state-owned parcels of land surrounding the state trust land parcel.[185]

That said, Montana was able to find a creative approach to a situation where state trust lands were purposely left out of a wind energy project. Through the use of a Land Use License (LUL), the developer of the wind energy project on private lands pays an annual $7,000 as a condition to easements issued for transmission lines and access corridors across the nearby state trust lands. The outcome allowed the trust beneficiaries to benefit from the project even when leasing the trust land for the project itself was unfavorable to the developer. In addition, the $7,000 annual payment is an extra benefit to the trust above the permanent fund returns from the initial sale of the four easements, which totaled $17,390.00.[186]

2. Environmental review

Another challenging aspect of the state trust lands leasing for developers is the environmental review required to site renewable energy projects on state trust lands. While the details of the environmental review for renewable energy projects on state trust lands are beyond the scope of this article, it is worth noting that there is a tremendous variability among states in both what is required and when in the environmental review associated with an application to lease state trust lands. In California, all environmental review must be completed during the lease application phase and prior to lease execution by the state.[187] In New Mexico, where there

[185] *Id*.
[186] *MT Interview*, *supra* note 73.
[187] *CA Interview*, *supra* note 26; *see also* Cal. Pub. Res. Code § 6371 (2021) ("The commission shall not lease any of the lands under its jurisdiction unless it shall have complied with the environmental impact report requirements of Division 13 (commencing with Section 21000) and rules and regulations adopted by the commission pursuant to Section 21082.").

is currently a large number of applicants for wind and solar projects on its state trust lands, the environmental review process begins with the state conducting internal due diligence to address interests related to biology, cultural resources, tribal entities, minerals, and other use of the trust lands.[188] This internal review can take two to three months prior to the lease terms being negotiated.[189] Other states, such as Oklahoma, require the applicant conduct such due diligence and report the results to the state during the planning phase of the lease.[190] The developer is then able to terminate the lease during the planning phase depending on the results.

And, of course, developers must be aware of and comply with state environmental protection laws that often have requirements that exceed those found in federal environmental laws. In Montana and California, for example, developers must meet the requirements set out in the state's environmental laws, the Montana Environmental Policy Act in Montana and the California Environmental Quality Act in California,[191] including public notice requirements, evaluation of alternatives, and, in some case, mitigation measures for any negative environmental impacts.[192] As discussed in Part III(e) above, it may be possible to ameliorate the burdens of these laws on developers by performing some of the environmental review on the front end as in California, mapping areas not suitable for solar or wind projects as in Washington, or setting up due diligence systems to streamline feedback and review as in New Mexico.[193]

D. Planning Phase

[188] N.M. Admin. Code 19.2.22.8.
[189] *NM Interview*, *supra* note 24.
[190] *OK Interview*, *supra* note 78; Okla. Admin. Code 385:25-1-22.
[191] *MT Interview*, *supra* note 73; Mont. Code Ann. Title 75, Chapter 1, Parts 1-3 (1971); Cal. Pub. Res. Code § 21000 (2021).
[192] Mont. Code Ann. § 75-1-102, -220; Cal. Pub. Res. Code § 21080.3.2.
[193] *NM Interview*, *supra* note 24, *WA Interview, supra* note 37, *CA Interview*, *supra* note 26.

During the planning phase of a renewable energy project, a developer will require access to the trust lands to perform studies and evaluate the renewable resource available (e.g., meteorological studies of wind speeds across the property). While there is typically little to no ground disturbance on the property during this phase and the developer's use of the property may well be compatible with existing uses, such as agricultural or recreational uses, a trust land manager may nevertheless condition the developer's access rights under an easement or license on its promise to not unreasonably interfere with existing uses.

All state trust land managers interviewed stated that the planning phase was compensated by a fixed yearly amount based on a per acre land value.[194] The land value was either estimated based on information available to trust land managers or through an appraisal.[195] Planning leases or permits are usually for activities that will not require groundbreaking, and any disturbance to the soil beyond minimally invasive activities such as taking soil samples within a defined area are usually precluded outright.[196] Only upon the satisfaction of certain conditions may a lessee or permittee proceed to groundbreaking in preparation for the construction phase. Conditions precedent to groundbreaking typically include the developer submitting to the state (i) a site plan, with submittal of an as-built plan upon entering the construction phase, (ii) a reclamation plan, and (iii) evidence of the establishment of a reclamation guarantee or bond to cover the costs of reclamation at project end.[197]

Developers should also expect to undertake the required environmental review or permitting during the planning phase of the renewable energy project. Often the presence of any

[194] *All State Interviews*, *supra* note 86.
[195] *AZ Interview, supra* note 86; *MT Interview*, *supra* note 73; *TX Interview*, *supra* note 39; *UT Interview*, *supra* note 29.
[196] *CO Interview*, *supra* note 45.
[197] *ID Interview, supra* note 86; *MT Interview*, *supra* note 73; *NM Interview*, *supra* note 24; *UT Interview*, *supra* note 29.

endangered or threatened species in the project area will come to light during the planning phase. The presence of such species and/or habitat critical for their survival will trigger review under the ESA and relevant state wildlife protection laws.[198] Early engagement with agency staff responsible for implementing the ESA at the state level is key to developing mitigation measures to address impacts of the project.[199]

The State of Washington is taking the proactive step of mapping areas of known species concern on its state trust lands to identify lands that may not be suitable for renewable energy development because of the presence of ESA protected species and critical habitat.[200] In Montana, a group made up of representatives from renewable energy companies, renewable energy industry groups, environmental nonprofits, and state agencies are working to build more inter-agency coordination to solidify relationships in advance of large scale wind development on state lands.[201] Even with this cooperative approach, challenges remain for "… planning when there is uncertainty about future development, the complexity of the permitting process, and how to address research gaps for species not well studied.[202] There is also "uncertainty about support for wind energy from within the state, including concerns from local communities about job loss and encroaching on public lands."[203]

E. Construction Phase

[198] 16 U.S.C.A. § 1538 (1997).
[199] Taber D. Allison et al., *Impacts to Wildlife of Wind Energy Siting and Operation in the United States*, Rpt. 21 Issues in Ecology, Ecological Society of America (2019), https://www.esa.org/wp-content/uploads/2019/09/Issues-in-Ecology_Fall-2019.pdf; Bennun, L., et al., *Mitigating biodiversity impacts associated with solar and wind energy development: Guidelines for developers,* International Union for Conservation of Nature Publication, Global Business and Biodiversity Programme (2021), https://portals.iucn.org/library/node/49283.
[200] *WA Interview, supra* note 37.
[201] MT Wildlife and Wind Workshop, *Meeting Summary* (June 7, 2021), https://awwi.org/wp-content/uploads/2021/06/MT-Wind-Wildlife-Workshop_Meeting-Summary-6.7.21.pdf.
[202] *Id*.
[203] *Id*.

Most often, the same compensation structure used in the planning phase – a flat rate based on a per acre land value derived by either comparables, other available information, or an appraisal – will continue during the construction phase of a renewable energy project, with additional payments in the form of per turbine or per MW installation fees also sometimes coming into play. Additionally, many states will require a reclamation guarantee or bond from the developer at this point in the process. In California, for example, trust land leases often require the developer to put a performance bond in place prior to groundbreaking for the project that can then be modified into a reclamation bond after the construction phase is completed.[204]

The precise definition of the "improvements" that the developer can place on the state trust land in constructing its renewable energy project varies from state-to-state. New Mexico's state trust lands solar lease template defines an "improvement" as "[a]ny non-mobile item of tangible property developed, placed, created or constructed on the [leased state trust land] by [the developer], including but not limited to private buildings, structures, roadways, infrastructure, permanent equipment, fixtures, and [s]olar [p]ower [f]acilities."[205] Wyoming's form wind lease for state trust lands defines an "improvement" as any "[w]indpower [f]acilities and any structures, equipment, machinery, wire, conduit, fiber, cable, poles, towers, materials, and property of every kind and character constructed, installed and/or placed on, above or below the [leased state trust lands] by or on behalf of [the developer]."[206]

In some cases, there are existing lessees (and their improvements) on the state trust lands leased to the developer for construction of a renewable energy project. Damage to these existing

[204] *CA Interview*, *supra* note 26.
[205] *NM Interview*, *supra* note 24; COMM'R OF PUB. LANDS, NM STATE LANDS OFFICE, *Renewable Energy*, *New Mexico Solar Lease Template* (2015), https://www.statetrustland.org/uploads/1/2/0/9/120909261/solar_-_nm__lease.pdf.
[206] *WY Interview*, *supra* note 35; WY BD. OF LAND COMM'RS, *Wind Energy Development Lease No. WL-1616* (on file with the Wyoming Office of State Lands and Investments).

lessee's use of the land and/or their improvements thereon from the construction of the renewable energy project can require compensation from the developer to the existing lessee. In Oklahoma, this compensation process is handled by the renewable energy lessee and the existing agricultural lessee without involvement by the state trust lands office. "During the construction phase, any damage caused to the agricultural lessee will be paid directly from the developer to the ag lessee at the time the damage occurs. This is negotiated between the developer and the ag lessee with no involvement of the CLO [Commission of the Land Office]."[207] In Montana, there is a statutory process for compensating existing state land agricultural lessees for damage to their improvements, which was amended recently to clarify relevant timing and applicability for compensation from renewable energy development.[208] In Washington, a recently passed law requires that existing agricultural and grazing lessees must be compensated if displaced by a renewable energy project.[209] Specifically, livestock grazing lessees receive six times the annual rent for every year left on a canceled lease, and agricultural lessees receive the expected net return the lessee would have realized from crops raised on the leased land.[210] Given this new law, state trust land managers in Washington will carefully assess the financial impact to the state from compensating existing lessees of state trust lands being considered for lease to a renewable energy developer against the revenue expected from the renewable energy lease before moving forward with the developer's lease application.[211] In Colorado, agricultural lessees of state trust lands that are being considered for renewable energy development are often

[207] *OK Interview*, *supra* note 78.
[208] Mont. Code Ann. Title 77, Chapter 6, Part 3;
[209] *WA Interview, supra* note 37; Wash. Rev. Code Ann. § 79.13.420(6) (2021); H.B. 1983, 67th Leg., 2020 Reg. Ses. (WA 2021).
[210] Wash. Rev. Code Ann. § 79.13.420(6)(a)-(d).
[211] *WA Interview, supra* note 37.

included in early discussions and given an opportunity to voice concern over any would-be interference with their use and improvements on the land from the to-be-built project.[212]

Public recreational access can also become an issue when a wind or solar lease on state trust lands enters the construction phase. Some states, like Colorado, do not allow recreational use of state trust lands unless leased for recreation purposes.[213] Others, like Montana and Arizona, require licenses or permits to recreate on state trust lands, but generally seek to accommodate recreational use as much as possible.[214] Generally speaking, working with developers to identify state lands that are suitable for renewable energy development and not popular with recreational users is a good starting point. If this is not possible, the parties should work cooperatively within the constraints of the law to identify areas on the leased state trust land where public access can be prohibited or restricted to mitigate risks of damage to the renewable energy facilities and possible injury to recreational users.[215] Other opportunities may present themselves for state trust land managers when thinking creatively about combining recreational use and renewable energy development on state trust lands, such as electric vehicle (EV) charging stations at popular recreation sites, perhaps powered by a solar garden, as described in Part III(f)(4).[216]

F. Operations Phase

During the operations phase of a wind or solar project on state trust lands, the primary concern for the land manager is that the state is receiving the payments it is entitled to under the

[212] *CO Interview*, *supra* note 45; Colo. Rev. Stat. Ann. § 36-1-118 (1997)
[213] *CO Interview*, *supra* note 45; *see* CO. STATE LAND BD, *Public access on trust land*, https://slb.colorado.gov/public-access#:~:text=The%20State%20Land%20Board%20owns,is%20leased%20for%20public%20recreation.
[214] *MT Interview*, *supra* note 73; Mont. Code Ann. § 77-1-801, et seq. (2021); *AZ Interview, supra* note 86; Arizona State Land Department, *Applications & Permits*, https://land.az.gov/applications-permits.
[215] *WA Interview, supra* note 37.
[216] *WA Interview, supra* note 37; *CO Interview*, *supra* note 45.

lease agreement. Lease payments to the state during the operations phase of a wind energy project are most often calculated using a percentage of the revenue received by the lessee from sales of electricity generated by the project. For solar leases, the compensation is typically a flat rate on a per acre basis or per MW capacity given the more consistent nature of solar power. Payments for use of the leased property for battery storage facilities sited thereon can be structured on a per leased acre or per MW capacity.[217]

G. Reclamation Phase

State trust land managers are understandably leery of being left footing the bill for any of the costs of decommissioning a renewable energy project that has reached the end of its useful life and reclaiming the land it occupied. For this reason, even as a renewable energy project is being constructed on state trust lands, questions about how that land will be reclaimed when the project is decommissioned in the future must be addressed, even though such decommissioning and reclamation may be decades away. State trust land managers have a fiduciary duty to ensure that any impact to state trust lands by their use will not impair the long-term viability of the land.[218] While promises by the developer to decommission the project and reclaim the land in an agreed upon manner, and to a clearly articulated standard, are a feature of any well-drafted lease agreement, the developer's financial ability to meet these obligations at this future point cannot be assumed. Indeed, because many renewable energy lease agreements give the project developer the right to sell the project and assign the lease to a new project owner at any point during the life of the project, the party responsible for complying with decommissioning and reclamation obligations at project end may very well not be the developer that made these

[217] *Grube Interview*, *supra* note 158.
[218] Erin Pounds, *State Trust Lands: Static Management and Shifting Value Perspectives*, 41 ENVTL. L. 1333, 1360 (2011).

promises in the first place. Given this, most states require that the renewable energy developer (and any subsequent assignees of the lease) put in place and maintain during the life of the project a reclamation bond or other guarantee to ensure funds are available to decommission the project and reclaim the land.

While other permitting agencies within the state may not require bonding or other guarantee until later in the life of the renewable energy project, typically at year fifteen, all interviewed trust land managers voiced a desire if not a requirement to have the reclamation bond or other guarantee in place prior to project construction.[219] The interviewed developers all stated that they accept reclamation bonding as a cost of doing business, though some voiced a desire for flexibility in the instrument of guarantee, suggesting that a letter of credit, self-insurance, surety, or other such guarantee is preferable to a reclamation bond.[220]

As an alternative to requiring a bond for the projected total cost of reclamation at the outset of the project, a stair-stepped approach may be a useful, where the developer pays a portion of the value at certain intervals to incrementally achieve a fully bonded reclamation value by an agreed upon date.[221]

On state trust lands, compensation during the reclamation phase is generally a flat rate fee per acre (based on the same or an adjusted land value as used in the planning phase) plus the bonding or other guarantee.[222] Other agencies within the state may also require bonding for the renewable energy project as a whole. In Montana, for example, the Department of Environmental Quality (DEQ) requires bonding at year fifteen of all project operations, not just

[219] *All State Interviews*, *supra* note 86.
[220] *Piscitello Interview*, *supra* note 26.
[221] *NM Interview, supra* note 24.
[222] *All State Interviews*, *supra* note 86.

those concerning state trust lands.[223] In North Dakota, reclamation bonding is not required until year 10 of project operations, though reclamation plan updates are required throughout the life of the project thereafter to ensure compliance and adequate coverage.[224] In New Mexico, bonding requirements are set by a schedule, with a bond equal to at least 50 percent of the projected reclamation costs due by year five of project operations, 75 percent by year ten, and 100 percent by year eleven.[225] In Oklahoma, the project owner is required to fund a "removal deposit" after year fifteen of project operations in an amount sufficient to cover the cost of removing the project facilities and remediating the land.[226] In Oregon, the surety must be in place by the time of project decommissioning.[227] In Texas, trust land managers are sensitive to the financing issues for developers associated with requiring reclamation bonding early on in the renewable energy project and will allow bonding to occur at years ten through fifteen of project operation, though they prefer to have it in hand by year five.[228] Utah requires full reclamation bonding at year fifteen of project operations.[229] Full reclamation bonding is required prior to project groundbreaking in Wyoming, but it will accept corporate surety or traditional bonds through insurance.[230]

Salvage value may be included for determining the bond amount. Generally speaking, "Salvage value is the book value of an asset after all depreciation has been fully expensed. The salvage value of an asset is based on what a company expects to receive in exchange for selling

[223] Mont. Admin. R. 17.86.101-122(B) (2020).
[224] *ND Interview, supra* note 86.
[225] *NM Interview*, *supra* note 24.
[226] *OK Interview*, *supra* note 78; Okla. Stat. Ann. tit. 17, § 160.15 (2015).
[227] *OR Interview*, *supra* note 49.
[228] *TX Interview*, *supra* note 39.
[229] *UT Interview*, *supra* note 29.
[230] *WY Interview*, *supra* note 35; Wyo. Admin. Code 060.0002.11 § 13 (1998).

or parting out the asset at the end of its useful life."[231] When negotiating the amount of a reclamation bond for a renewable energy project, trust land managers should be aware that developers will likely expect the bond to be the "estimated costs of removal, less the estimated salvage value of any unencumbered property that can be used to offset the costs of removal."[232]

H. Other Agreement Terms

The typical wind or solar lease or easement agreement is quite lengthy, often running to thirty or more pages. While it is true that some of this bulk is made up of noncontroversial boilerplate provisions related to giving notice and excluding parol evidence should there be a dispute between the parties, most of these agreements are made up of substantive terms that are heavily negotiated between the parties, with negotiations sometimes taking as much as a year to complete. In addition to the land use, restoration, and payment provisions already discussed in detail, it is worthwhile focusing on several other provisions that are found in nearly every renewable energy lease or easement agreement and often involve protracted discussions between the lessor and lessee. These provisions are most favored nations clauses, insurance requirements, and indemnification obligations.

Most Favored Nations (MFN) clauses give the lessor the benefit of more favorable terms received by later-signing lessors of properties within the same renewable energy project area. If one or more later lessors within the project area obtain more advantageous terms from the lessee the MFN clause obligates the lessee to offer those more favorable terms to the original lessor as well, usually through an amendment to the original lease. MFN clauses are also known as most-

[231] Kenton, Will. "What is Salvage Value?" *Investopedia* (Sept. 26, 2020) https://www.investopedia.com/terms/s/salvagevalue.asp.
[232] CHAPTER 12 WIND AND SOLAR DEVELOPMENT IN THE OIL PATCH--CHALLENGES AND OPPORTUNITIES FOR LANDMEN, 66 RMMLF-INST 12 , 12-12.

favored-customer clauses, prudent buyer clauses, or non-discrimination clauses. "Contracting parties commonly use MFNs to: (1) Reduce uncertainty about potential price fluctuations; (2) Transfer risk of opportunism; [and] (3) Reduce the transaction costs of both initial and later bargaining."[233] Though most MFN clauses are concerned exclusively with ensuring that the lessor benefits from more advantageous financial terms (e.g., rental payments and royalty percentages) struck by later-signing lessors in the renewable energy project area, the lessor may also wish to include non-financial terms to the clause. For example, a lessor may negotiate to include in the MFN clause enhanced lessor consultation rights for the placement of renewable energy facilities on the leased land should such enhanced rights be given to a later-signing lessor in the project area.

A common challenge with the enforcement of MFN clauses is that they are not self-executing. In other words, even though a well-drafted MFN clause will obligate the lessee to inform the lessor if it strikes a more favorable deal for a term or terms included within the MFN clause with a later-signing lessor (and a reputable lessee should be expected to do so), it is not unheard of for a lessee to fail to honor this provision. While it is nearly always the case that this failure stems from negligence on the lessee's part rather than intentional nondisclosure, the result is the same for the lessor. Add to this the fact that most renewable energy leases contain confidentiality clauses that prohibit the lessor from discussing the financial terms of the agreement with non-affiliated third parties, which further diminishes the chances of a lessor learning of more favorable terms being given in the project area that it is entitled to under the terms of the MFN clause. As the land manager for Oklahoma's state trust lands put it, it is only by chance that a trust lands manager would get information that another lessor in the area

[233] Most Favored Nation Clauses, Westlaw Practical Law Practice Note 9-523-4495

obtained more favorable terms.[234] We did however learn of one instance in Colorado where the state trust lands department was able to increase the rent it received under a renewable energy lease with a MFN clause by 15 percent.[235] In this instance, a private landowner in the project area came to the state trust land managers to discuss its lease and disclosed the higher rent it received.[236] Idaho's state trust lands department recognizes that it is difficult to know what renewable energy developers are paying for lease agreements on state trust lands, so it relies on information sharing among the states to ensure that the payments it is receiving are at least similar on a regional level.[237]

Despite the information asymmetries inherent in MFN clauses and the difficulties in enforcing them, they do sometimes work as intended and there is little downside for the state in insisting that one be included in any renewable energy lease for state trust lands. The following is a negotiated MFN clause that appears in a wind lease with Montana state trust lands:

> Lessor and Lessee agree that if Lessee has entered into, or hereafter enters into one or more wind energy agreements or similar instruments with other landowners in the Project area under which Lessee agrees to pay such other landowner(s): (a) a dollar amount per megawatt of installed capacity used to calculate fees similar to Capacity Rent, (b) a percentage amount used to calculate royalties similar to the Percentage Rent, (c) a dollar amount per acre used to calculate a minimum annual fee similar to Base Rent, or (d) installation fees similar to the installation fees described in Section [] above, which are more favorable to such other landowner(s) than such amounts hereunder, then Lessee shall notify Lessor and prepare and deliver to Lessor for execution an amendment, which Lessor reserves the right to sign at its discretion, to this Lease modifying the payment terms hereunder to match those more-favorable corresponding terms. Lessee shall also submit payment, along with an accounting, to Lessor for the difference between the amount actually paid to date and the amount that would have been paid had the amended terms been in effect since the Commencement Date of the Lease.[238]

---

[234] *OK Interview*, *supra* note 78.
[235] *CO Interview*, *supra* note 45.
[236] *Id*.
[237] *ID Interview, supra* note 86.
[238] MT BD. OF LAND COMM'RS, Montana Wibaux Wind Lease (not yet executed) (Latest Draft, Dec. 11, 2019), (on file with the Montana Department of Natural Resources and Conservation).

Constructing a renewable energy project is a months-long effort involving large machines crisscrossing the leased property to move enormous pieces of equipment into place. Add to this the many dangers to both people and property associated with working with the buried and overhead transmission lines, substations, transformers, and other facilities required to generate and transmit electricity. Even after construction is completed, a renewable energy project can attract members of the public who desire a closer look at the majestic wind turbines or gleaming rows of solar panels. For these reasons and more, it is essential that the landowner-lessor (private or public) obligate the developer-lessee to obtain and maintain, at its expense and for the life of the project, a broad form comprehensive coverage policy of public liability insurance protecting the lessor against loss or liability caused by the lessee's activities on the leased property, with a combined single limit coverage amount sufficient to address any claims. The lessor should further require that it be named as an additional insured in such policy and that lessee deliver a certificate of such insurance to lessor prior to commencement of construction of the renewable energy project. If a developer engages a service provider, such as a surveyor or engineer, to perform work on the leased property, it is also important to ensure adequate professional liability insurance for these providers is also in place. Below are the insurance provisions from New Mexico's template solar lease for trust lands, that offer a thorough approach to insurance coverage:

> Insurance. Lessee shall, at Lessee's cost and expense, obtain and maintain the following forms of insurance coverage with limits not less than those set forth below at all times during the Lease Term. All policies shall be issued by insurers authorized to do business in the State of New Mexico and name the Lessor ("New Mexico State Land Office") as the insured or as an additional insured. All policies of insurance required to be maintained by Lessee pursuant to this Section [] shall be reasonably satisfactory to Lessor and shall: (a) provide for the benefit of Lessor that thirty (30) days prior written notice of suspension, cancellation, termination, modification, non-renewal or lapse or material change of coverage shall be given to all insured parties and that such insurance shall not be invalidated by any act or

neglect of Lessor, nor by any foreclosure or other proceedings or notices thereof relating to the Land, leasehold or improvements, nor by occupation of the Land for purposes more hazardous than are permitted by such policy; (b) not contain a provision relieving the insurer thereunder of liability for any loss by reason of the existence of other policies of insurance covering the Land, leasehold or improvements against the peril involved, whether collectable or not; and (c) include a contractual liability endorsement evidencing coverage of Lessee's obligation to indemnify Lessor pursuant to Section []. Lessee shall provide a copy of the insurance policy. Lessor shall have no liability for premiums charged for such coverage, and inclusion of Lessor as an insured party is not intended to and shall not make Lessor a partner or joint venturer with Lessee in its operations.

- Commercial General Liability insurance in the broadest form then available in New Mexico with limits of at least one million dollars ($1,000,000) per occurrence, two million dollars ($2,000,000) aggregate, and two million dollars ($2,000,000) excess liability or umbrella coverage, protecting Lessee and Lessor, their employees and agents against all claims for bodily injury, personal injury, death and property damage. Higher coverage may be reasonably required by the Lessor from time to time, including but not limited to increases needed to provide complete coverage for Lessor's maximum liability under the New Mexico Tort Claims Act, NMSA 1978, Section 41-4-1 et seq. Insofar as the above-described insurance provides protection against liability for damages to third parties for personal injury, death, and property damage, Lessor shall be included as an additional insured, provided such liability insurance coverage shall also extend to damage, destruction and injury to Lessor-owned or Lessor-leased property and Lessor personnel, and caused by or resulting from work, acts operations or omissions of Lessee.

- Property Insurance covering all insurable improvements on the Land in an amount not less than necessary to cover the full replacement cost of such improvements.

- Worker's Compensation coverage meeting all statutory requirements.

Within ten (10) days after the execution of this Lease by Lessor and delivery to Lessee and annually thereafter, Lessee shall deliver to Lessor original or duplicate certificates of insurance evidencing all the insurance which is required to be maintained under this Lease by Lessee certifying that all requirements set forth herein have been complied with, and within ten (10) days prior to the expiration of any such insurance, other original or duplicate certificates evidencing the renewal of such insurance. Upon Lessor's request, Lessee shall promptly deliver to Lessor all insurance policy documents, including declarations, endorsements, and exclusions. A certificate, policy, endorsement or rider which states that failure to give Lessor notice imposes no liability or obligation on the insurer shall not be in compliance with this Lease. For example, certificates or policies stating that the

> insurer shall "endeavor to notify" and that "failure to give such notice imposes no obligation" on the insurer are unacceptable to Lessor. Failure to comply with the insurance specifications in this Lease is a material breach of the Lease. Different types of required insurance may be written in one or more policies.[239]

Given the inherent dangers associated with constructing and operating enormous structures to generate electricity and the reality that it is difficult to assure that members of the public will not enter the project area to recreate, hunt, or simply to get a closer look at the project, it is critical that the state include indemnification provisions in the renewable energy agreement that obligate the lessee to defend, indemnify and hold harmless the state from any and all claims, damages, and costs and expenses incurred by the state from physical damage to the leased property and physical injuries or death to the public caused by the project. Further, these indemnification obligations should be drafted to survive the termination of the lease agreement of which they are a part to ensure that any claims that arise during the pendency of the agreement but are not made until after its end are covered. The following is a sample indemnification provision from New Mexico's solar lease template for school trust lands:

> Indemnification. Lessee shall hold harmless, indemnify and defend the State of New Mexico, Lessor and Lessor's employees, agents, and contractors, in both their official and individual capacities, from any and all liabilities, claims, losses, damages, suit or expenses, including but not limited to reasonable attorneys' fees, penalties, and other costs for, Lessee's or Lessee's employees, agents, contractors, or invitees negligent acts or omissions or willful misconduct in connection with construction, operation or removal of improvements on the Leased Premises. Lessee shall not be required to indemnify Lessor for the negligence or willful misconduct of Lessor's own agents, employees, representatives, invitees, licensees or permittees. In the event that any action, suit or proceeding is brought against Lessee or Lessor relating to the Land or this Lease Agreement, Lessee shall, as soon as practicable but no later than five (5) days after it receives notice thereof, notify the legal counsel of Lessor and the Risk Management Division of the New Mexico General Services Department by certified mail. This Section [] shall survive the

[239] NAT'L ASS'N OF STATE TRUST LANDS, *Renewable Energy,* https://www.statetrustland.org/renewable-energy.html.

termination, cancellation or relinquishment of this Lease as to claims which accrued during the Lease Term.[240]

V. OTHER TYPES OF RENEWABLE RESOURCES AND RELATED INTERESTS

Solar and wind energy projects have been by far the most common renewable energy project types built on state trust lands to date, but interest in siting other types of renewable energy projects on state trust lands is growing as the demand for green energy continues to rise. Geothermal, hydropower, wave energy, tidal energy, biomass, and even carbon sequestration projects all offer potential new sources of income for state trust lands, albeit on a more limited number of sites and on a smaller scale than wind and solar energy projects.[241] The potential for geothermal energy development on its state trust lands led Idaho to inventory the geothermal potential of these lands.[242] Idaho's state lands department is in the process of developing a geothermal lease template that they will make available to NASTL once completed for use by other state trust land managers.[243] Coupling several energy sources or approaches into a "hybrid" lease (for example, a geothermal lease coupled with battery storage) may also present an attractive opportunity, as discussed in Part III(f).

Wave energy may also present a potential renewable resource for state trust land managers in coastal states. In California a couple of such projects were started but later abandoned.[244] Oregon obtained authorization to do a test hub offshore with results still pending, though this test site is not part of its school trust lands.[245] And Oregon's state trust lands

[240] COMM'R OF PUB. LANDS, NM STATE LANDS OFFICE, New Mexico Solar Lease Template (2015), https://www.statetrustland.org/uploads/1/2/0/9/120909261/solar_-_nm__lease.pdf.
[241] N.M. Stat. Ann. § 19-13-1 (1967) (New Mexico's Geothermal Resources Act offers a template statutory structure for leasing of geothermal resources on state trust lands).
[242] *ID Interview, supra* note 86.
[243] *Id*.
[244] *CA Interview*, *supra* note 26.
[245] *OR Interview*, *supra* note 49.

department has developed a form wave energy lease.[246] Washington is interested in renewable energy projects using carbon dioxide (CO2) sequestration injections, biomass, and other form of carbon neutral electricity generation.[247] The state trust lands managers in this state are "always interested" in exploring the potential of carbon neutral projects on state trust lands. If and when such projects begin to come online in Washington, the state may serve as a resource for state trust land departments in other states on how to attract such projects going forward.

VI. CONCLUSION

Given the strong political, market, and policy forces driving the rise of renewable energy generation in the United States, the siting of an increasing number of renewables projects on state trust lands over the next several years is all but assured. This is good news for state trust land managers, who are ever cognizant of their fiduciary duty to the beneficiaries of these lands. It is also, however, a challenge. To meet this challenge, state trust land departments that are accustomed to leasing trust lands for comparatively low impact and less complicated uses, such as grazing leases, must grow their knowledge about and comfort with renewable energy projects. While these projects are generally viewed as an environmental good and typically provide significantly more revenue to the state than do traditional uses of trust lands, they are also more complicated, longer lasting, and more demanding on the limited resources of most state trust lands departments. For their part, renewable energy developers will be challenged to adapt their private property-based approach to land acquisition, permitting, and project construction, operation, and decommissioning to fit the more stringent and, at times, less flexible requirements for developing renewable energy projects on state trust lands. It will not be easy, but the benefit

[246] *Id*.
[247] *WA Interview, supra* note 37.

to both parties (and to our rapidly warming planet) from meeting these challenges is more than worth the effort.