Recommendations and Considerations for
Natural Resource Mapping Tools

Landscape-scale mapping tools help direct energy development to—or divert development away from—preferred areas while considering environmental and logistical factors, but proper application of mapping tools is crucial to avoid counterproductive outcomes.

Key Takeaways

1. **Mapping Tools Inform, Not Decide:** Landscape-scale mapping is valuable for site selection, but shouldn't replace on-the-ground assessments and expert input.
2. **Data Limitations Matter:** Maps use coarse, sometimes outdated data, risking misleading conclusions and unnecessary barriers.
3. **Validation Is Essential:** Site selection requires flexibility, real-world validation, and consideration of factors like transmission access and community support.

Recommendations for Mapping Tool Application

Acknowledge Maps will Always be Used in Context of Other Dynamic Siting Factors

During preliminary site screening, developers need to find the conditions necessary for a viable project, including but not limited to:

- **Access to transmission** with available capacity, which influences the affordability of interconnecting to the grid.
- **Willing landowners** and community support.
- **Local zoning and ordinance provisions** with reasonable conditions on development.
- **Sufficient energy resources**.
- **Conditions meeting** construction and engineering requirements.

Then developers apply natural resource maps and other considerations to inform site selection. Site visits are necessary to validate what resources a map indicates may or may not be there.

Background

Landscape-scale mapping is a digital tool for collecting and layering relevant information on natural resources such as protected species, wetlands, and sensitive habitats. The information from landscape-scale mapping comes from a variety of sources across a broad geographic scale to allow the user to overlay data layers and understand what natural resources may be present in an area.

Developers often use landscape-scale mapping to guide siting and development processes for clean energy. These tools help direct development to preferred areas—or divert development away—while considering environmental and logistical factors, but proper application of mapping tools is crucial to avoid counterproductive outcomes.

Mapping tools cannot adequately represent all the factors that inform site selection for clean energy facilities. While maps may indicate an area is low risk for one or more resources of concern—such as a particular wildlife species—they might overlook other critical factors.

Alternative reasons may exist for why a potential site will not work for a clean energy facility, so developers using mapping tools need to integrate them with other crucial siting considerations. Those considerations include interconnection availability to transmission, on-the-ground site assessments, and expert input to ensure site selection is comprehensive and well-informed.

Ensure Usability with Downloadable Data Layers

Developers often use sophisticated geographic information system (GIS) tools, so spatial data must integrate with these systems to be effective. Mapping platforms with downloadable layers that are resource specific and have a clear attribution to their data sources have better utility for industry and practical applications.

Flexibility is Key

Mapping at the landscape level is inherently coarse—meaning that landscape mapping can blur or omit factors that exist in real life. As such, maps alone should not be used to make regulatory approval or denial decisions on a specific project and parties should avoid labeling areas as suitable or unsuitable for development based solely on a map, unless an area is legally restricted from development.

Limitations of Coarse Data

Maps often use generalized data or static data that can become outdated, making them inadequate for project-specific decisions.

- Projects can be unnecessarily excluded from development if resources identified by maps are not present onsite.
- Development *may* be able to proceed safely in areas of concern through mitigation measures and stakeholder engagement.

Considerations for Use

Landscape mapping is too coarse and uncertain for setting effective regulations, ruling areas in or out for development, or making project-specific determinations. Mapping is more useful when indicating what resources may be present for project planning and informing which measures, such as surveys and permits, may be relevant to project planning.

Projects may be unnecessarily restricted from viable development areas because a resource may not actually occur within the project area despite what a map indicates (which is why developers confirm what a map indicates through site visits), or it may be possible to implement measures to appropriately manage potential impacts to the resource even when it is present.

Putting a project in a location free of mapped sensitive resources is not a guarantee that the project can proceed without additional due diligence, which may entail surveys, permits, etc., and even "low-risk" sites identified by a map covering certain resources often don't receive universal stakeholder support due to concerns not incorporated into that mapping tool.

Importance of Responsible Mapping Tool Application

Mapping tools—while useful for initial desktop evaluations—often fail to accelerate development. Instead, these tools can create additional hurdles by forcing developers to spend time engaging in concerns tied to high-level data misinterpretations.

When used irresponsibly, these tools can significantly inhibit the project development process by excluding viable areas without considering site-specific solutions, such as data validation and opportunities to mitigate potential impacts to resources of concern.

Conclusion

Landscape-scale mapping tools support clean energy planning and development by guiding preliminary site screening efforts. However, these tools are coarse resources that require validation and are used alongside data sources on other dynamic siting factors. Mapping tools can be a helpful component of the site screening process, and consistent with how developers already operate, but are not appropriate for final decision-making by regulatory authorities or others on a project.

Photo: Puget Sound Energy, Hopkins Ridge Wind Farm, Columbia County, Washington