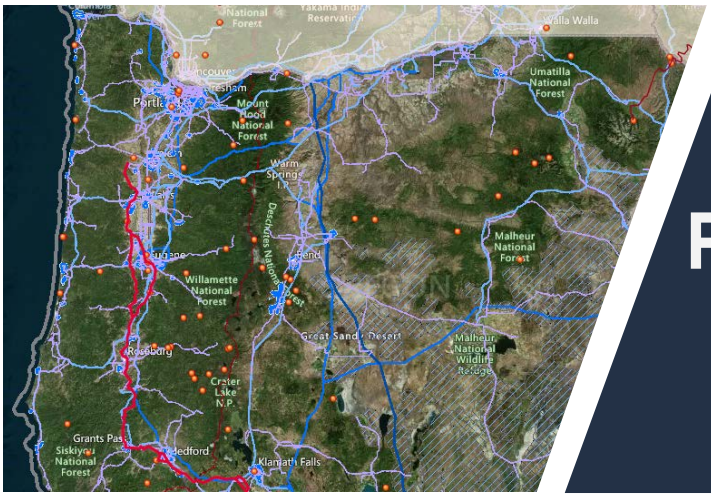

2022 Oregon Renewable Energy Siting Assessment

OREGON DEPARTMENT OF ENERGY

OREGON Department of Land Conservation & Development

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Executive Summary

The Oregon Renewable Energy Siting Assessment project provides a new set of educational resources to explore and better understand renewable energy in Oregon.

The development of renewable energy – in particular solar, wind, and associated transmission infrastructure – is expected to accelerate in the coming decades to meet Oregon's energy and climate goals. Responsible development of these energy resources will require close coordination, and careful consideration must be given to a wide range of factors related to military operations, land use, economic development, natural and cultural resources, and community needs and interests (among others). The Oregon Renewable Energy Siting Assessment (ORESA) project provides a new set of educational resources to explore and better understand renewable energy in Oregon. The project was funded through a $1.1 million U.S. Department of Defense (DOD), Office of Local Defense Community Cooperation (OLDCC) grant awarded to the Oregon Department of Energy, working with the Department of Land Conservation and Development and Oregon State University's Institute for Natural Resources.

Project Deliverables: This ORESA **Report** provides key findings, information about siting processes, and participant feedback that guided the project. It includes critical data, stakeholder perspectives, and analysis reflecting the expertise of federal, tribal, state, and local governments, as well as input from industry, technical advisors, community representatives, and non-governmental organizations. The online **Mapping and Reporting Tool** includes robust data and queries for military, energy, natural resources, communities, and other important considerations. Users can interact with and browse spatial data, create site-specific reports to support early notification, and review additional information such as regulatory process maps, assessments, and tools that are not reflected in the spatial data.

This project confirms that there is enough renewable energy potential in the state to meet Oregon's energy and climate goals, while acknowledging that there are tradeoffs related to impacts and benefits with development that need to be evaluated through sustainable and responsible processes. There are also notable challenges to renewable energy resource development associated with transmission infrastructure and with siting and permitting criteria that weigh policy and legal priorities.

The ORESA project provides foundational information to inform and guide discussions on project development and policy issues, but it is not a decision-making nor regulatory tool. In reflection of the project's objective, several key themes emerged throughout the project:

- **Comprehensive Statewide Energy Planning:** While there is substantial potential for renewable energy in Oregon, challenges exist related to transmission, access, and potential conflict with other land uses and environmental considerations. Stakeholders and project participants need clarity on Oregon's long-term policy goals and desire a more comprehensive statewide energy planning and development process.
- **Ongoing Military Coordination and Engagement:** Renewable energy development needs to be evaluated in the context of military operations and missions, which are complex and wide-ranging. Early notification to local military representatives helps to identify, reduce, and avoid adverse impacts for project proponents, stakeholders, and agencies. Building a relationship through ongoing coordination can also result in fewer delays in project processes, leading to more "win-win" situations for all parties. The project also confirmed that this theme of early coordination is of strong interest to others as well, such as tribal and local government staff.

- **Siting and Permitting Processes:** Siting and permitting processes are critically important for ensuring that renewable energy is developed responsibly, balances state and local concerns, is administratively efficient, considers cumulative impacts, and is inclusive of community engagement. Some stakeholders described existing processes as outdated or cumbersome to developing renewable energy resources. Project participants agreed that clarity on these processes and additional educational resources could promote collaboration, reduce confusion, and support future improvements.

- **Inter-Agency Collaboration, Coordination, and Community Engagement:** Stakeholders support earlier collaboration and engagement – including the importance of better cooperation between agencies, the military, and energy developers. Early coordination and notification can identify and address potential impacts, minimize conflict, and support future development opportunities. Communicating project interests and proposals early, as well as maintaining consistent lines of communication throughout the process, were identified as pathways for success.

Working together over several years, the ORESA project team, consultants, and participants also learned several lessons and offered reflections to ensure success in this work:

- **Clear Purpose and Appropriate Use of the Tool:** Across sectors, users shared concerns about how the Tool would be used and needed to understand how to interpret spatial intersections and report results. It was essential to frame the voluntary use of the Tool and Report and thus tailor project deliverables to participants' needs and interests to ensure future use and effectiveness. Tool customization, privacy, and maintenance features were required to sustain confidence and interest in these deliverables.

- **Extensive Cross-Sector Engagement and Iteration:** Consultant-led assessments determined the need to expand the depth and breadth of participants in the project. As more people participated in surveys, regional webinars, and Tool development, additional organizations, jurisdictions, and perspectives needed to be invited to the process. In response, the project team embarked on long-term engagement with stakeholders and interested participants crossing a wide range of sectors, topics, and interests in Oregon. This approach was critical to building credibility and engagement support, while also requiring an extended timeline to meet the tempo and scale of stakeholder and participant needs, capacity, and interests.

Renewable energy development is necessary to meet Oregon's energy and climate goals. Sustainably accessing and developing renewable energy while avoiding or mitigating conflict with other important values will require careful consideration of many factors and acknowledgment that there may be tradeoffs. The ORESA project supports communities, policymakers, developers, tribes, and government agencies interested in renewable energy policies and potential projects by providing a common understanding through data-driven approaches and enhancing early coordination, notification, and collaboration.

Table of Contents

Introduction

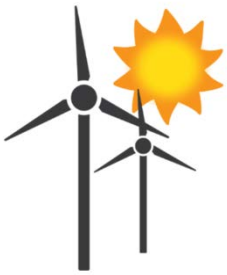
Project Background

The Oregon Renewable Energy Siting Assessment (ORESA) project was funded through a $1.1 million U.S. Department of Defense (DOD) Office of Local Defense Community Cooperation (OLDCC) grant awarded to the Oregon Department of Energy, working with the Department of Land Conservation and Development and Oregon State University's Institute for Natural Resources. As the grantor, the DOD-OLDCC supports military compatibility through early coordination with local, regional, and state agencies and raises awareness about the military. The project deliverables are (1) a Final Report and (2) an online Mapping and Reporting Tool.

The ORESA project aims to create relevant educational tools to support discussion among stakeholders, agencies, tribes, local governments, and policy makers about renewable energy development; military training, testing, and operational areas; economic and community benefits; land use considerations; natural resources; and other regulatory requirements. To meet this goal, the project baselined data, information, and perspectives to create a transparent and consistent collection of trusted, accurate information, without recommendations or endorsements, while noting where information may be imprecise or uncertain.

The project team collected data, stakeholder perspectives, and siting process information through a series of three assessments, which were used in the development of this Report and the online Mapping and Reporting Tool. The ORESA project incorporated the expertise of state, local, and tribal governments through interagency agreements, along with gathering input from industry, technical advisors, military representatives, community members, and stakeholders across many sectors. Development of the project deliverables included more than 800 stakeholder touchpoints through focus groups and cross-sector user groups, one-on-one conversations, surveys, and regional webinars and presentations. These deliverables are now available to inform discussions and support early coordination in a way that seeks to minimizes conflict and supports future renewable energy development opportunities.

Project Rationale



Development of renewable energy resources in Oregon – in particular solar, wind, and associated transmission infrastructure – is expected to accelerate in the coming decades as Oregon and the broader Western region drive toward aggressive clean and renewable energy goals.[1] Sustainable development of these resources will require close coordination between renewable energy developers; communities; and local, state, tribal, and federal governments, including the military – as well as careful consideration of a wide range of factors including issues related to natural resources; land use; military training, testing, and operational areas; community development; environmental impacts; and effects on cultural resources and communities (among others). A key goal of the project is to provide a transparent, consistent, and useful set of spatial data for users including policymakers; renewable energy developers; utilities; communities; tribal, local, and

[1] While this report refers to renewable energy generation, the scope of the project was focused on renewable electricity and transmission projects primarily onshore in Oregon. Other renewable energy projects, such renewable natural gas and transportation fuel development, were outside the scope of this assessment.

state governments; the military; and the general public to provide a better understanding of renewable energy development in Oregon and assist in data-driven discussions and collaboration.

It is important to note that policy conditions have changed in Oregon since the launch of the ORESA project in 2020. In the 2021 and 2022 legislative sessions,[2] Oregon passed several new policies that built on an existing 50 percent Renewable Portfolio Standard, including:

- "Clean Energy for All" Bill (HB 2021) — requires Oregon's large investor-owned utilities to supply 100 percent of retail electricity using non-carbon emitting resources by 2040 and creates several programs to support clean energy development.
- Energy Facility Siting Council (EFSC) Quorum Bill (HB 2064) — allows EFSC to conduct business with a simple majority of members present and to reduce delays in EFSC review of rulemaking and energy project proposals while providing more predictability for stakeholders.
- Floating Offshore Wind Energy Study Bill (HB 3375) — directed the Oregon Department of Energy to conduct a study reviewing the benefits and challenges of integrating up to 3 GW of floating offshore wind into Oregon's electric grid by 2030. HB 3375 also created a state goal to plan for the development of that offshore wind in federal waters off Oregon's coast by 2030.
- Regional Transmission Organization Study Bill (SB 589) — required ODOE to prepare a report identifying the benefits, opportunities, and challenges posed by the development of a Regional Transmission Organization in Oregon.
- Wildfire Prevention and Response Bill (SB 762) — created several new programs and requirements related to wildfire, including a requirement for electric utilities to prepare and comply with a wildfire protection plan that identifies high-risk areas in the utility's service area and transmission corridors.
- Environmental Justice Council and Equity Mapping Bill (HB 4077) — establishes a Council in the Governor's Office, directs the development of an environmental justice mapping tool, and a requires state agencies to submit an annual report with progress on achieving environmental justice and equity goals.

These new policies in Oregon will likely lead to even more interest in careful development of renewable energy resources, which increases the value of the ORESA project. In addition, most states across the west have strengthened clean energy requirements, which will likely create additional interest in renewable energy and transmission development in Oregon that could be used to serve customers in surrounding states. The 2021 Northwest Power Plan, released by Northwest Power and Conservation Council, included a baseline projection for the scale of new renewable energy development needed across the western region of the United States to be more than 350 GW of renewable energy by 2041.[3] For comparison, Oregon's Boardman Coal Plant, which ceased operations in 2020, was 500 MW. That means 350 GW would equal 700 Boardman Coal Plants.

The 2021 Northwest Power Plan projected the western U.S. will need more than 350 GW of renewable energy by 2041.

Project Approach, Description, and Process Overview

The overall approach of the project was to understand renewable energy projects and policy interests and tailor the project deliverables – the online Mapping and Reporting Tool and this Report – to be useful to a wide range of potential users in Oregon. The Tool and Report are voluntary to use and the project approach focused on encouraging its use by being as helpful as possible to the interests of

[2] More information can be found in ODOE's 2021 legislative report and 2022 legislative report.
[3] Northwest Power and Conservation Council, the 2021 Northwest Power Plan, Page 51.

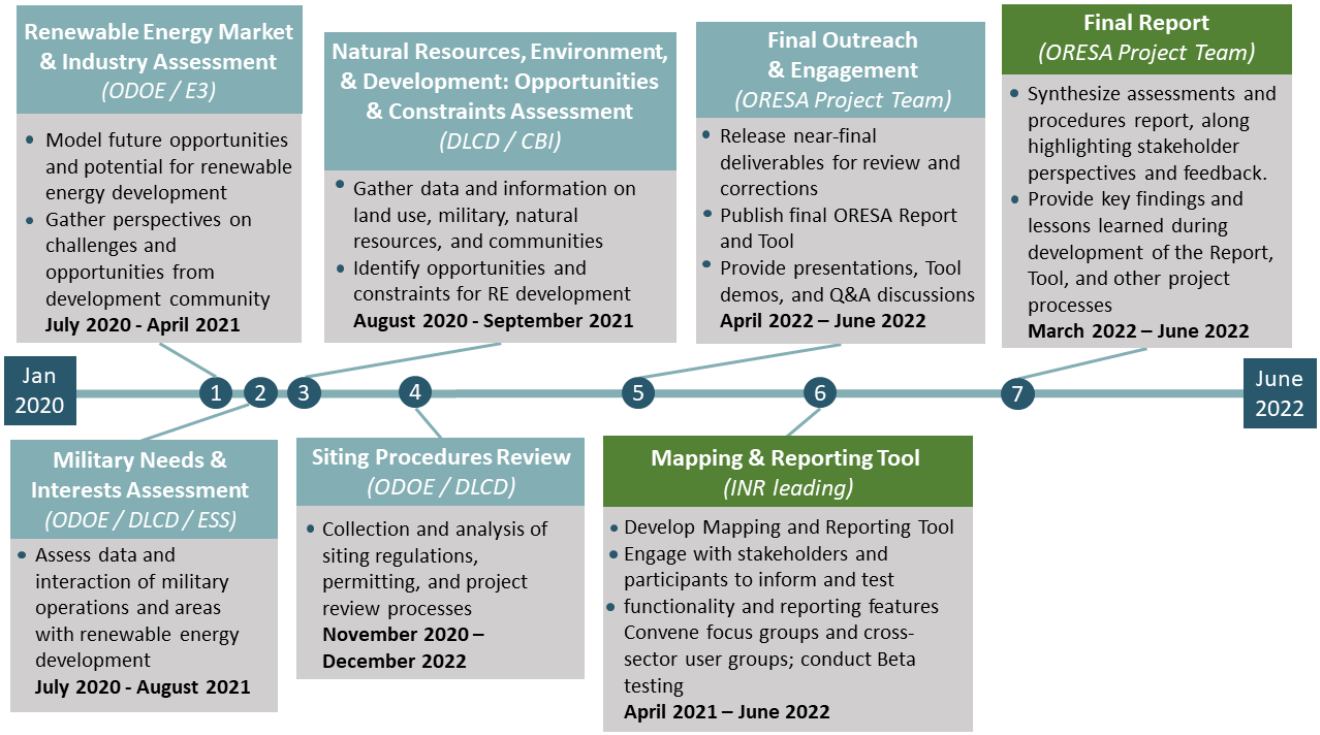
potential users. The project objectives were met through five core activities over two years:

Topic-based assessments conducted by independent, expert consulting firms:

- **Renewable Energy Market and Industry Assessment (REIMA)** which sought to create a snapshot in time and characterize Oregon's renewable electricity potential and the state of the renewable energy development landscape in Oregon. Conducted by Energy and Environmental Economics (E3), July 2020 to April 2021.
- **Military Needs and Interests Assessment (MNIA)** which aimed to identify data and information on military training, testing, operations, and compatibility to foster early and ongoing coordination and consultation between renewable energy developers and military present in Oregon and support renewable energy development while minimizing impact to the ongoing and future military mission. Conducted by Epsilon Systems Solutions (ESS), July 2020 to August 2021.
- **Natural Resources, Environment and Development Opportunities and Constraints Assessment (DOC Assessment)** which focused on assessing opportunities and constraints at the intersection of renewable energy and natural resources, community and economic development, and the physical environment in Oregon. Conducted by Conservation Biology Institute (CBI), August 2020 to September 2021.

The **Siting Procedures Review** summarizes local, state, and federal siting regulations, permitting, and project review processes and identifies best practices and strategies for coordination and engagement. Lead by ODOE and DLCD staff, November 2020 to December 2022 (report available online).

The **Oregon Renewable Energy Siting Assessment Mapping and Reporting Tool**, housed on Oregon Explorer, is an online interactive geospatial mapping tool containing data on renewable energy resources, military uses, economic development, land use, and natural resources that allows users to input project data and get a high-level perspective of potential development considerations. Overlays of data layers in the tool are intended to support discussion of potential renewable energy projects or policies and do not directly determine areas that should or should not be developed. See the Tool's Process Summary and Highlights of Stakeholder Feedback.



Oregon Renewable Energy Siting Assessment: Explore

Report and Tool Crosswalk: The explore function of the ORESA Mapping and Reporting Tool allows users to freely interact with and browse all of the spatial data assembled in the ORESA project and provided in the tool.

Trusted, accurate information and data are critical for making informed decisions that balance renewable energy development with other considerations such as military uses, natural and cultural resource protection, regulatory requirements, economic development potential, and local community interests. A key project goal was to engage a broad spectrum of stakeholders to gather and evaluate relevant data related to renewable energy development, and include it in a publicly accessible, central location. Since data can vary in type, quality, and availability, it can be difficult to identify and find consensus on data to include in a centralized way to support discussions about renewable energy policy and projects. The following section provides details on how data were identified and collected for the project and lessons learned from data collection efforts.

Critical to this process was **identification and inclusion of military use data layers** to promote early and ongoing civilian and military consultation to simultaneously support renewable energy development and preservation of the military's mission in Oregon and its marine waters.

Data collection and assessment occurred over three main phases:

- **Phase 1:** Each of the three assessments gathered and processed specific data related to the assessment goals. Assessment consultants followed data collection protocols and submitted final data layers to the ORESA project team (details regarding each assessment are provided below).
- **Phase 2:** The ORESA project team evaluated data delivered by the assessments and determined which layers to add to the Mapping and Reporting Tool. Concurrently, the project team used the non-spatial context from the assessments as well as experience from other complementary

mapping projects to assemble data and information that would be most useful in the "Report" function of the Tool.

- **Phase 3:** Over a series of focus group meetings, as well as one-on-one discussions with agencies, organizations, and interested staff from Oregon's nine federally recognized tribes, the ORESA project team gathered additional input and data suggestions by sharing and getting feedback on an early version of the Tool.

Assessment Methodology, Data Identification, and Data Collection

I. Data and the Renewable Energy Industry and Market Assessment (REIMA)

The REIMA was led by ODOE staff and supported by Energy and Environmental Economics (E3) from July 2020 to April 2021. The REIMA study sought to create a snapshot in time and characterize the state of the renewable energy development landscape in Oregon while identifying potential opportunities and challenges for renewable energy development. To achieve these goals the REIMA completed three primary activities from July 2020 to April 2021:

REIMA APPROACH

Geospatial Resource Potential Analysis	Market Assessment Scenarios	Industry Assessment
• Use key datasets on renewable resource potential and geographic characteristics and land uses that may limit development, identified through extensive stakeholder engagement, to quantify renewable energy resource potential in Oregon under different geographic screens	• Use the results of the geospatial resource potential analysis and feedback from stakeholders to develop five cost-optimized, renewable energy build-out scenarios for Oregon by 2035* based on different assumptions of geographic and technology focus	• Based on literature review, surveys, interviews with those directly involved in the development of renewable energy resources, gather perspectives on the state of the industry in Oregon and potential opportunities and challenges.

**2035 is the interim goal (45 percent below 1990 emission levels) for greenhouse gas reduction for the State of Oregon.*

Through these activities, E3 reviewed relevant literature, worked with a technical advisory group, shared and got feedback from a broader stakeholder group and interested members of the public, and engaged with industry stakeholders to understand key resource, geographic, and land use factors and identified appropriate data sources. This process generated two categories of data.

1. The **first category of data** relates to an important starting point: Oregon's technical energy resource potential, which provides an understanding how much renewable energy likely exists in the state. Importantly, this is the potential *without* the practical factors such as permitting decisions and access to transmission. To identify technical energy resource potential, E3's analysis divided Oregon into Candidate Project Areas (CPAs) using a 0.5 km by 0.5 km grid throughout the study area. For each Candidate Project Area, E3 used publicly available tools from

the Lawrence Berkeley National Laboratory[4] and the National Renewable Energy Laboratory (NREL) to calculate location-specific metrics for renewable energy resources (solar, wind, offshore wind, geothermal, bioenergy, wave) including resource estimates, for example wind speed or solar irradiance, nameplate capacity (MW), estimated annual generation (MWh), and resource capacity factor.

2. The **second category of data** relates to geographic characteristics and land use considerations affecting access to renewable energy potential identified through the process described above. Working with industry stakeholders and a technical advisory committee, E3 identified data layers reflecting factors that could constrain renewable energy development based on two groupings of possible factors:

    i. Factors that strictly exclude areas from development for technical reasons or where development is legally prohibited. These factors include geographic features that make development infeasible with current technology (for example, steep slopes, forested areas, water bodies, floodplains, or land in other use like highways and railroads) as well as areas where development is legally prohibited like national parks, wilderness areas, and national historic landmarks.

    ii. Factors that do not strictly exclude areas from development but may have social or environmental sensitivities that may present challenges, additional regulatory considerations, or change the likelihood or interest in project development (e.g., amount of time, uncertain process, or other risks). For example, these factors include areas that have military uses, prime farmland, and sensitive habitats. These areas may have additional permitting considerations, concerns, or coordination required for potential project development.

Data identified through the REIMA were used to estimate renewable energy potential and helped inform data included in the Mapping and Reporting Tool.

II. Data and the Military Needs and Interest Assessment (MNIA)

The Military Needs and Interests Assessment was led by ODOE staff and supported by Epsilon Systems Solutions (ESS) from July 2020 to August 2021. ESS identified and verified authoritative datasets, use cases, and other considerations that would support early and ongoing coordination and consultation between renewable energy developers and military.

MNIA APPROACH

[4] Lawrence Berkeley National Lab Multi-criteria Analysis for Planning Renewable Energy (MAPRE) https://mapre.lbl.gov/

Establish Controls	Data Aquisition	Military Outreach	Data Verification	Define and Deliver
• Define data quality, intregity, and security requirement	• Leverage known data sources and resources for data compilation and military landscape	• Connect with military representatives to document operations, capture data accuracy, and potential gaps	• Compile final deliverables and metadata • Confirm clarity, accuracy, and that ORESA and military needs met.	• Supplement geospatial data with information on military operations, coordination, compatibility

Ensuring accuracy and reliability was a key component of the data acquisition process, which included gathering data from authoritative sources and conducting a thorough review and vetting process. Known datasets were acquired from existing federal, DoD, and military geospatial applications that planners and operators use in **"**Key Installation Planning" (KIP) and to identify "Common Operating Picture" (COP) features that are used to manage encroachment and development activities. ESS worked with military stakeholders to review and confirm depiction and attribute accuracy in these datasets. Potential data gaps were investigated by engaging with Northwest DoD Regional Coordination Team (NW DoD RCT)[5] to identify training, testing, and operating areas that could be both depicted visually and/or detailed in the qualitative assessment, all of which are important to national defense and national security. Through this process, a list of features were compiled from COP/KIP tables of content including:

- Air Accident Potential Zone
- Boardman Geographic Area of Concern – *designation pending as of 2022*
- Military Training Route Centerline
- MTR Corridor
- Noise Zone
- Special Use Airspace
- DoD Locations (Installation boundaries)
- Restricted Area Military Range
- Automatic Identification System traffic routes

The **Military Needs and Interest Assessment** acquired data layers with the goal of ensuring that users of the mapping and reporting tool are made aware of the locations of military interests in the state, and to promote the need for early coordination between developers and the military in those areas.

[5] Includes DoD representatives and the U.S. Coast Guard. The NW DoD RCT discuss and address various initiatives in support of compatibility of air, land, and sea spaces with local, regional, state, and federal stakeholders.

III. Data and the Natural Resources, Environment, and Development Opportunities and Constraints (DOC) Assessment

The DOC Assessment was led by DLCD staff and supported by the Conservation Biology Institute (CBI) from August 2020 to September 2021. This assessment identified opportunities and constraints at the intersection of renewable energy and natural and cultural resources, community and economic development, and the physical environment in Oregon.

DOC APPROACH

Inventory and Baseline	•Gathering Feedback	•Spatial Data Analysis
• Development of Stakeholder Registry • Spatial data collection and organization	□ Online Survey □ Regional webinars □ One-on-one Interviews □ Military stakeholder roundtable webinar	□ Data management □ Metadata and organizations □ Recommendations on online tool content, function, and input

CBI engaged with several hundred stakeholders representing a wide range of interests in Oregon to gather input and review over 650 spatial datasets. The ORESA project team then prioritized inclusion of 120 terrestrial data layers and 88 marine data layers in the ORESA Mapping and Reporting Tool based on stakeholder input and experience in agency regulatory processes. Other data were archived for documentation and comparison. The data included in the Tool cover a range of topics such as legally protected areas, administratively protected areas, high conservation value lands, landscape intact lands, ecological impact metrics, and agricultural impact metrics. Some datasets (e.g., sensitive military information, cultural resources) were identified as important but not publicly available. For example, cultural resources are protected by Federal and State law and include but are not limited to precontact or historic districts, archaeological sites, buildings, structures, objects, artifacts, records, material remains, and traditional, religious, spiritual, storied, or legendary places. Coordination and discussion with State Historic Preservation Office, Legislative Commission on Indian Services, and Oregon's nine federally recognized tribes is required for most large-scale renewable energy facilities. It was recommended that the Tool not include sensitive cultural datasets; instead it includes a list of resources and a narrative prompt to the user to initiate contact with the relevant entity for further discussion and assistance.

IV. Data and the Siting Procedures Review

The Siting Procedures Review was led by ODOE and DLCD staff and provided a review and analysis of local, state, and federal siting regulations, permitting, and project review processes as they relate to notification to relevant siting and permitting authorities. It also identified best practices and strategies for coordination and engagement between potential applicants and reviewing authorities. These procedures and best practices for coordination and engagement are important complements to the data-centered parts of this project because the data alone does not provide the full picture of resource considerations that are weighed in decision making processes across federal, tribal, state, and local government.

SITING PROCEDURES REVIEW APPROACH

1)Collection and Baseline	1)Verification and Refinement	1)Analysis and Context
☐Research available information on siting procedures and develop draft process maps summarizing those procedures.	☐Review the draft information with procedure owners to validate the accuracy of the information, making modifications as needed.	☐Write the report, incorporating the process maps and other pertinent information. • Validate the accuracy of the written report with procedure owners.

While there was not a collection of spatial data layers as part of the Siting Procedures Review, the review process helped inform and refine data layers included in the "Explore" and "Report" functions of the Tool. In addition, the comprehensive review of siting procedures is available through the Mapping and Reporting Tool's "Learn" function.

Mapping and Reporting Tool's Explore Function

The development of the Tool began with information pulled from the three assessments and Siting Procedures Report. Eleven focus group meetings involving more than 90 people and three meetings with a cross-sector user group helped further refine this information and tool functionality. Engagement also included one-on-one discussions with state agencies and interested staff from Oregon's nine federally recognized tribes as well as beta testing with a half-dozen participants. During this iterative process, nearly 100 participants provided additional input and suggestions after the assessment phase of the project.

The Explore function in the Tool allows users to freely interact with and browse the spatial data assembled through the process described above. Metadata is provided for every layer, and the option to download data is provided for all layers that do not have restricted access. The map viewer also allows users to create formatted printable PDF maps, add external map services to the viewer, upload local data, filter and query data layers, add markup and text to the map, measure areas and distances, view attributes of data layers, dynamically re-symbolize data, and generate a URL that saves the layers and extent the user configured in the viewer. The index identifies data layers, which layers are queried by the reporting function of the Tool, and which assessment, agency, or focus group recommended the addition of the layers.

The table below provides a summary and highlights of data layers in the Tool.

Data Category	Data Layers	Example
Administrative Boundaries and Planning	31	Urban Growth Boundaries, Districts
Community Considerations	69	Enterprise Zones, U.S. EPA EJScreen Environmental Justice Indexes
Energy	27	Transmission Lines, Energy Facilities, Renewable Energy Resources
Land Cover and Ownership	3	Land Management
Military	9	Military Special Use Airspace
Natural Resource Considerations	93	Protected Areas, Threatened and Endangered Species Critical Habitat

Other	11	National Security UAS Flight Restrictions
Transportation	8	Highway Network
Total	**251**	

The Oregon Offshore Wind Mapping Tool (OROWindMap) pre-dated the ORESA project and was a consideration when determining which offshore layers to include in the project. OROWindMap was created to support DLCD and Bureau of Ocean Energy Management (BOEM) offshore wind planning efforts. Rather than duplicating the vast array of data included in OROWindMap, the ORESA tool provided links to OROWindMap in several places. The ORESA mapping and reporting tool includes discrete and generally non-movable resource data layers from OROWindMap but does not include more dynamic data layers such as modeled habitat distribution or complex fisheries data. **The OROWindMap and ORESA Tool are complementary**, e.g., if offshore wind projects are developed in the outer continental shelf waters off Oregon, there will likely need to be discussion and analysis of associated energy infrastructure on land, such as transmission lines.

Data Collection Lessons Learned

Through the data collection process, stakeholders recognized that transparent, consistent, and up-to-date data are important for renewable energy planning and development. Furthermore, it was seen as highly beneficial in encouraging early notification and coordination between developers, tribes, communities, decisions-makers, and military stakeholders. Additional lessons learned related to data collection and analysis were:

- The Boardman Geographic Area of Concern (designation pending as of 2022), DoD Locations, Military Training Routes (MTR), and Special Use Airspace (SUAS) are key elements that define the military operational footprint within Oregon. Other relevant features to military encroachment management predominantly fall within those boundaries. When evaluating Oregon priority notification and potential impact areas, it was concluded that publicly available data was sufficient for defining the key military footprint.
    - The publicly available military data became one the pre-set "themes" available in the Explore section of the Tool. While other pre-set themes were of interest, only military and offshore resources had the consensus and defined use cases needed to be included as pre-set themes in the Tool at the time of publication.
    - Note that the MNIA found that some military areas of operation, signal analysis, and radar footprints that are not publicly available could not be included in the Tool's military footprint and its notification functionality – but are still critical to national security and defense operations. Early coordination with local military liaisons is needed to identify when these features may be present at a site and can then be addressed on a case-by-case basis.
- Data related to the Community Considerations category in the Tool is of high interest and expected to evolve (e.g. through implementation of HB 4077). While there was consensus on some formal designation (i.e., Enterprise, Opportunity, and Rural Renewable Energy Development (RRED) zones), there is disagreement and variation on selected indicators and information to express community-level opportunities and constraints – especially for equity and environmental justice discussions.

  - Commonly cited and frequently used data were included in the Explore function of the Tool, such as US EPA's EJScreen, but more stakeholder engagement and development would be needed before including the data in the site-level Report function of the Tool.

- Through the assessments and user feedback, significant data and information was discovered but some of it was not centralized, not clearly authoritative, or was found to be too specific, localized, or not well maintained. Some data was not available in a spatial format, which also limited its use in the Tool.
  - For example, electric power distribution system information from investor-owned utilities is made available online, but the data are not aggregated and kept current on a statewide scale. When consistent, up-to-date map services become available in the future, these data could be considered for inclusion in the ORESA Mapping and Reporting Tool.
- The assessments and project participants confirmed that data alone is not sufficient for determining optimal locations for siting renewable energy, transmission, and related energy infrastructure. When evaluating a site, there are legal and regulatory processes that accompany these decisions, along with balancing trade-off and impacts on resources, that are not defined by the presence or absence (binary) of spatial data as shown in the Tool.
  - While some factors strictly exclude certain areas from development, such as national parks or wilderness areas, many factors that affect the potential for renewable energy development are non-binary in nature and site dependent. The presence of data in the Tool can help in identifying potential challenges but cannot provide a determination of whether development will or will not, or should or should not, occur within that area. Instead, site potential and issues should be taken on a case-by-case basis, with the Tool being used to "scan" the landscape for possible considerations, notification, and coordination before pursuing more detailed planning that could lead to permitting processes at federal, tribal, state, or local regulatory agencies.

Oregon Renewable Energy Siting Assessment: Report

Report and Tool Crosswalk: The report function of the ORESA tool provides a convenient summary of site-specific spatial information to identify opportunities, constraints, and key processes for project development, along with quick steps to engage in early communication and coordination with military, tribes, and other important stakeholders and interests.

While each renewable energy project's arc of development is unique, there is fundamental information and processes that create conditions for viable project proposals. The three assessments provided insights into important opportunities, considerations, information needs, and best practices from stakeholders. This information helped inform the design of the Report function in the Tool, which provides site-specific summaries of spatial information to support discussions about potential project development. The following section summarizes key findings from each of the assessments and provides an overview of the Mapping and Reporting Tool's Report function.

Key Findings from Assessments

Renewable Energy Industry and Market Assessment

Meeting Oregon's climate and clean energy policies and goals will require substantial procurements of renewable energy by the state's utilities, which is expected to result in increased build-out of renewable energy resources in Oregon. This assessment was conducted prior to the passage of "100 percent Clean Energy For All" Bill, so recent policy context (see page 5) is added in *italics*, following this assessment's findings:

- **REIMA Finding: Oregon's technical potential for renewable energy development is substantial and diverse, and is unlikely a binding constraint to Oregon meeting its long-term energy goals.** After accounting for technology/economic feasibility, administrative, military, environmental, and land use factors, the geospatial analysis estimated a combined available capacity of over 1,500 gigawatts of solar PV, onshore wind, offshore wind, and geothermal resource spread throughout the state, some of which have performance characteristics that are comparable or superior to some of the out-of-state resources that are currently being used to meet part of Oregon's renewable energy requirements.
    - *Note: The estimate of 1,500 gigawatts (1,500,000 megawatts) of technical renewable energy potential in Oregon is likely **unaffected** by policy changes since this assessment was conducted in 2020.*
- **REIMA Finding: Oregon's utilities could procure between 530 and 1,000 average megawatts (aMW) of in-state generation to meet Oregon's RPS goals in 2035 in addition to existing resources.** Renewable energy development in Oregon is driven by many factors including state and regional load growth, policies like the Oregon RPS, and whether development occurs in-state or out-of-state. Using load projections from the Northwest Power and Conservation Council (NWPCC) the REIMA estimated Oregon's utilities would see demand for 1,100 aMW of renewable generation under a low-load growth future and 1,600 aMW under a high-load growth future. Based on analysis of Oregon policy and utility resource plans, the REIMA estimated lower and upper values for in-state development and determined Oregon's utilities could procure between 530 and 1,000 aMW of in-state generation to meet Oregon's RPS goals in 2035.

    An **average megawatt** (aMW) represents 1 MW of energy delivered continuously 24 hours/day for one year, or 8,760 MWh.

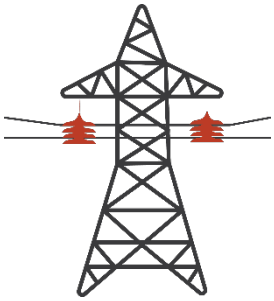
    - *Note: The lower and upper estimates of 530 average megawatts and 1,000 average megawatts of in-state generation produced by the REIMA in 2020 is likely **higher** since this assessment was conducted – Oregon's utilities may see demand for renewable energy generation that is significantly higher than the 530 to 1,000 average megawatt range based on new energy policies.*
- **REIMA Finding: Resource and geographic portfolio diversity will be valuable for achieving high levels of renewable energy deployment**. The results of the market assessment show that diverse resources from diverse parts of the state and the region can contribute toward meeting the state's renewable energy needs. The REIMA modeled five scenarios to meet Oregon's Renewable Portfolio Standard (RPS) goals in 2035 under different assumptions for load growth, in-state development, and geographic focus. At the low end, under a conservative load growth forecast, low in-state development Oregon, and continued focus on onshore wind development in the Columbia Gorge, Oregon could experience a build-out of approximately 1,450 MW of new

renewable capacity by 2035. At the high end, with a high load growth forecast, high in-state procurement (~70 percent), and a focus on solar development in Central and Eastern Oregon, renewable energy build-out of 3,600 MW of new renewable capacity by 2035 was estimated.

- *Note: The low-end estimate of 1,450 MW and the high-end value of 3,600 MW produced by the REIMA in 2020 is likely **higher** since this assessment was conducted – Oregon may see interest in developing renewable energy capacity significantly higher than 1,450 to 3,600 megawatt range based on new energy policies.*

Developing renewable energy resources is often a complex and lengthy process. Prior to embarking on any project, developers must gauge fundamental project and market characteristics required for project success. This fundamental information includes project need, characteristics of the local energy market, proximity and access to enabling transmission and distribution infrastructure, environmental and energy regulation and policy, site availability, resource potential, potential conflicts with other land uses, and commercially available technologies. A critical component of assessing project risk is also understanding the needs and concerns of communities and other stakeholders. While the assessment found that there is 1,500 gigawatts (1,500,000 megawatts) of technical renewable energy potential in Oregon, there are challenges in developing that renewable energy potential into viable projects. Key challenges were identified by industry stakeholders consulted in this assessment:

- **REIMA Finding: Transmission access will be key to the future of renewable energy development in the state**. Many areas of Oregon with high renewable energy potential have limited transmission capacity – there is less transmission infrastructure to access Oregon's best solar resources in central and southeastern Oregon, and where more significant transmission infrastructure does exist, such as along the Columbia Gorge, there is limited available capacity for new additions of generation. Without additional transmission infrastructure, Oregon will face challenges accessing its renewable energy potential.



- **REIMA Finding: Responsible renewable energy development must balance other land use considerations.** Renewable energy development frequently intersects with conflicting or alternative land uses including military (air, land, and sea space), working farm and forest lands, and conservation of natural resources and wildlife habitat. The central and southeastern parts of the state have the highest solar potential but also the greatest concentration of special use airspace, military flight corridors, sage grouse habitat, and other sensitive areas. Development in other parts of the state is restricted by limitations of development on high-value farmland. Industry stakeholders describe an inherent conflict between Oregon's ambitious clean energy goals and the state's current land use planning goals.
- **REIMA Finding: Some electric industry stakeholders currently perceive siting and permitting processes as cumbersome and costly.** Some industry stakeholders noted the length and expense of siting and permitting processes can be a deterrent to project development in Oregon. This feedback was documented as primarily focused on the EFSC process, but stakeholders also noted some challenges with the city and county permitting processes. In particular, industry stakeholders identified conflict between efforts to permit renewables and the state's land use planning goals as a challenge.

Military Needs and Interest Assessment

A critical element of project development in Oregon and key focus of this assessment was the intersection of renewable development and military operations.[6] Military training, testing, and operating areas are a limited resource and restrictions on DoD Special Use Airspace, for example, represents a permanent and irreplaceable loss of this critical asset. Development of renewable energy and transmission projects within these low-level training areas could affect operations; therefore, coordination with the military should be conducted early in the planning process. Some examples of potential impacts or encroachment challenges include:

- Development of wind energy projects can affect low-level training and operating areas and ground-based radar systems.
- Solar energy projects can have multiple impacts on training, including high thermal signatures that may interfere with infrared (IR) sensors and glint (instantaneous flash) and glare (continuous blinding) a depending on the type of facility, scale, and angle from the sun and exposure time.
- Transmission lines and other tall structures such as cell towers have the potential to obstruct critical training and operating areas
- Electromagnetic (EM) energy emissions can affect range systems and military operations, especially where electronic warfare testing or training is conducted.

To mitigate potential impacts to military missions and renewable energy proposals, early coordination with the local military representative is critical during the early phases of a project to ensure viability of critical military areas and still support an economical project footprint. Coordination should continue throughout the progress of the project through various phases including construction. Discussion with the military should be conducted early, as the military representative has knowledge that may extend beyond the project boundaries and can provide details about the mission and requirements, address potential incompatibilities, and foster a viable early and ongoing coordination process. The Military Needs and Interest Assessment (MNIA) identified the following key findings that could help the project development process.

- **MNIA Finding: Communicate project details with the applicable NW DoD RCT representative early in the proposal, and maintain the lines of communication throughout the process.** Coordination with NW DoD RCT staff can, if necessary, connect with other installations or service commands to participate in reviewing and collaborating on the proposal. More open and transparent communications will lead to greater trust among all parties involved, help avoid delays with the proposal, and identify and work through any potential conflicts.
- **MNIA Finding: Be consistent in communications with the DoD entities and military partners.** It is important that all stakeholders have access to accurate and current project details (e.g., size of structures, location). Changes in these details through project development can lead to delays in construction, rejection of some facilities by regulators or stakeholders, or large increases in project costs.
- **MNIA Finding: Each stakeholder group (e.g., local government, project developer, military) should provide one point of contact for project communications, when possible.** Infrastructure

[6] The scope of this assessment did not include potential renewable energy development opportunities within military installations and boundaries that might support the military's overall renewable energy and resilience interest in serving its own operations; these conversations are best had directly with local military liaisons on a case-by-case basis.

development requires communication with many regulatory agencies, community groups, stakeholder representatives, and military points of contact. Providing one central point of contact for each of the groups involved ensures consistency between all groups and minimizes the chances of not contacting all the needed parties.

- **MNIA Finding: Stakeholders (including the military) need to provide timely and clear information regarding potential impacts to their missions.** By doing this, all parties involved understand the potential impacts and can have perspective on how planning decisions are made during the project development and operation.

Natural Resources, Environment and Development Opportunities and Constraints (DOC) Assessment

The Natural Resources, Environment, and Development Opportunities and Constraints Assessment found that stakeholders have considerable excitement and optimism about renewable energy in Oregon, with solar, onshore wind, and offshore wind gaining particular interest. While there is excitement, this assessment also found that there is concern that the need and desire for a rapid transition to renewable energy sources will conflict with military use as well as conservation of working farm and forest lands, natural resources, and wildlife habitat. There is a general attitude that effective and adaptive renewable energy planning and siting requires better collaboration and communication between all parties – and developing and maintaining high quality data and information is needed for effective planning, project implementation, and monitoring.

Key findings from the DOC Assessment include:

- **DOC Finding: There is broad and considerable interest in advancing renewable energy development in Oregon.** Stakeholders identified benefits to combating climate change, opportunities for economic development, and improving community energy resilience. Renewable energy development is associated with a variety of local benefits. Solar, onshore wind, and offshore wind were reported as the top three renewable energy types of interest.

- **DOC Finding: There is also concern about land use and environmental impacts.** Stakeholders expressed concern that a rapid transition to renewable energy resources will conflict with other values. In particular, there is concern that conversion of natural and working lands will diminish agricultural use of prime farmlands and threaten important biodiversity hotspot areas — undermining the ecological integrity of critically important areas. Impacts on migratory species are of particular interest as they are the species for whom threats from large solar and wind facilities is most acute due to repeated mortality of populations as they encounter these areas on a seasonal basis.

- **DOC Finding: A large majority of stakeholders felt a comprehensive approach to energy planning in Oregon is needed.** Stakeholders see the need for comprehensive planning to include all renewable energy types at all scales to ensure the transition to clean energy resources occurs at the required pace, while avoiding or mitigating conflict with other land uses. There was a recognition that effective and adaptive renewable energy planning and siting requires better collaboration and communication between all parties. There was also interest in researching the potential to: (a) reuse already disturbed lands, (b) co-locate energy types (e.g., wind and solar), and (c) co-locate energy and other uses (e.g., solar and agriculture).

- **DOC Finding: There is a need for better cooperation and coordination between local, state, and federal government agencies**. Government coordination and cooperation was particularly important to local government staff who often feel at odds with their state and federal

counterparts. Lack of coordination can reduce the ability of the state to achieve its renewable energy goals. Behaviors such as providing inconsistent or contradictory guidance, abruptly changing regulatory practices, interfering with another's jurisdiction, and changing internal policies unilaterally without adequate notification were reported as problematic by stakeholders. Stakeholders felt that these behaviors can lead to inefficiencies and conflicts, and cascade to interested parties outside of government, eroding confidence in the entire process.

- **DOC Finding: There is a desire for a better public process and support for ongoing public participation in the planning process**. Among some stakeholders there is a perception from past processes that outcomes from a typical government planning approach is often perceived as pre-determined and that their solicited participation is disingenuous, leading to lack of trust. Stakeholders had several suggestions for more meaningful public participation.

Mapping and Reporting Tool – Report Function

The ORESA Mapping and Reporting Tool is designed to give users an understanding of the military interests, renewable energy potential, natural resource considerations, and location relative to administrative and planning boundaries for a site they have identified.

The Report queries a **subset** of data that are available for use in the map viewer:

Data Category	Data Layers	Example
Administrative Boundaries and Planning	8	Zoning
Community Considerations	3	RRED Zones
Energy	13	Annual Average Wind Speed at 100-Meter above Surface Level
Land Cover and Ownership	2	Land Management
Military	9	Military Training Route Centerline
Natural Resource Considerations	41	Farmland Soil Class
Other	2	Research Subsea Cables
Total	**78**	

The Report function is also critical as it provides a direct way to initiate contact with the military to begin discussing a possible proposal, and provides contact information for other local, state, and federal entities that may need to be consulted as possible sites for renewable energy development are considered. Users can either draw their area of interest on the map or upload a project boundary (supported file types include .csv, .xlsx, .kml, .shp, .gpx, or a .zip containing a FileGDB or shapefiles). User inputs include a project name, type of proposed development for on-shore or off-shore, maximum height and anticipated megawatts produced.

Key Point: The Tool is designed to identify site-level intersection with data layers but does not categorize or identify the impact of that information for site or project feasibility. An intersection of data layers only identifies absence/presence of the data – it is not intended to denote areas that should or should not be developed for a renewable energy project. The User will need to define and coordinate with the appropriate parties to determine site or project applicability or outcomes.

The tool queries a series of spatial data layers against the user's geography and returns information about the layers that intersect that area. The user can view details about the layers, turn the layers on and off, and view maps and charts for some layers. A PDF report is generated containing information about relevant layers, as well as maps and charts and contact information. When there are considerations that cannot be addressed spatially through the tool, such as historically significant locations and areas of interest to tribes, the Tool provides relevant links to connect users to the appropriate resources.

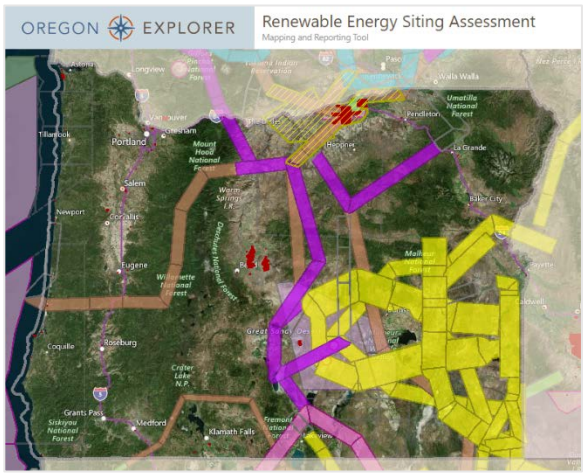
Example Use Cases: In gathering feedback from project participants, a variety of primary and secondary use cases and interests were described. Examples include:

- **Renewable energy developer** considering a general location and interested in early discussion with county/state planners and military.
- **Community members** interested in understanding renewable energy potential or interaction for a site within or adjacent to their community in term of physical space, planning needs, or energy and climate goals.
- **Biologists or non-profit organizations** wanting to learn more about the energy infrastructure and any considerations that may overlay or interact with species or habitats of interest.
- **Local government planner** reviewing an inquiry or pre-application who needs more information, including with whom to communicate and coordinate, or where to find answers to questions from the community or elected leaders.

Oregon Renewable Energy Siting Assessment: Learn

Report and Tool Crosswalk: The learn function of the ORESA tool provides the user access to additional tools and information related to renewable energy development in Oregon.

Lessons Learned and Reflections



The Mapping and Reporting Tool provides a valuable resource for accessing a comprehensive set of geospatial data, but it is not a decision making or regulatory tool. The Tool can provide foundational information to inform and guide discussions on policy issues and provide a common set of data and information on which to base policy discussions. In reflection of the project's objective, several key takeaways and participant feedback themes emerged throughout the project:

Clear Purpose and Appropriate Use of the Tool

In framing the project, it was important to clearly explain that the ORESA Mapping and Report Tool is voluntary to use and not required as part of any existing statues or permitting processes. This is distinct from similar tools in other states where cross-sector notification might be mandated by law. The project team clarified that, in Oregon, the use of the online Mapping and Reporting Tool is voluntary – importantly, it does not substitute for information about a specific project submitted to regulatory agencies at counties or the state for permitting decisions.

- To respond, the Tool was tailored to stakeholder needs and interests heard throughout the project so the content and functionality were as useful and helpful as possible in renewable energy project and policy discussions. This report and the online tool provide new educational resources that allow for centralization of information needed to support pre-planning conversation, early coordination, and understanding around the opportunities and constraints that come from renewable energy development.

Participants across sectors shared concerns about appropriate use of the Tool and concern that others may misunderstand the scope, limitations, or implications of spatial intersections. For example, some developers were concerned that multiple layering of datasets would make a site "appear" undesirable even if the permitting processes and requirements allowed a path forward. Some community members questioned whether the Tool could be used for "prospecting" or manipulation of data to make development "appear" better or worse than it may be in reality.

- To respond, disclaimers and instructions are included throughout the Mapping and Reporting Tool to guide users on the intended and appropriate use of the information and functions. The Tool's disclaimer language includes: "for informational, illustrative purposes…not meant to replace the formal permitting process in the state of Oregon."

Another theme prevalent from project participants was customization and privacy in the Mapping and Reporting Tool. For certain topics, there is a lack of consensus on what data layers or information best capture the opportunities or constraints that may occur when considering a location for renewable energy. Related to privacy, some users expressed concern that drawings or data uploaded to the Tool could be accessed or shared; this is of particular concern for renewable energy developers or communities interested in new development opportunities.

- To respond, a large list of data layers and information were added in the Explore section of the Tool in which the user could customize the information and intersections based on their interests and needs. A subset of these data (those deemed authoritative or with more consensus) were then included the Report section of the Tool.

- To respond, the Tool was designed to be completely open and not individually identifiable. Users can create a bookmark or a PDF report to share – if they choose, but no data or information from their visit to the Tool can be seen or shared by other parties. Disclaimers explain that information will not be shared with the State, or any other parties, and is only shared with the military when the user initiates contact and chooses to share information with those contacts.

Finally, users were concerned that data would not be updated frequently or that the Tool would not be maintained, eventually making the results less valuable.

- To respond, agencies from the project team have sponsored ongoing maintenance of the Mapping and Reporting Tool for at least the next two years (while continuing to explore other funding opportunities), with the Tool continuing to be curated in the Oregon Explorer. Data maintenance will include review of map services, refresh of data sets at least once a year, and corrections to data/metadata as required.

Extensive Cross-Sector Engagement and Iteration

The project involved long-term engagement with stakeholders and interested participants crossing a wide range of sectors, topics, and interests in Oregon. The "user-defined" nature of the Tool's development allowed for more use cases and interests than most energy or mapping projects, which created a more inclusive but almost unwieldy scope of outreach. The project team and consultants were required to adjust the pace and scale to meet stakeholder or participant needs, capacity, and interests – in particular during the COVID-19 pandemic. The project adopted an iterative approach in which feedback was incorporated and then used in future development and testing. While time-consuming, this level of engagement resulted in expansive involvement across communities and interests and better project deliverables. Examples include:

- The DOC assessment reached out to 400 stakeholders, received 80 survey responses, and hosted six regional webinars with 140 different attendees.

- The Tool development's user and beta testing process was greatly expanded to include a large number of sector-based focus groups, three meetings with a cross-sector user group, and one-on-one beta testing, plus additional input from almost 100 participants through a public comment period, demonstrations, and presentations.

- There was a high level of interest and requests for presentation presentations when conducting outreach on the near-final project deliverables and project completion. This included 22 cross-sector responses, a dozen written comments, and more than 25 presentation requests from government, industry, and community organizations. The interdisciplinary need and interest for this project were also reiterated during presentations to state agency staff, Land Conservation and Development Commission (LCDC), Senate Committee on Energy and Environment, State Board of Forestry, LCIS Government-to-Government natural resources meetings with tribal staff, State Land Board, and Energy Facility Siting Council (EFSC) (among others).

Critical Conversations, Perspectives, Issues

This section summarizes key themes and discussions around renewable energy development in Oregon. In addition to the perspectives and lessons gathered above, the project identified important energy policy issues and ongoing conversations with stakeholders occurring within and outside of the ORESA project.

Note: ORESA project resources can support and be complementary to these conversations but are unlikely to solve and answer issues directly.

Ongoing Military Coordination and Engagement

As highlighted in the Military Needs and Interests Assessment, Oregon plays a vital role in supporting national defense. There are nearly 13,000 military personnel in the state across four Military Departments and the Oregon Army and Air National Guard. These military personnel support a wide range of military mission objectives through engaging in activities including:

- Training of military pilots;
- Regional air traffic control;
- Weather, command and control, and combat weather;
- Explosive ordnance disposal;
- Air Combat Command;
- Air-to-ground training and testing;
- Securing Oregon's coastline; and
- North American Aerospace Defense Command (NORAD).

Military installations and military-utilized airspace support the complex scope of the DoD mission. The range of interactions between their activities and renewable energy development is also complex and wide-ranging. Certain issues are more prevalent on some installations and off-station operations areas, while others are present at all the military locations. Some conflicts can be mitigated, while others may face obstacles. Each proposed renewable energy facility and its associated transmission infrastructure should be evaluated in the context of its specific location in relation to the applicable training and operating areas and mission activities occurring in the vicinity of the proposed renewable energy project.

Furthermore, the Military Needs and Interests Assessment found that the progressive approach of avoidance, reduction, and mitigation to potential impacts to military installations, as well as training, testing, and operating areas should be employed in all circumstances. Early identification and communication via early consultation with appropriate military representatives can result in complete avoidance of adverse impacts early enough in the development process that it can be reasonably accommodated, potentially leading to a "Determination of No Hazard" (with or without conditions). Even if complete avoidance is not an option, early identification and communication can result in a development scenario that provides for some degree of the initial project proposal while also sustaining the necessary military training and operating areas. If avoidance and reduction are not feasible options, then specific mitigation concessions by the military and/or the developer may be necessary to ensure the specific mission of the critical military testing, training, and operating areas are not degraded.

Incorporation of the lessons learned in the ORESA project for fostering early coordination, including streamlining communication through the use of the ORESA Mapping and Reporting Tool can result in fewer delays in project approval, resulting in a "win-win" situation for the project proponent and involved stakeholders and agencies.

Comprehensive Statewide Energy Planning

Across the ORESA project assessments, a common theme was the desire among stakeholders for a more comprehensive statewide energy planning and development process. The REIMA identified substantial renewable energy potential in Oregon but found that there are significant challenges facing renewable energy development, including need for transmission upgrades and development to access Oregon's renewable energy potential. There is also a perception of an inherent conflict between Oregon's clean energy policies to encourage more development and Oregon's Statewide Land Use Planning Goals.[7] Specifically, Goal 13, which is the only goal related to energy, does not include any language related to renewable energy, statewide clean energy targets, climate change, or energy facilities development. Furthermore, the DOC assessment found that while stakeholders are excited about the need for and opportunities of renewable energy development, there is also concern about potential conflict with other land use and environmental considerations. Stakeholders across the board identified a need for more clarity on the state's long-term policy goals and a desire for comprehensive and inclusive statewide energy planning, which could:

- Consider Oregon's long-term goals for climate, land use, social justice, and the environment simultaneously
- Consider potential effects on military testing, training, and operations in Oregon
- Assess the roles of the current regulatory processes and rules
- Balance costs to ratepayers and system reliability
- Maximize economic and other benefits
- Improve resilience in Oregon communities
- Provide proactive planning of transmission needs

Conversations are occurring in Oregon to design and propose planning approaches including the Oregon Smart Siting Collaboration – a coalition of nonprofit organizations interested in identifying voluntary statewide siting guidelines and best practices for renewable energy development. While the ORESA Mapping and Reporting Tool is not a decision-making tool, the data and functionality of the Tool can support these discussions – in particular, by providing consistent information and centralized data on the intersection of renewable energy with wildlife, agriculture, and other important resources in Oregon.

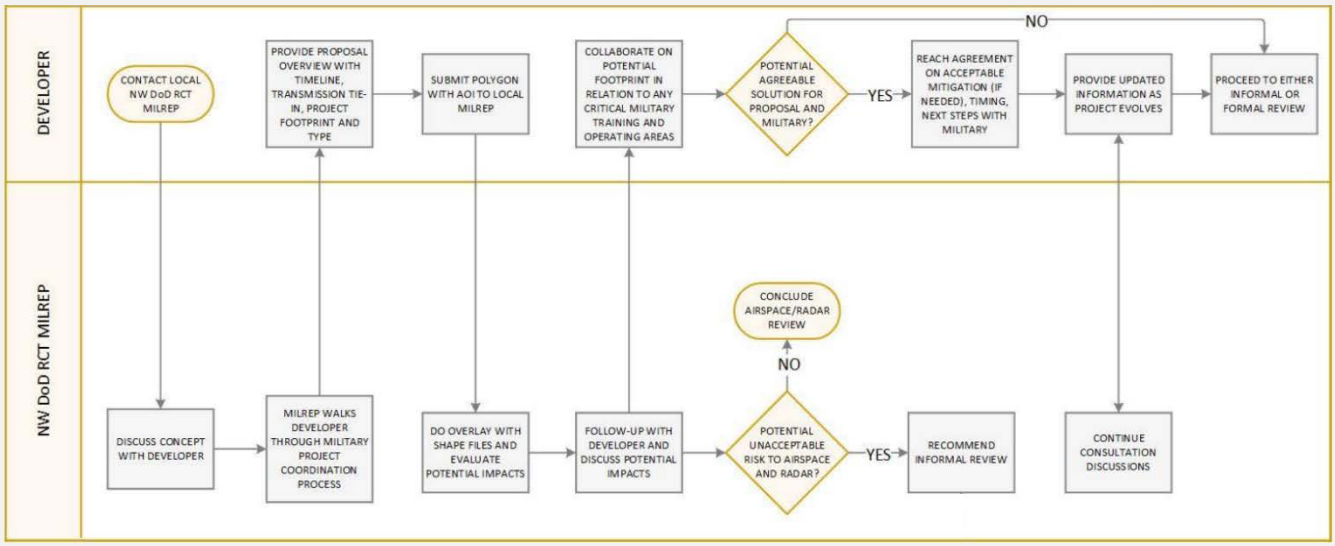
Siting and Permitting Processes

The REIMA noted that many renewable energy industry stakeholders described the existing state siting and permitting processes as outdated and cumbersome, and potentially hindering development of renewables. To further explore this concern, the ORESA project team developed a Siting Procedures Review – which includes decision trees and process maps that illustrate this important information. Some stakeholders suggested reforms that approach siting and permitting from a more holistic perspective are able to strike a balance between state and local jurisdiction and concerns, are more

[7] https://www.oregon.gov/lcd/op/pages/goals.aspx

administratively efficient, consider cumulative impacts, and finally are more inclusive of community engagement.

The 2022 ORESA Procedures Report includes **process maps**, like this abridged example that shows early consultation steps with the Northwest Department of Defense Regional Coordination Team.



The Siting Division at Oregon Department of Energy provides staff support to the Energy Facility Siting Council and is conducting a siting program review with the support of a consultant. The purpose of this review is to obtain information and input, including from reviewing agencies, tribes, developers, and other stakeholders, about the challenges and benefits of the EFSC siting process and to then identify implementable, measurable programs and tools that the Siting Division may use for process improvements.[8]

The siting and permitting processes are critically important for ensuring that renewable energy is developed responsibly and with consideration to potential effects on land use, environmental resources, cultural resources, and other factors. However, the ORESA Mapping and Reporting Tool can help identify sites with potentially more or less complex resource considerations or siting requirements, and act as a communication tool that can help promote collaboration and potentially reduce time in siting and permitting.

Inter-Agency Collaboration, Coordination, and Community Engagement

The need for collaboration, coordination, and engagement were common themes across the ORESA assessments. The REIMA reported that renewable energy industry stakeholders see a need for greater collaborative effort by relevant state agencies to administer current policy and take leadership roles coordinating and streamlining actions to achieve the state's clean energy and decarbonization goals. The DOC assessment reported that stakeholders expressed the importance of better cooperation and coordination between government agencies – with local government stakeholders noting they are often at odds with their state and federal counterparts. Findings from the Military Needs and Interest Assessment also emphasize the need for coordination between government agencies, renewable energy

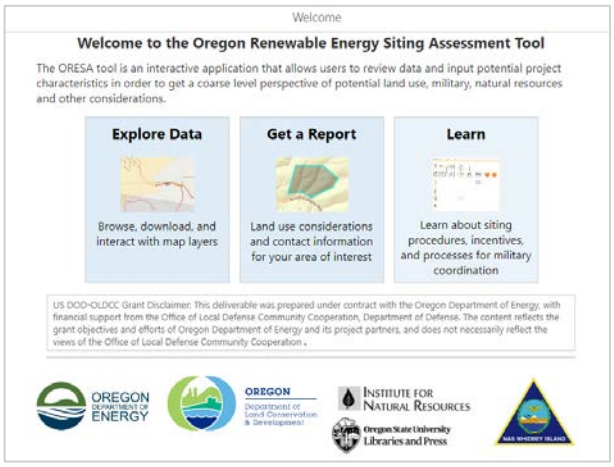
[8] The ODOE contact for the EFSC Program Assessment is Wally Adams, walter.adams@energy.oregon.gov

developers, and the military. The critical need for early communication and coordination can also include all government-to-government interaction and to some extent beyond government:

- Communicate project details with others early in the project and maintain the lines of communication throughout the process. Early coordination and notification (e.g., communication with military, cultural resources staff, local government planning staff) is recommended and complementary to government-to-government communications.
- Be consistent in communications with all entities.
- Each stakeholder group (e.g., local government, project developer, military) should provide one point of contact for project communications.
- Stakeholders need to provide timely and clear information regarding potential impacts to their missions.

The information and functionality of the ORESA Mapping and Reporting Tool are designed to help promote this type of collaboration between entities. In particular, the Tool provides *key contact information* for specific sites in the Report function to encourage early notification and ongoing coordination with, for example, the military, and Oregon's nine federally recognized tribes.

Mapping and Reporting Tool – Learn Function



In addition to the wide array of spatial data, the Mapping and Reporting Tool provide links to other resources on renewable energy in Oregon through the Learn function. The Learn function provides access to additional renewable energy reports, publications, and other information. Highlights of this section includes:

Oregon and Our Nation's Military

Oregon plays a vital role in supporting the National Defense Strategy, with the Navy, Army, and Air Force training in the state. The State of Oregon provides a unique variety of terrain for testing and training including marine, littoral, dune, woodland, and mountain environments. There are approximately 13,000 military personnel in the state, with roughly 9,300 of these serving in reserve capacity.

Oregon Explorer Renewable Energy Landing Page

The Oregon Explorer Renewable Energy topic page brings together additional related resources regarding renewable energy in Oregon in the form of maps, reports and publications, data, and stories. The Oregon Explorer is a natural resources digital library formed as a collaboration between Oregon State University Libraries and Press and the Institute for Natural Resources.

Oregon Renewable Energy Siting Assessment Procedures Report

This report describes the procedures used for the siting of renewable energy facilities in Oregon at the State and Local level. It also provides an overview of the processes used by the Federal government and the military to review renewable energy projects. Materials include Decision Trees and Process Maps.

Conclusion

Renewable energy development to meet Oregon's clean energy and climate goals presents opportunities and faces challenges. Sustainably accessing and developing renewable energy while avoiding or mitigating conflict with other important values will require careful consideration of a multitude of factors and acknowledgement that there may be trade-offs across these factors. The ORESA project aims to create a transparent set of baseline data to help guide discussions around opportunities and challenges.

However, data alone will not provide specific solutions to challenges because there is no specific set of data layers that can provide a single answer to where we should or should not develop. Rather, data is one important aspect of this review and needs to be used in conjunction with community engagement, comprehensive planning processes, and coordination across various interests and needs. Importantly, there were data gaps and desired functionality that were not incorporated into this tool due to scope, budget, or timing reasons. Appendix 6 of this Report provides a summary of those data gaps and functionality so that it may be useful for future phases of the ORESA Tool or other projects.

The ORESA project confirms that there is enough renewable energy potential in the state to meet Oregon's energy and climate goals, while acknowledging that there are tradeoffs related to impacts and benefits with development that need to be evaluated through sustainable and responsible processes. There are also notable challenges to renewable energy resource development associated with transmission infrastructure and with siting and permitting criteria that weigh policy and legal priorities.

The objective of the ORESA project was to baseline data, information, and perspectives to create a transparent, consistent collection of trusted, accurate information in a way that minimizes conflict and supports development. To achieve this objective the project team and consultants engaged in extensive research and stakeholder outreach. The end result is a thorough assessment of renewable energy in Oregon that centralizes and makes accessible a vast amount of information to inform renewable energy project and policy discussions.

Appendices

Report appendices are available online (click to view):

- Appendix 1: Renewable Energy Market and Industry Assessment Report
- Appendix 2: Military Needs and Interests Assessment Report
- Appendix 3: Natural Resources, Environment, And Development - Opportunities and Constraints Assessment Report
- Appendix 4: ORESA Procedures Report
- Appendix 5: Brochure: Oregon and Our Nation's Military
- Appendix 6: ORESA Mapping and Reporting Tool - Process Summary and Highlights of Stakeholder Feedback
- Appendix 7: ORESA Index of Data Layers