RENEWABLE ENERGY DEVELOPMENT ON STATE TRUST LANDS

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I. INTRODUCTION

The installed capacity of renewable energy projects in the United States is growing at a rapid pace, forcing renewable energy developers to look further afield to find lands suitable for new solar and wind projects. In this search, state trust lands, which have been underutilized to date for renewable energy development, offer an attractive alternative to developers, albeit one with its own unique set of complications and challenges. State trust land managers must balance the tandem goals of generating revenue from the trust land for the state beneficiaries and ensuring the long-term viability of the land through resource conservation. Renewable energy developers seeking to lease state trust lands must navigate the various trust land management styles of each state, while identifying parcels particularly suited for renewable energy development. This article seeks to provide a useful resource for both state trust land managers and developers by offering insight on the legal requirements and policy considerations undergirding the leasing of state trust lands and the economic and practical considerations informing a developer's decision to lease land for development. It also offers a synthesis of how some states and developers have been able to generate healthy revenues from renewables leasing of state trust lands.

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. 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.1

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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.[2] Ninety-one percent of this new installed capacity was from wind and solar projects.[3] 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.[4] Looking forward, renewables are projected to account for 90 percent of total global power capacity increases in both 2021 and 2022.[5]

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 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 percent in 2020 to 42 percent in 2050.[6] Wind and solar projects are expected to be responsible for much of this growth.[7] The EIA projects that 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.[8]

As the use of non-natural gas fossil fuels to generate electricity is expected to decline rapidly,[9] hundreds of new utility-scale wind and

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Conservation.

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1. International Energy Agency (IEA), *Renewable Energy Market Update 2021*, IEA PARIS 1, 4 (2021), https://iea.blob.core.windows.net/assets/18a6041d-bf13-4667-a4c2-8fc008974008/RenewableEnergyMarketUpdate-Outlookfor2021and2022.pdf.

2. *Renewable Capacity Highlights*, INT'L RENEWABLE ENERGY AGENCY (IRENA) 1, 1 (2021), (Mar. 31, 2021), https://www.irena.org/-/media/Files/IRENA/Agency/Publication/2021/Apr/IRENA_-RE_Capacity_Highlights_2021.pdf?la=en&hash=1E133689564BC40C2392E85026F71A0D7A9C0B91.

3. *Id.*

4. *Id.*

5. IEA, *supra* note 2, at 7.

6. U.S. ENERGY INFO. ADMIN., *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.

7. *Id.*

8. U.S. ENERGY INFO. ADMIN., https://www.eia.gov/outlooks/steo/report/electricity.php (last visited Jan. 25, 2022).

9. Samantha Gross, *Why There's No Bringing Coal Back*, BROOKINGS INST. (Jan. 16, 2019), https://www.brookings.edu/blog/planetpolicy/2019/01/16/why-theres-no-bringing-coal-

solar projects are likely to be built to meet growing electricity needs in the next two years alone, with thousands more constructed in the following decade. 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 will likely be in the western United States where wind and solar are most viable, and where there are large tracts of relatively unencumbered land.[10] With many of the most viable sites for wind and solar projects already hosting operating wind and solar farms, the 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 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 that they provide funding for state public school budgets, makes these lands well-suited for leasing to developers for renewable energy. The requirements motivate 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.[11] 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. This helped

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10. *See* NAT'L RENEWABLE ENERGY LAB https://www.nrel.gov/analysis/tech-size.html (last visited Feb. 20, 2022) (noting that 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).

11. NAT'L ASS'N OF STATE TRUST LANDS (NASTL), https://www.statetrustland.org/ (last visited Jan. 25, 2022).

identify best practices in leasing these lands for renewable energy development from both developer and land manager perspectives. The interviews surfaced common challenges in the state trust land leasing process, as well as opportunities for 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. Managers shared insight 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 public recreational access. Many of the lessons learned apply equally to wind and solar leasing on private lands, as state trust land managers tend to protect interests similar to those of 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. It will also 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 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 U.S. Forest

Service.[12] As one author put it, "[s]tate 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."[13]

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.[14] 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.[15] Often, 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 year from renewable energy development on its state trust lands. Colorado brings in 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, as well as creating leases for energy project support infrastructure, like battery storage, significant

12. JON SOUDER & SALLY FAIRFAX, THE STATE TRUST LANDS: HIST., MGMT., AND SUSTAINABLE USE 5 (1996).

13. *Id.* at 1.

14. *Compare* WASH. DEP'T OF STATE LANDS, *The Federally Granted Trusts: What Makes Them Unique* 1, 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).

15. *See e.g.*, *School Trust Lands – Montana and Land Board Commissioners*, MONT. OFF. OF PUB. INSTRUCTION 5-6, https://opi.mt.gov/Portals/182/Superintendent-Docs-Images/Montana_State_School_Trust_Lands.pdf (last visited Feb. 20, 2022).

16. 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.

potential for revenue growth remains as renewables take on a larger role in the United States' energy supply sector.[17]

Leasing state trust lands for renewable energy projects could create a new stream of revenue from the land once the projects are 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 resources, be it average wind speed or solar exposure, to potentially support a utility-scale renewables project in many locations across the country.[18] These parcels 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 multiple considerations. Factors include 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.[19] Typically, renewable energy developers do not build even a quarter of the potential projects in their portfolio,[20] meaning many renewable energy leases will never provide the lessor with lease revenues beyond whatever is paid as a signing bonus and monthly or annual pre-operational rent.[21] 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 will 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

17. Marlene Motyka, *2021 Renewable Energy Outlook Report*, DELOITTE 1, https://www2.deloitte.com/us/en/pages/energy-and-resources/articles/renewable-energy-outlook.html.

18. Telephone interview with Ty Daul, CEO, Primergy Solar (Mar. 16, 2021) (hereinafter *Daul Interview*).

19. Compiled with assistance from NASTL and all state interviewees; NASTL, *supra* note 16; NASTL, *Renewable Energy*, https://www.statetrustland.org/renewable-energy.html.

20. *Id.*

21. *Id.*

opportunities presented in 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.[22] 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."[23] 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 or federal lands to make up the project area of a renewable energy project.

Of the twenty-one NASTL member states, twelve are currently engaged in renewable energy leasing.[24] The states with the most abundant wind, solar, geothermal and hydropower potential, not surprisingly, have the most activity.[25] These states include Arizona, Wyoming, Oklahoma, New Mexico, and Colorado.[26] 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.[27] 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

22. Uma Outka, *State Lands in Modern Public Land Law*, 36 STAN. ENVTL. L.J. 147, 173 (2017).

23. Act of February 22, 1889, Ch. 180, 25 Statutes at Large 676, MONT. CODE ANN. § Enabling Act 1889.

24. NASTL, *supra* note 16; NASTL, *Renewable Energy*, https://www.statetrustland.org/renewable-energy.html (last visited Feb. 20, 2022).

25. *Id.*

26. *Id.*

27. *Id.*; NASTL, *supra* note 16.

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[28]

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
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/com

28. Compiled with assistance from NASTL and all state interviewees; NASTL, *supra* note 16; 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)
				mercial-leasing/available-for-lease-now
NM	14 wind 6 solar 2 geothermal	95 MW wind 71 MW solar (On deck – 524 MW 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			https://www

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)
	1 geothermal (on hold currently)			.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-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.

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)
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 several renewable energy companies. 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.

The interviews conducted with state trust land managers and staff for the thirteen states with active renewable energy leasing served two

purposes::29 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, 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 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 use 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 alike benefit from the presence of staff with specialized knowledge about

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

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. 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. This would include 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 having a staff member with working knowledge of renewable energy projects is sufficient.

Currently, most state trust land administrations manage renewable energy development within one of their existing land management divisions.[30] This often means the same staff handling agriculture and grazing leases, commercial leases, and 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, some state trust land administrators have specialized staff working exclusively on renewable energy projects. New Mexico is an example of a state that has dedicated a 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.[31] Since its establishment, the Office of Renewable Energy attracted talent from

30. *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.

31. Carol A. Clark, *State Land Office Hires Office of Renewable Energy Director, Analyst*, LOS ALAMOS DAILY POST, (Sep. 19, 2019, 4:39 P.M.) https://ladailypost.com/land-office-hires-renewable-energy-director-analyst/.

other state agencies[32] and helped New Mexico trust lands become a target for renewable energy development, bringing in $1.2 million in revenue in 2020 and in 2021 reaching an installed capacity of 95 MW of wind power and 71 MW of solar power, with more planned in the near future.[33]

B. Consolidate Landownership

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 established in a given state's enabling act.[34] 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 parcels 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. This forces developers to cobble together land leases from multiple landowners – private, federal, and state – to create a viable project footprint.[35] By consolidating state trust lands into larger contiguous parcels, such lands can become more attractive to developers by offering economies of scale, with fewer landowners, review processes, and permitting criteria.

One option for consolidation is for a state to exchange isolated trust lands with federal lands, such as Bureau of Land Management (BLM) lands, United States National Park Service (NPS), or Forest

32. 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).

33. *NM Interview*, *supra* note 34; NASTL, *supra* note 17.

34. 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* CAL. STATE LANDS COMMISSION, https://www.slc.ca.gov/renewable-geothermal-energy/ ("The Commission owns a 100 percent mineral interest in 7,247 acres under lease at the Geysers, and a 1/16th mineral interest in another 895 acres. Geysers Power Company LLC and CPN Wild Horse Geothermal LLC, both subsidiaries of Calpine Corporation, hold these leases.").

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

Service (USFS) 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.[36] Careful analysis of the lands to be exchanged may help address issues associated with protecting cultural heritage and other environmentally sensitive areas.

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.[37] 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.[38] The size of the consolidated state trust land parcels allows developers to build entire renewable energy projects exclusively on state trust lands while avoiding 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 six years.[39] Only recently has the plan started to build momentum.[40] California's environmental review

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

37. 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, 6:13 P.M.), 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.

38. *UT Interview*, *supra* note 39.

39. CAL. 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).

40. Kelsey Misbrener, *Biden administration restores amendments to Desert Renewable Energy Conservation Plan*, SOLAR POWER WORLD, (Feb.18, 2021),

process for state lands is more stringent in many respects than the NEPA process on federal lands,[41] so 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. 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.[42]

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 also attract more renewable energy development by identifying the trust lands under their management best suited for renewable energy projects. 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. They could instead rely on expressions of interest from renewable energy developers to identify the most desirable lands.[43] However, as the most attractive trust lands are developed,

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https://www.solarpowerworldonline.com/2021/02/biden-administration-restores-amendments-desert-renewable-energy-conservation-plan/.

41. Kellen Zale, *Changing the Plan: The Challenge of Applying Environmental Review to Land Use Initiatives*, 40 ECOLOGY L.Q. 833, 841–44 (2013).

42. *CA Interview*, *supra* note 36; CAL. PUB. UTIL. CODE § 399.11 (2019).

43. 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 34 (New Mexico has numerous renewable energy

inventorying the remaining trust lands may help stimulate development of the rest.[44] Washington State offers an example. In general, the State is focused on increasing the value of state trust lands to developers and reducing back end opposition to projects.[45] As a result, Washington started mapping its state trust lands to proactively identify parcels with the best potential for renewable energy, taking into consideration a host of other factors such as endangered species, environmental and cultural concerns, access to transmission, as well as slope, soil type, and depth.[46] The state is using its extensive data regarding its trust lands and incorporating local zoning, tribal concerns, and availability of utility interconnection, with the anticipated goal of marketing to developers the trust lands best suited for renewable energy projects.[47] Ultimately, by doing so Washington is leveraging its inhouse knowledge to help make the process of project identification more streamlined and efficient for developers when it comes to state trust lands.

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 able to redirect the developer to a better suited parcel in an area where new high voltage transmission lines were being constructed.[48] With a working knowledge of where attractive parcels are located, based on existing knowledge about wind and solar potential, access to transmission, and areas where other assets might be in conflict with renewables, a state trust land manager can be more nimble when fielding developers' inquiries.

The key characteristics to assess when evaluating a parcel's suitability for renewable energy development include: (1) proximity to high voltage transmission lines; (2) availability of the renewable

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).

44. *NM Interview*, *supra* note 34 (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).

45. 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*).

46. *Id.*

47. *Id.*

48. Telephone interview with Alan McWilliams, Deputy Director, Leasing Operations, and Brice Finley, Texas General Land Office (Mar. 15, 2021) (hereinafter *TX Interview*).

resource; (3) the presence (or ideally absence) of cultural resources and endangered species habitat; and (4) existing land uses of the parcel.[49]

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 energy across the often-great distances between plants and end users.[50] 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. 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.

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. That means the developer must decide 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.

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49. Telephone interview with Angela Calabrasi, Attorney, Arizona State Land Department (May 27, 2021) (hereinafter *AZ Interview*); *CA Interview*, *supra* note 36; *CO Interview*, *supra* note 62; 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 86; *ND Interview*, *supra* note 71; *NM Interview*, *supra* note 34; *OK Interview*, *supra* note 106; *OR Interview*, *supra* note 67; *TX Interview*, *supra* note 50; *UT Interview*, *supra* note 39; *WA Interview, supra* note 47; *WY Interview*, *supra* note 45 (collectively, hereinafter *All State Interviews*).

50. *Centralized Generation of Electricity and its Impacts on the Environment*, U.S. ENVT. PROT. AGENCY , https://www.epa.gov/energy/centralized-generation-electricity-and-its-impacts-environment (last visited Feb. 20, 2022).

Proximity to transmission lines often plays a bigger role in siting solar projects than wind projects. Solar resources are relatively stable and predictable 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.[51] 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. Accordingly, 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.[52] Conversely, a wind farm built high on a remote windy ridge may generate enough electricity from its location to offset the costs associated with connecting to distant high-voltage lines, when compared to the power generated from a wind farm built on a less windy valley floor, but near existing high-voltage transmission lines.[53]

Aside from identifying where existing high-voltage transmission lines are in relation to state trust lands, the available capacity of those lines is also relevant. 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.[54] The state trust land managers with the most success in identifying available capacity in transmission lines have developed strong and trusting relationships with the utility companies in their area, such that the utilities feel comfortable disclosing available capacity on their transmission lines.[55]

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51. *Piscitello Interview*, *supra* note 37.

52. *Daul Interview*, *supra* note 18 (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).

53. *Piscitello Interview*, *supra* note 37.

54. Telephone interview with Troy Gagliano, former wind and solar developer (Mar. 15, 2021) (hereinafter *Gagliano Interview*).

55. 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.

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.[56] These maps can be cross-referenced against widely available maps of the system of high-voltage transmission lines that make up the U.S. electrical grid.[57] 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.[58]

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.[59] In many instances, a state land manager can obtain a good sense for the state trust lands under its 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 (ESA) or similar applicable state wildlife protection laws, or has cultural significance to an Indian tribe.[60] The existence of any one of these

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56. Windnavigator, UNDERWRITERS LAB'YS., https://dashboards.awstruepower.com/ (last visited Feb. 20, 2022); Solar Resource Data, Tools, and Maps, NATI'L RENEWABLE ENERGY LAB'Y, https://www.nrel.gov/gis/solar.html (last visited Feb. 20, 2022).

57. Electric Power Transmission Lines, HOMELAND INFRASTRUCTURE FOUNDATION-LEVEL DATA (HIFLD), https://hifld-geoplatform.opendata.arcgis.com/datasets/electric-power-transmission-lines?geometry=-149.221%2C25.044%2C-42.522%2C49.180.

58. *See* Project and Maps, N.M. STATE LAND OFF., https://www.nmstatelands.org/divisions/commercial-resources/renewable-energy/project-and-maps-office-of-renewable-energy/ (detailing maps).

59. *Daul Interview*, *supra* note 18.

60. *NM Interview*, *supra* note 34 (NM has a tribal consultation requirement for after applications are submitted for a project and before approval by the commissioner); *see also CO*

characteristics does not necessarily exclude a parcel from consideration for development, but at a minimum each creates a likely need for mitigation, minimization, or avoidance measures, and meaningful consultation with tribes, the federal government, or other interested parties.[61] Documenting these factors in a land inventory will benefit an interested developer in 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.[62] Documenting any existing land uses on state trust land parcels will help identify whether any existing uses would be impacted by siting a renewable energy project nearby. This 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 existing land uses that create restrictions on its ability to construct and operate a renewable energy project. 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.[63] However, this compatibility can be overstated, because wind energy developers often insist on the

Interview, supra note 62 (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 45 (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).

61. *See e.g.*, U.S. Fish and Wildlife Serv., *Land-based Wind Energy Guidelines,* U.S. FISH & WILDLIFE SERV. 1, 43-48, https://www.fws.gov/ecological-services/es-library/pdfs/WEG_final.pdf (2021) (discussing the balancing required).

62. 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.

63. *Advantages and Challenges of Wind Energy*, U.S. DEPT. OF ENERGY, WIND ENERGY TECHS. OFF., https://www.energy.gov/eere/wind/advantages-and-challenges-wind-energy (last visited Feb. 20, 2022).

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.[64] That said, it is true that 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 this to 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 sheep grazing, a utility-scale solar energy project is not compatible with multiple uses of land.[65] One possible exception could be made for lateral drilling for oil and gas from deposits underneath solar arrays. Some oil and gas operations will use solar energy to power the associated pumps.[66]

D. Permitting Guides and Clear Application Timelines

A permitting guide or an application timeline will also attract developers by providing (ideally) an easy-to-follow guide to timelines and expectations. These guides can be in the form of a simple checklist of what the developer needs to do and when, or they 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.[67] Oklahoma has taken a similar approach by creating an outline of the

64. 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*).

65. Darren Coffey, *Planning for Utility-Scale Solar Energy Facilities*, (Sept./Oct. 2019), https://www.planning.org/pas/memo/2019/sep/; *but see* https://www.ise.fraunhofer.de/en/press-media/press-releases/2017/harvesting-the-sun-for-power-and-produce-agrophotovoltaics-increases-the-land-use-efficiency-by-over-60-percent.html (study showing promise of solar and agriculture compatibility).

66. *TX Interview*, *supra* note 50; *see also* Arpan Varhese, *The Permian paradox: Texas shale players go green to drill more*, REUTERS (Nov. 8, 2019, 7:39 A.M.), https://www.reuters.com/article/us-usa-energy-renewables/the-permian-paradox-texas-shale-players-go-green-to-drill-more-idUSKBN1XI1HH.

67. Wyo. Off. of State Lands and Investigations, *Wind Leases*, *Wind Energy Development Leasing Process*, WYO. OFF. OF STATE LANDS & INVS. https://drive.google.com/file/d/1ektMQV_FlS7TjcbtUL0fdTP1aDFtXGmi/view (hereinafter *WY Wind Leases*).

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.[68]

E. Front-loading Project Review

The permitting and 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 authority are never the same party. This means 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.[69] 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

68. *Long Term Com. Lease Process*, COMM'RS OF THE LAND OFF. STATE OF OKLA. (2020), https://clo.ok.gov/wp-content/uploads/2015/02/LTCL-Process-Public-1.pdf.

69. *Daul Interview*, *supra* note 18; *Piscitello Interview*, *supra* note 37; *Gagliano Interview*, *supra* note 61.

must begin the California Environmental Quality Act (CEQA) environmental review process.[70] The CEQA environmental review process can be lengthy and expensive, which does work to separate the serious from the non-serious developers, but also can cause even a serious developer to withdraw an application.[71]

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 or the preservation of recreational and scenic areas.[72] Environmental groups lauded the DRECP as "a landmark model for balanced conservation and clean energy."[73] Despite the positive reception that the DRECP received, to date no renewable energy project has broken ground in the area covered by the plan.[74]

New Mexico took a different approach to front-loading project review. 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 review for the proposed project.[75] This process includes a physical site inspection, review of all encumbrances on the land, analysis of the potential renewable project's impact on any agricultural leases on the site, cultural resource/archaeological records

70. *CA Interview*, *supra* note 36; *see also* CAL. PUB. RES. CODE § 21001.1 (1984).

71. *CA Interview*, *supra* note 36.

72. *See* CA ENERGY COMM'N., *Desert Renewable Energy Conservation Plan*, https://www.energy.ca.gov/programs-and-topics/programs/desert-renewable-energy-conservation-plan (containing mission statement of DRECP).

73. 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.

74. *CA Interview*, *supra* note 36; *see also* Timothy Puko, *Biden Administration is Approving Big Solar Projects in California Desert*, THE WALLSTREET J. (December 21, 2021) https://www.wsj.com/articles/biden-administration-is-approving-big-solar-projects-in-california-desert-11640119569?cx_testId=3&cx_testVariant=cx_2&cx_artPos=1&mod=WTRN#cxrecs_s.

75. *NM Interview*, *supra* note 34.

management section review, identification of any critical plant and wildlife habitat on the proposed project site, the existence of valuable mineral interests, and other current uses of the land.[76] The ORE also confirms that the developer is a qualified applicant, by requiring 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.[77] 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.[78] Compare with Montana, where the state's sunshine laws have in some instances limited the state's ability to provide a developer with confidentiality. As a result, trust land managers have sometimes found it challenging to obtain financial information to adequately review project viability, or to get planning documents that would be helpful for measures such as preliminary site evaluations and project revenue projections.[79]

Colorado takes yet another approach: a separate planning lease, covering all aspects of the project development prior to going operational, which, in turn, requires a production lease.[80] Colorado begins by vetting projects before the application is even submitted in a "pre-application phase," during which developers express interest and provide a general idea of what type of project they want to build and where.[81] 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

76. *NM Interview*, *supra* note 34.

77. *Id.*

78. *Id.*

79. 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*).

80. Part IV of the article discusses planning leases, option contracts, and other exploration permits in depth.

81. *CO Interview*, *supra* note 62.

approval to move forward with lease negotiations for the state trust lands being considered.[82] 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.[83] 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.[84] Often there is not a conflict when the lease is for a wind project,[85] given wind turbines have relatively small footprints. Additionally, the existing state trust lands lessee may well own neighboring lands and be leasing them for the same wind project, therefore benefitting similarly as 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.[86]

Once the planning lease is executed, the developer may conduct interconnect studies for transmission of the power, seek a Power Purchase Agreement (PPA) with a purchaser of the electricity, and conduct any necessary environmental review.[87] These contingencies must be met if the developer is to move from the planning lease to an operations lease.[88]

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 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.[89] 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.[90] These utilities are obligated to meet state mandated RPS standards for renewable energy

82. *Id*.

83. COLO. REV. STAT. ANN. § 36-1-118 (2022); *CO Interview*, *supra* note 62.

84. *CO Interview*, *supra* note 62.

85. *Id*.

86. *Id*.

87. *Id.* (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).

88. *Id*.

89. *Gagliano Interview*, *supra* note 61 (PPAs are critical to secure because otherwise the renewable energy project will produce no revenue).

90. *CO Interview*, *supra* note 62.

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.[91] 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.[92] 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.[93] 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.[94] These revenue sources could include, for example, lease payments from lessees of the land for farming and ranching, grazing livestock, forestry, real estate, and oil and gas exploration.[95] 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, some states have laws that protect land use and development rights of existing lessees of the mineral estate beneath the land, as well as access to and recreational use of these lands by the general public.[96] Additionally, if a state determines that it wants to lease trust land for renewable energy development and that this development requires

91. *Id.* (one of the utilities in Colorado has even gone as far as setting its own RPS requiring itself to have a higher percentage of renewables in its portfolio than the state RPS requires).

92. *Id.*

93. *Gagliano Interview*, *supra* note 61; *CO Interview*, *supra* note 62.

94. *TX Interview*, *supra* note 50, *CO Interview*, *supra* note 62; *MT Interview*, *supra* note 86.

95. *TX Interview*, *supra* note 50, *CO Interview*, *supra* note 62; *MT Interview*, *supra* note 86.

96. *MT Interview*, *supra* note 86.

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.[97] 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

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.[98] 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.[99] 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 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

97. *WA Interview*, *supra* note 47; *see also* REV. CODE WASH. 79.13.420(6) (2022).

98. *MT Interview*, *supra* note 86, *TX Interview*, *supra* note 50; MONT. CODE ANN. ENABLING ACT 1889 §§ 11 & 18, 25 Stat. 676 (1889); *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).

99. *MT Interview*, *supra* note 86; *UT Interview*, *supra* note 39; 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).

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.[100] 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. 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.[101] 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 exclusive 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 project 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.[102] 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.[103] 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.[104] So, in states such as Utah, where few oil and gas deposits are deeper than 500 feet, these accommodation agreements are of limited utility.[105] Utah instead tries to site renewable energy projects in areas

100. 2 TIFFANY REAL PROP. § 587 (3d ed.) (2021) ("In essence, the owner of the mineral estate will have the dominant estate and the surface owner the subservient estate.").

101. *NM Interview*, *supra* note 34.

102. *TX Interview*, *supra* note 50.

103. *UT Interview*, *supra* note 39.

104. *Id.*

105. *Id.*; *see also OK Interview*, *supra* note 106.

where there is low demand for minerals and seeks an accommodation agreement from the mineral estate holder to forego any extraction activities within five hundred feet of a project.[106]

The 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.[107] Such a covenant is uniquely possible for state trust lands because often the state is the sole owner of the mineral estate.[108] By covenanting away access to the mineral estate for a price, a state can fulfill 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.[109] 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.[110] As explained above, wind energy projects, despite presenting some challenges to an agricultural lessee in farming around the wind turbine pads, roads, and transmission lines, can be compatible with existing farming and ranching-type uses on the land. Solar projects, on the other hand, with their larger footprints, are more difficult to make work with other contemporaneous land uses, often

106. *UT Interview*, *supra* note 39.

107. *NM Interview*, *supra* note 34.

108. SOUDER & FAIRFAX, *supra* note 13 at 5.

109. *NM Interview*, *supra* note 34.

110. *AZ Interview*, *supra* note 49; *CA Interview*, *supra* note 36; *CO Interview*, *supra* note 62; 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 86; *ND Interview*, *supra* note 71; *NM Interview*, *supra* note 34; *OK Interview*, *supra* note 106; *OR Interview*, *supra* note 67; *TX Interview*, *supra* note 50; *UT Interview*, *supra* note 39; *WA Interview, supra* note 47; *WY Interview*, *supra* note 45 (collectively, hereinafter *All State Interviews*).

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 state trust lands managers. 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.[111] Compare a solar energy project on state trust lands, which typically pays the state rent of several hundred dollars per acre in its first year of operation, with payments escalating annually from there.[112]

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.[113] 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.[114] 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.[115] This allows the existing lease to remain in place as long as there is no competing interest between the two uses. The improved approach allows for more collaboration between the developer and the agriculture or grazing lessee, while providing protections for all interested parties.[116]

Another example is Washington State, which 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.[117] And the Washington legislature recently passed legislation that goes further, requiring that the WDNR compensate existing state trust land agricultural and grazing lessees if

111. 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; *All State Interviews*, *supra* note 116.

112. *CO Interview*, supra note 62 ($375 per acre with 2 percent escalator each year); *OK Interview*, *supra* note 106 ($480 per acre with 15 percent escalator every five years).

113. *CO Interview*, *supra* note 62; *NM Interview*, *supra* note 34.

114. *WA Interview*, *supra* note 47; *see also* REV. CODE WASH 79.13.420(6) (2021).

115. *MT Interview*, *supra* note 86; Act of Oct. 21, 2021, ch. 313, 2021 MONT. CODE ANN. 63; *see also* MONT. CODE ANN. § 77-1-902 (2021).

116. *MT Interview*, *supra* note 86.

117. WASH. REV. CODE ANN. § 79.13.420 (2021).

the state cancels the lease.[118] 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.[119] With solar energy projects alone in Washington generating approximately 100 times the per acre revenue of grazing leases, this cost should be easily absorbed.[120] 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.[121]

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.[122] The SIPs cover "destruction of forage, disruption of grazing, agricultural, or commercial operations, nuisance, inconvenience, and for incidental use of the land surface."[123] Renewable energy leases contain a provision that the developer must pay any required SIPs to existing lessees on the parcel prior to beginning construction of the renewable energy project.[124] 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).[125] If the parties can't agree on the SIPs amount, the director of the state trust lands determines an amount.[126]

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.[127] Not surprisingly, the existing lessee often required payment in return for giving its consent.[128] To address this, New Mexico now requires new

118. WASH REV. CODE ANN. § 79.13.420(6) (2021).
119. *WA Interview, supra* note 47.
120. *See* Godwin*, supra* note 118.
121. *WA Interview, supra* note 47.
122. WY. OFFICE OF STATE LANDS & INVS*, supra* note 74.
123. *Id*.
124. *Id*.
125. 060.0002.4 WYO. ADMIN. CODE § 15 (2022).
126. *Id*.
127. *NM Interview*, *supra* note 34.
128. *Id*.

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.[129]

3. Managing Recreational Uses

As public lands often contain ample recreational opportunities within their borders, people may take for granted the ability to access state trust lands for hiking, fishing, biking, and other leisure activities. However, the state retains the right to limit such access if doing so is in the best interests of the trust beneficiary.[130] For their part, renewable energy project operators are loathe to have members of the general public within the boundaries of their wind or solar farms, fearing the potential for damage from vandalism, accident, or malicious acts, as well as liability for injuries suffered while on the project site.[131]

Colorado only allows recreation on those parcels of state trust lands that are leased to Colorado Parks and Recreation.[132] Other 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.[133] Montana's legislature recently passed a statutory amendment that removes a categorical closure to recreational use previously in place, in the hope that this will allow for consideration of appropriate restriction areas instead of a blanket closure.[134] The intent of this legislative change is to increase flexibility in negotiating renewables leases.[135] 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.[136] The statute controlling traditional commercial ground leasing for retail, hotel, office space, and other similar uses includes administrative

129. *Id*.

130. SOUDER & FAIRFAX, *supra* note 13.

131. Telephone interview with Raimund Grube, experienced renewable energy developer and financier (Mar. 25, 2021) (hereinafter *Grube Interview*).

132. *CO Interview*, *supra* note 62 (One-third of Colorado state trust lands are leased to Colorado parks and recreation department for recreational use); *see also Recreation*, COLORADO STATE LAND BOARD, https://slb.colorado.gov/lease/recreation.

133. *MT Interview*, *supra* note 86; *see also* MONT. CODE ANN. §§77-1-801–77-1-820 8; 36.25 Admin. Rules of Mont. §§126, 132, 139, & 143.

134. MONT. CODE ANN. § 77-1-902(3)(b)(iii) (2020).

135. *MT Interview*, *supra* note 86.

136. *Id.*

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.[137] 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.[138]

G. Alternative Lease Arrangements

Attempting to meet the demanding needs and objectives of both developers and trust land managers could lead to some alternative leasing arrangements such as: rooftop solar, solar gardens, solar-wind hybrid leases, and energy storage leases.

1. Rooftop Solar on Existing Commercial Leases

One 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, rooftop solar could be placed 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.[139] This is called "net metering" because it focuses on the difference in the amount of energy produced by a customer versus the amount consumed.[140] 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.[141] Often the size of projects that are eligible for net metering is capped at a certain wattage.[142] If, for example, the project wattage cap for net metering eligibility is 25kw, then eligible projects will likely be limited

137. *Id*.

138. *Id*.

139. Telephone interview with Suzanne Leta, Head of Policy and Strategy, SunPower (Apr. 5, 2021) (hereinafter *Leta Interview*).

140. *Id.*

141. *Id.*

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

to small residential rooftop systems and commercial rooftop solar will likely not be an option. Even if the project cap is 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.[143]

2. Community Solar Gardens

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.[144] The solar garden is made up of several participating customers' solar panels who all obtain power from the garden for a rent or subscription fee.[145] A typical community solar garden has between 2 to 5MW of total installed energy capacity.[146] 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.[147] 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.

143. *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.

144. *Leta Interview*, *supra* note 148; *see also Virtual Net Metering: What is It? How Does It Work?*, ENERGYSAGE https://news.energysage.com/virtual-net-metering-what-is-it-how-does-it-work/ (last visited March 7, 2022).

145. *Leta Interview*, *supra* note 148; *see also Virtual Net Metering: What is It? How Does It Work?*, ENERGYSAGE https://news.energysage.com/virtual-net-metering-what-is-it-how-does-it-work/ (last visited March 7, 2022).

146. *Leta Interview*, *supra* note 148.

147. *Leta Interview*, *supra* note 148; *see also Virtual Net Metering: What is It? How Does It Work?*, ENERGYSAGE https://news.energysage.com/virtual-net-metering-what-is-it-how-does-it-work/ (last visited March 7, 2022).

Moreover, due to the relatively small size of community solar gardens, they generally have far less impact on wildlife habitat and viewshed than utility-scale solar projects, making the permitting process for them easier.[148]

State trust lands can, and have, benefited from leasing land for community solar gardens.[149] For example, after the Colorado state legislature passed laws incentivizing community solar gardens,[150] Colorado state trust lands executed sixteen production leases for these types of small-scale solar projects, with four more currently under planning leases.[151] 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.[152] 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.

3. Solar-Wind Hybrid Lease

Another option may be to lease 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.[153]

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 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

148. *Leta Interview*, *supra* note 148.

149. *CO Interview*, *supra* note 62.

150. COLO. REV. STAT. ANN. § 40-2-127 (2020).

151. *CO Interview*, *supra* note 62.

152. *CO Interview*, *supra* note 62; *Leta Interview, supra* note 148 (SunPower is such a 3rd party company).

153. Ben Jervey, *Wind and Solar are Better Together*, SCIENTIFIC AMERICAN (Dec. 5, 2016), https://www.scientificamerican.com/article/wind-and-solar-are-better-together/.

region, but wind speeds may 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 a 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, significant penalties may be imposed.[154]

Depending on the local sun and wind patterns of a proposed renewable energy project, combining wind and solar may help 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.[155]

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 as well.[156] State trust land managers should consider proactively making any needed regulatory amendments to enable the state to enter a solar-wind hybrid lease should the opportunity arise.

4. 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 can store the energy that would otherwise have been curtailed when peak production occurs.[157] At the

154. *Physical Power Purchase Agreements (Physical PPAs)*, U.S. ENV'T PROT AGENCY https://www.epa.gov/green-power-markets/physical-ppa (last visited March 7, 2021).

155. *Gagliano Interview*, *supra* note 61.

156. *OR Interview*, *supra* note 67 (Oregon trust land administrative rules do not allow for solar and wind to be on the same lease).

157. *Daul Interview*, *supra* note 18; *see also* C. ROOT ET AL, USING BATTERY ENERGY

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.[158] 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. Battery storage should be sited near substations to ensure the most efficient use of the stored energy.[159]

Batteries are already playing a critical role in renewable energy production as the cost of battery storage continues to fall and the battery technology consistently improves.[160] Provisions for battery storage in renewable energy leases will likely become an increasingly common element going forward.[161] 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.[162] State trust land managers could also see renewable energy lessees seeking to add batteries to existing wind or solar projects.[163]

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

STORAGE TO REDUCE RENEWABLE RESOURCE CURTAILMENT, 1–5 (2017).

158. *Gagliano Interview*, *supra* note 61.

159. *Id.*

160. *Id.*; *Daul Interview*, *supra* note 18; *Battery Storage Paves Way for a Renewable-powered Future*, INT'L RENEWABLE ENERGY AGENCY (Mar. 26, 2020) https://www.irena.org/newsroom/articles/2020/Mar/Battery-storage-paves-way-for-a-renewable-powered-future.

161. CITY OF PUEBLO COLO., 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).

162. *NM Interview*, *supra* note 34.

163. *See infra* Part IV for more on the specifics of leasing land for energy storage.

revealed there are many different lease structures and terms used for wind or solar energy projects on state trust lands across the country. The nuance and variety offer lessons on renewable leasing in general that renewable energy developers and private land owners may find useful as well as state trust land managers. 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.[164] 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.[165] 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.

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 needs with those of the trust land managers. The developers interviewed all highlighted the need to secure an appropriate level of control over the leased land to construct and operate the renewable energy project free from unreasonable interference. The state trust land managers interviewed all pointed to their fiduciary obligation to realize the maximum revenue potential of

164. *MT Interview*, *supra* note 86; 26 U.S.C.A. § 38 (2019).

165. *Grube Interview*, note 138.

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 are not suitable for agricultural use, striking this balance is relatively easy. 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 is the developer's need to show proof of land control in order to obtain a PPA. This includes the developer's need to exclude interfering uses of the land. 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 link up.[166] 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.[167] 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 ensuring consumers have reliable access to electricity, require developers to provide proof of appropriate site control as a way to check the sincerity of the

166. 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.").

167. *UT Interview*, *supra* note 39, *CO Interview*, *supra* note 62, *NM Interview*, *supra* note 34, *Gagliano Interview*, *supra* note 61, *Piscitello Interview*, *supra* note 37, *Daul Interview*, *supra* note 18; *see also* U.S. ENVT'L PROT. 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 LAB'Y (Apr. 2018), https://www.nrel.gov/docs/fy18osti/71232.pdf.

developer in building the project and to minimize the number of speculative projects under review.[168] 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.[169] 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 before receiving any revenue from the renewable energy project itself.[170]

The state trust land managers interviewed all recognize a developer's need for early evidence of land control, but they emphasized their need to balance this developer requirement with the costs of providing the developer with proof of control. The trust land managers expressed their concern with excessive staff hours used to draft and negotiate a lease up front, the disruption to any existing lessees of the state trust lands from this new use of the lands, and the potential opportunity costs of 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

A common approach taken by state trust land managers is to grant a renewable energy developer a lease over the entire project area at the outset of the project, requiring agreement on all material terms prior to granting the developer access or rights to the land. For example, Utah state trust lands include 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.[171] It does not use option contracts or temporary access permits.[172] However, the lease does

168. *See generally* 169 FERC ¶ 61, 173, U.S. FED. ENERGY REGUL. COMM'N, *Order Accepting Tariff Revisions*, https://www.ferc.gov/sites/default/files/2020-06/20191203151524-ER20-41-000.pdf.

169. *Daul Interview*, *supra* note 18; *Gagliano Interview*, *supra* note 61; *CO Interview*, *supra* note 62; *ISO Interconnection Study*, *supra* note 127.

170. *Daul Interview*, *supra* note 18.

171. *UT Interview*, *supra* note 39.

172. *Id.*

provide the developer with the ability to terminate the lease so long as the state trust lands receive 30-days prior notice and the developer has not broken ground on the project.[173]

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 a substation, if necessary, on the land.[174] 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.[175] A lease, negotiated and executed early on, secures the terms of payment to the lessor which are keyed to different phases of the renewable energy project.[176] 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 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 typically also includes many other negotiated terms and conditions, including insurance requirements, assignment rights, indemnity provisions, default and cure provisions, termination rights, and the developer's land restoration obligations when the project is decommissioned.[177]

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 performing 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

173. *Id.*

174. STOEL RIVES, LLP, *Wind Energy Lease Agreements*, https://stoel.com/legal-insights/special-reports/the-law-of-wind/sections/wind-energy-lease-agreements.

175. *Id.*

176. *Grube Interview*, *supra* note 138.

177. *MT Interview*, *supra* note 86.

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 of this approach is shared by both parties – namely, investing considerable 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.[178] 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.[179] An option does not allow the developer to construct or operate a renewable energy project, and, because it grants a much more limited set of rights to the developer to use the land, has many fewer negotiated provisions.[180] 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 option period.[181] 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.[182] While

178. *MT Interview*, *supra* note 86.
179. *Daul Interview*, *supra* note 18.
180. *MT Interview*, *supra* note 86.
181. *MT Interview*, *supra* note 86.
182. *Id.*

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.[183] Moreover, such bare option agreements may be unenforceable for lack of material terms,[184] which is why well-financed developers are often happy to expend the resources to negotiate the entire lease up front.[185]

The alternative to the bare option contract is to negotiate the full lease at the same time as the option contract so that the full lease can be executed and go into immediate effect should the developer exercise its option. While this approach has the advantage of securing the terms of the lease early in the process, 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 are relatively small when considering the revenue generating potential of operating an energetic project.[186] 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.[187] 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.[188] 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

183. *Id.*
184. STOEL RIVES, LLP, *supra* note 174.
185. *Daul Interview*, *supra* note 18.
186. *Id.*
187. *See CO Interview*, *supra* note 62.
188. *MT Interview*, *supra* note 86.

state's history.[189]

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 use this approach quite successfully.[190] 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 lease.[191] 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.[192]

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.[193] 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,[194] which would be legally inadvisable with option contracts.[195] 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.[196] 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

189. 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.

190. *CO Interview, supra* note 62 (Colorado currently has 200 MW of wind power and 25 MW of solar power installed on its state trust lands).

191. *CO Interview, supra* note 62.

192. *CO Interview*, *supra* note 62 (The planning lease requires the 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.).

193. *Id.*

194. *Id.*

195. *Id.*

196. *Gagliano Interview*, *supra* note 61; *see also* STOEL RIVES, LLP, *supra* note 174.

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.[197] 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 relationship with local utilities. Furthermore, building such relationships can set trust lands apart from other landowners. 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 the 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.[198] 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.[199]

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 the rights to construct,

197. *CO Interview*, *supra* note 62.

198. *See* Mont. Dep't of Nat. Res. & Conservation, *Rights of Way / Easements*, http://dnrc.mt.gov/divisions/trust/real-estate/rights-of-way-easements (last visited April 5, 2022).

199. *CO Interview*, *supra* note 62 (Colorado only uses easements for transmission lines, not entire renewable energy projects).

operate, maintain and decommission the renewable energy project.[200] For example, North Dakota's state constitution limits the use of the state trust 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.[201] North Dakota currently has fourteen wind turbines located on state trust lands, all of which operate under an easement agreement.[202] 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.[203] 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.[204]

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.[205] 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.[206]

B. Fees

Generally, states with trust lands that are 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

200. *Id.*

201. *ND Interview, supra* note 71; *see* N.D. CONST. ART. IX, § 8; N.D.C.C. 15-04-01; N.D. ADMIN. R. 69-06-08; 85-04-04.

202. *ND Interview, supra* note 71.

203. N.D. 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.

204. *Id.*

205. *MT Interview*, *supra* note 86.

206. *WY Interview*, *supra* note 45.

the production phase of the project, usually because they have seen a series of projects come on line.[207] 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 of the application fee structure for each of the fourteen states with renewable energy programs on state trust lands. However, 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.[208] For applications that require more substantial staff time in terms of review and may also require board or commissioner approval – for instance, those necessitating public notice, public auction, permit review, or environmental review – range from $250 on the low end up to $2,000 on the high end.[209] Applications for renewable energy leases or easements that have terms extending for several decades typically incur application fees at the higher end.[210]

2. Option Fee

In states using option contracts to cover the planning phase of renewable energy project development prior to leasing, a per acre fee is typically assessed for the option itself based on either an appraisal or other land valuation information available.[211] 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.[212]

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207. *All State Interviews*, *supra* note 116; *See also CO Interview*, *supra* note 62 (discussing CO's shift from an upfront fee collector, to a long-term growth seeker as more projects made it through the initial planning phases and into the lucrative operations phase).

208. *All State Interviews*, *supra* note 116.

209. *Id.*

210. N.M. COMM'R OF PUB. LANDS, *Application for Renewable Energy*, https://www.nmstatelands.org/wp-content/uploads/2020/01/Renewable-Energy-Application-Packet.pdf (last visited Feb. 12, 2022) (noting that 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).

211. *All State Interviews*, *supra* note 116.

212. *MT Interview*, *supra* note 86 ("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.")

3. Other fees

States may assess other fees on renewable energy developers including fees for lease execution, facility installation, assignment, and mineral access.[213] 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.[214] In New Mexico, this per MW installation fee is $2,000.[215] Utah assesses a signing bonus at lease execution and an operations bonus when the project begins producing electricity, in lieu of an installation fee.[216]

Some states assess an assignment fee when the developer assigns the lease to another party.[217] From the perspective of one of the interviewed developers, assignment fees should not be assessed on these transactions, because most developers view 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 and the value of a lease is potentially lost.[218] From the perspective of trust land managers the administrative costs associated with processing assignments of leases, as well as the inherent risk of assignment in general, is worth addressing. States usually protect their interest by requiring both payment of an assignment fee and lessor approval of any assignee. The assignment fee covers the administrative costs of dealing with an assignee. Whereas lessor approval of the assignee allows the state to make sure that any assignee meets the same requirements as the original lessee. For example, New Mexico requires that any assignee have at least $5 million net worth and experience operating a similar sized MW project on the ground.[219] Assignment fees range anywhere from $40 - $500 per lease assignment.[220] Often assignment will, at a minimum, require consent of the entity managing state trust lands.[221]

Fees associated with the state trust lands mineral estate are not

213. *All State Interviews*, *supra* note 116.

214. *ND Interview, supra* note 71.

215. *NM Interview*, *supra* note 34.

216. *UT Interview*, *supra* note 39.

217. *NM Interview*, *supra* note 34.

218. *Grube Interview*, *supra* note 137.

219. *NM Interview*, *supra* note 34.

220. *WY Interview*, *supra* note 45 ($40 per assignment); *WY Wind Leases, supra* note 74; *NM Interview*, *supra* note 34 ($500 per assignment).

221. *UT Interview*, *supra* note 39; *see also* Mont. Code Ann. § 77-6-208(1) (requiring payment of an assignment fee and state approval of any assignment of surface leases on state trust lands).

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.[222] 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.[223]

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 each 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.

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.[224] 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. This 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

222. *NM Interview*, *supra* note 34.

223. *AZ Interview, supra* note 49.

224. *Daul Interview*, *supra* note 18.

trust lands, with key application provisions and a list of relevant deadlines for approvals.[225] 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.[226] Compare the state trust lands in the Northeast and Upper Midwest of the United States, which were amassed in a more piecemeal fashion, "through a painstaking and often expensive process of purchases, condemnations, and tax forfeitures."[227] To date, the states with renewable energy programs on state trust lands are all located in western states,[228] 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.[229] 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.[230] While

225. *WY Interview*, *supra* note 45; *WY Wind Leases, supra* note 74.

226. *See* Outka, *supra* note 22, at 176; *see also* MONT. CODE ANN. Enabling Act 1889 §§ 11 ("That upon the admission of each of said States into the Union sections numbered 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.").

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

228. *See* STATE LAND TRUST, https://statetrustland.org/ (last visited Feb. 20, 2022) (providing summaries on member states).

229. *See* Outka, *supra* note 22, at 184 (citing PPL Mont. LLC v. Montana, 565 U.S. 576, 596 (2012)) ("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 . . . .").

230. *See* Erin Pounds, *State Trust Lands: Static Management and Shifting Value Perspectives*, 41 ENV'T. L 1333, 1362 (2011); *see also* SOUDER & FAIRFAX, *supra* note 13, at 32 ("The early

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.[231]

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).[232] Two states, New Mexico and South Dakota, do not have a state land board.[233] 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.[234] 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).[235] The state land commissioner's powers vary widely among the states.[236]

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. In Montana, the 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.[237] 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

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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 ENV'T. 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).

231. SOUDER & FAIRFAX, *supra* note 13, at 1.

232. *Id.*

233. *Id.*

234. *Id.*

235. *Id.*

236. *Id.*

237. MONT. CODE ANN. § 77-1-204 (2021).

includes the opportunity for public comment.[238] In Utah, by comparison, the director of the state land office does not need approval from Utah's state land board to enter into a renewables lease, which speeds up the process considerably.[239] 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.[240]

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.[241] 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 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 initially pursues the project ends up being the successful bidder, particularly if they have a PPA in hand.[242] That said, state trust land managers should be aware that 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.[243] 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 section first, and only after the risk of any other developer coming in was eliminated did they then apply for a

238. *MT Interview*, *supra* note 86.

239. *UT Interview*, *supra* note 39.

240. *MT Interview*, *supra* note 86; *NM Interview*, *supra* note 34; *WY Interview*, *supra* note 45.

241. *ID Interview, supra* note 117; *MT Interview*, *supra* note 86; *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.").

242. *WY Interview*, *supra* note 45.

243. *Piscitello Interview*, *supra* note 37.

lease of the state trust land parcel.[244] 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.[245]

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.[246] 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.[247] 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.[248]

2. Environmental review

Another challenging aspect of the leasing process 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 tremendous variability among states in both what is required and when it must be performed. In California, all environmental reviews must be completed during the lease application phase and prior to lease execution.[249] In New Mexico, where there are 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 uses of the trust lands.[250] This internal review can take two to three months prior to the lease terms being negotiated.[251] Other

244. *Id.*

245. *Id.*

246. *MT Interview*, *supra* note 86.

247. *Id.*

248. *Id.*

249. *CA Interview*, *supra* note 36; *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.").

250. N.M. ADMIN. CODE 19.2.22.8.

251. *NM Interview*, *supra* note 34.

states, such as Oklahoma, require that the applicant conduct such due diligence and report the results to the state during the planning phase of the lease.[252] The developer is then able to terminate the lease during the planning phase depending on the results.

Of course, developers must be aware of and comply with state environmental protection laws that often have requirements exceeding 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[253] and the California Environmental Quality Act in California,[254] including public notice requirements, evaluation of alternatives, and, in some case, mitigation measures for any negative environmental impacts.[255] 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,[256] mapping areas not suitable for solar or wind projects as in Washington,[257] or setting up due diligence systems to streamline feedback and review as in New Mexico.[258]

D. Planning Phase

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).[259] 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.[260]

All state trust land managers interviewed stated that the planning

252. *OK Interview*, *supra* note 106; OKLA. ADMIN. CODE 385:25-1-22.

253. *MT Interview*, *supra* note 86; MONT. CODE ANN. §§ 75-1-101–324 (1971).

254. CAL. PUB. RES. CODE § 21000 (2021).

255. MONT. CODE ANN. §§ 75-1-102, -220; CAL. PUB. RES. CODE § 21080.3.2 (2021).

256. *CA Interview*, *supra* note 36; CA ENERGY COMM'N, *Desert Renewable Energy Conservation Plan*, https://www.energy.ca.gov/programs-and-topics/programs/desert-renewable-energy-conservation-plan.

257. *WA Interview*, *supra* note 47.

258. *NM Interview*, *supra* note 34.

259. *Gagliano Interview*, *supra* note 61.

260. *MT Interview*, *supra* note 86.

phase was compensated by a fixed yearly amount based on a per acre land value.[261] The land value was either estimated based on information available to trust land managers or through an appraisal.[262] 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, are usually precluded outright.[263] 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 submission 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.[264]

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 endangered or threatened species in the project area will come to light during the planning phase. The presence of such species or habitat critical for their survival will trigger review under the ESA and relevant state wildlife protection laws.[265] 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.[266]

The State of Washington is taking the proactive step of mapping areas with known species of 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 habitats.[267] 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

261. *All State Interviews*, *supra* note 116.

262. *AZ Interview, supra* note 49; *MT Interview*, *supra* note 86; *TX Interview*, *supra* note 50; *UT Interview*, *supra* note 39.

263. *CO Interview*, *supra* note 62.

264. *ID Interview, supra* note 117; *MT Interview*, *supra* note 86; *NM Interview*, *supra* note 34; *UT Interview*, *supra* note 39.

265. 16 U.S.C.A. § 1538 (1997).

266. Taber D. Allison et al., *Impacts to Wildlife of Wind Energy Siting and Operation in the United States*, RPT. 21 ISSUES IN ECOLOGY (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 (2021), https://portals.iucn.org/library/node/49283.

267. *WA Interview, supra* note 47.

more inter-agency coordination to solidify relationships in advance of large scale wind development on state lands.[268] 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 challenging research gaps such as for species not well studied."[269] 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."[270]

E. Construction Phase

During the construction phase, the compensation structure changes, and other concerns such as reclamation bonding and managing new and existing improvements on the land are typically addressed. Most often, the construction phase of a lease provides for the same compensation structure as the planning phase – a flat rate based on a per acre land value – with additional installation fees – based on number of turbines or MW of capacity installed – coming into play.[271] Additionally, many states will require a reclamation guarantee or bond from the developer at this point in the process.[272] In California, for example, trust land leases often require the developer to put a performance bond in place prior to groundbreaking that can be modified into a reclamation bond after the construction phase is completed.[273]

The precise definition of the "improvements" that a 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."[274] Wyoming's

268. MEETING SUMMARY FROM MONT. WILDLIFE AND WIND WORKSHOP (June 7, 2021), https://awwi.org/wp-content/uploads/2021/06/MT-Wind-Wildlife-Workshop_Meeting-Summary-6.7.21.pdf.

269. *Id*.

270. *Id*.

271. *All State Interviews*, *supra* note 116.

272. *CA Interview*, *supra* note 36.

273. *Id.*

274. *NM Interview*, *supra* note 34; COMM'R OF PUB. LANDS, NM STATE LANDS OFF., *Renewable Energy*, *New Mexico Solar Lease Template* (2015), https://www.statetrustland.org/uploads/1/2/0/9/120909261/solar_-_nm__lease.pdf.

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]."[275]

In some cases, there are existing lessees and improvements on the state trust lands leased to the developer for construction of a renewable energy project. Damage to an existing lessee's use of the land or its 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.[276] "During the construction phase, any damage caused to the agricultural (ag) 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]."[277] 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.[278] In Washington, a recently passed law requires that existing agricultural and grazing lessees must be compensated if displaced by a renewable energy project.[279] 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.[280] 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.[281]

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275. *WY Interview*, *supra* note 45; WYO. BD. OF LAND COMM'RS, *Wind Energy Development Lease No. WL-1616* (on file with the Wyoming Office of State Lands and Investments).

276. *OK Interview*, *supra* note 106.

277. *OK Interview*, *supra* note 106.

278. MONT. CODE ANN. §§ 77-6-301–24 (1971).

279. *WA Interview, supra* note 47; WASH. REV. CODE ANN. § 79.13.420(6) (2021).

280. WASH. REV. CODE ANN. § 79.13.420(6)(a)-(d).

281. *WA Interview, supra* note 47.

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.[282] 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.[283] 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.[284] 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).[285]

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 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.[286] 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.[287] Payments for use of the leased property for battery storage facilities sited thereon can be structured on a per leased

282. *CO Interview*, *supra* note 62; *see* COLO. 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.

283. *MT Interview*, *supra* note 86; MONT. CODE ANN. § 77-1-801, et seq. (2021); *AZ Interview, supra* note 49; ARIZ. STATE LAND DEP'T, *Applications & Permits*, https://land.az.gov/applications-permits (last visited Feb. 20, 2022).

284. *WA Interview, supra* note 47.

285. *WA Interview, supra* note 47; *CO Interview*, *supra* note 62.

286. *Piscitello Interview*, *supra* note 20.

287. *Id.*

acre or per MW capacity.[288]

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.[289] 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 will not impair the long-term viability of the land.[290] 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 in the future 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 promises in the first place. Given this, state trust land managers should consider requiring as part of the lease approval process 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 guarantees until later in the life of the renewable energy project,[291] 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.[292] 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

288. *Grube Interview*, *supra* note 137.

289. *All State Interviews*, *supra* note 116.

290. *See* Pounds, *supra* note 246 at 1360.

291. Commonly states require bonding by year 15; *see also* MONT. ADMIN. R. 17.86.101-122(B) (2020).

292. *All State Interviews*, *supra* note 116.

guarantee, suggesting that a letter of credit, self-insurance, surety, or other such guarantee is preferable to a reclamation bond.[293] 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 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.[294]

On state trust lands, compensation during the reclamation phase is generally twofold: (1) a flat rate fee per acre, based on the same land value as used in the planning phase or an adjusted land value to account for appreciation in land value during the term of the lease; and (2) the bonding or other guarantee.[295] 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 those concerning state trust lands.[296] In North Dakota, reclamation bonding is not required until year ten of project operations, though reclamation plan updates are required throughout the life of the project thereafter to ensure compliance and adequate coverage.[297] 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.[298] 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.[299] In Oregon, the surety must be in place by the time of project decommissioning.[300] 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.[301] Utah requires full reclamation bonding at year fifteen of project

293. *Piscitello Interview*, *supra* note 37; *Grube Interview*, *supra* note 137.
294. *NM Interview, supra* note 34.
295. *All State Interviews*, *supra* note 116.
296. MONT. ADMIN. R. 17.86.101-122(B) (2020).
297. *ND Interview, supra* note 71.
298. *NM Interview*, *supra* note 34.
299. *OK Interview*, *supra* note 106; OKLA. STAT. ANN., tit. 17, § 160.15 (2015).
300. *OR Interview*, *supra* note 67.
301. *TX Interview*, *supra* note 50.

operations.[302] Full reclamation bonding is required prior to project groundbreaking in Wyoming, but the state will accept corporate surety or traditional bonds through insurance.[303]

Salvage value may come up as an issue when negotiating 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 or parting out the asset at the end of its useful life."[304] When negotiating the amount of a reclamation bond for a renewable energy project, trust land managers should be aware that developers will likely ask 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."[305]

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.[306] In addition to the land use, restoration, and payment provisions already discussed in detail, it is worth 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 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

302. *UT Interview*, *supra* note 39.

303. *WY Interview*, *supra* note 45; WYO. ADMIN. CODE 060.0002.11 § 13 (1998).

304. Will Kenton, *What is Salvage Value?*, INVESTOPEDIA (Oct. 12, 2021), https://www.investopedia.com/terms/s/salvagevalue.asp.

305. Bradford Moody, *Wind and Solar Development in the Oil Patch—Challenges and Opportunities for Landmen*, ROCKY MOUNTAIN MINERAL LAW INSTITUTE 12, 12 (2020).

306. *MT Interview*, *supra* note 86.

lease.[307] MFN clauses are also known as most-favored-customer clauses, prudent buyer clauses, or non-discrimination clauses.[308] "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."[309] 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,[310] 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 scope of 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,[311] 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 obtained more favorable terms.[312] We did, however,

307. Michael Arin, American Bar Association, "Most Favored or Too Favored? Suits Challenge MFN Clauses Used by Amazon and Valve" (Feb. 24, 2021), available at https://www.americanbar.org/groups/business_law/publications/blt/2021/03/mfn-clauses/#:~:text=Most%2DFavored%20Nations%20(MFN),(and%20sometimes%20even%20better) (last accessed March 19, 2022).

308. Cernak, Steven J., Tal Chaiken and Schiff Hardin. "Most Favored Nation Clauses." (2013), WESTLAW, https://www.westlaw.com/9-523-4495?transitionType=Default&contextData=(sc.Default)&VR=3.0&RS=cblt1.0.

309. *Id*.

310. *Id*.

311. *Id*.

312. *OK Interview*, *supra* note 106.

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.[313] 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.[314] 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.[315]

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.[316]

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

313. *CO Interview*, *supra* note 62.

314. *Id*.

315. *ID Interview, supra* note 117.

316. MONT. BD. OF LAND COMM'RS, Montana Wibaux Wind Lease (Dec. 11, 2019) (not yet executed) (on file with the Mont. Dep't of Nat. Resources and Conservation).

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.[317]

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

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 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 termination, cancellation or relinquishment of this Lease as to claims which accrued during the Lease Term.[318]

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

318. COMM'R OF PUB. LANDS, N.M. STATE LANDS OFFICE, New Mexico Solar Lease Template (2015), https://www.statetrustland.org/uploads/1/2/0/9/120909261/solar_-_nm__lease.pdf.

lands is growing as the demand for green energy continues to rise.[319] 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.[320] The potential for geothermal energy development on its state trust lands led Idaho to inventory the geothermal potential of these lands.[321] 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.[322] 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.[323] 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.[324] Oregon's state trust lands department has also developed a form wave energy lease.[325] Washington is interested in renewable energy projects using carbon dioxide sequestration injections, biomass, and other form of carbon neutral electricity generation.[326] The state trust lands managers in this state are "always interested" in exploring the potential of carbon neutral projects on state trust lands.[327] 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

319. *ID Interview, supra* note 117; *CO Interview*, *supra* note 62; *NM Interview*, *supra* note 34.

320. N.M. STAT. ANN. § 19-13-11 (1967) (New Mexico's Geothermal Resources Act offers a template statutory structure for leasing of geothermal resources on state trust lands).

321. *ID Interview, supra* note 117.

322. *Id*.

323. *CA Interview*, *supra* note 36.

324. *OR Interview*, *supra* note 67.

325. *Id*.

326. *WA Interview, supra* note 47.

327. *WA Interview, supra* note 47.

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