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Comments on CEC Land Use Screens 2.0 Workshop June 11, 2026

The Large-scale Solar Association (LSA) respectfully submits these comments in response to the California Energy Commission's June 11, 2026 workshop concerning proposed updates to the Commission's land use screens. LSA appreciates the Commission staff's work to modernize these important planning tools and the opportunity to provide initial feedback. The recommendations below are intended to help ensure that updated screens remain technically credible, transparent, appropriately scaled, and capable of identifying the land base needed to meet California's clean-energy and reliability objectives.

Executive Summary

- LSA supports the Commission's objective of updating the land use screens, but requests a slower, iterative process before material methodological changes are adopted.
- The screens carry substantial consequences because they determine technical resource potential at individual substations, guide busbar mapping in the CPUC's Integrated Resource Planning process and inform the CAISO Transmission Planning Process – all of which may form the basis for procurement directives in the future.
- Before selecting datasets or thresholds, the Commission should conduct additional workshops with live GIS demonstrations showing how each proposed layer changes available solar acreage and megawatt potential.
- Out-of-state screens should achieve reasonable parity with California screens, but should not impose broader or more restrictive exclusions than those applied in California.
- Cropland screening should account for water availability, groundwater decline, anticipated fallowing, and realistic opportunities to repurpose land for solar.
- A suitability model may add value by replacing some binary outcomes with a more informative gradient, but it deserves further discussion and GIS demonstrations before a decision to proceed.
- Updated methods should recognize that well-designed solar facilities on degraded or fallowed agricultural land can support native vegetation, habitat functions, and wildlife movement relative to intensively cultivated land.

I. Introduction and General Comments

LSA appreciates the Commission's continuing effort to improve the land use screens. The workshop presentation appropriately recognizes that achieving California's climate goals will require substantial clean and renewable energy development at rapid build rates, while also recognizing environmental and land-use constraints. The presentation further explains that the screens are planning tools intended to identify technical resource potential, rather than to select or approve individual project sites. That distinction should remain central to the update process. The land use screens should inform planning without becoming a proxy permitting decision or a categorical conclusion that a project cannot be responsibly developed or mapped in the busbar mapping process.

The importance of getting the screens right has increased significantly. As Commission staff explained, the screens guide identification of new resources at the busbar level in the CPUC's Integrated Resource Planning (IRP) process and informs the CAISO Transmission Planning Process (TPP). Because these outputs may also influence future procurement frameworks and form the basis for procurement directives, even modest changes in datasets, thresholds, buffers, or aggregation methods can have consequences far beyond the map itself.

For that reason, LSA recommends that the Commission treat the 2026 update as an iterative public process rather than a single workshop followed by near-term methodological decisions. Stakeholders were presented with numerous datasets of different vintages, resolutions, purposes, and modeling assumptions. The current screens were substantially revised in 2023, and this is the first major opportunity to evaluate how those screens have performed in actual busbar mapping and planning applications. As such, the Commission should also confirm what is working, what is not working, and which specific problems the proposed changes are intended to solve.

LSA therefore requests at least two additional technical workshops before final datasets or methods are selected. Those workshops should include live mapping demonstrations, downloadable intermediate outputs, and quantitative comparisons showing the acreage and potential megawatt effects of each proposed layer individually and in combination. Stakeholders should be able to see not only the final composite screens, but also where overlapping datasets agree, where they conflict, and which layer is dispositive in excluding or downgrading an area.

The Commission should also publish a clear update protocol. Each dataset should be accompanied by its source, vintage, spatial resolution, validation method, intended use, update frequency, and known limitations. The protocol should explain how conflicts among datasets will be resolved, how uncertainty will be represented, and how the screens will be revisited as better information becomes available.

Workshop references: CEC Workshop Presentation, slides 7-13 (purpose, screen components, busbar mapping, and history of screen development).

II. Solar Development and Evolving Information About Habitat Functions

The land use screens should reflect the best available understanding of utility-scale solar facilities, including information emerging from operating projects. Solar development is not environmentally uniform. Project outcomes depend on prior land use, site design, vegetation management, fencing, hydrology, operations, and mitigation. A project built on intact habitat is materially different from a project built on degraded, fallowed, or water-constrained agricultural land.

In particular, solar facilities developed on formerly cultivated or degraded agricultural parcels can create positive ecological conditions that did not exist during intensive agricultural use. Active agriculture commonly involves tilling, harvesting, spraying, fertilizing, vehicle activity, and repeated disturbance. By contrast, operating solar facilities generally have limited routine human presence. Where projects establish native or habitat-supportive vegetation and use wildlife-permeable fencing, they can provide vegetation cover, reduced disturbance, and movement opportunities that improve upon the pre-project biodiversity baseline. Where projects do the same on non-degraded areas, positive biodiversity outcomes can also be achieved.

LSA is not suggesting that these outcomes should be presumed for every project. Rather, the screens should avoid treating all solar development as equivalent to permanent conversion to an ecologically sterile condition. The Commission should establish a technical dialogue with developers, researchers, agencies, and conservation organizations regarding how site practices and post-construction conditions could be represented in a suitability framework. At minimum, lands with substantial restoration potential should not be categorically removed solely because a coarse dataset assigns a generalized conservation or connectivity value.

A gradient-based/suitability approach may be particularly useful here. A suitability model could identify areas where development would benefit from specific design practices, such as native vegetation establishment, movement-compatible fencing, avoidance of localized features, or maintenance of hydrologic functions, while preserving the area's contribution to planning-level resource potential. Similarly, when lands with restoration potential are identified, they should be prioritized as more viable in the CPUC's busbar mapping process.

III. Out-of-State Land Use Screens

A. General Approach: Comparable, but Not More Restrictive, Than California

LSA supports the Commission's goal of improving out-of-state screens and aligning them more closely with the environmental characteristics represented in California. The current WECC Risk Class 3 framework does not provide the same type or level of information as the California biological planning priority, intactness, cropland, and climate-resilience layers. Updating that framework is reasonable, especially as the state's reliance on out of state resources increases. For example, in the most recent long term resource planning portfolio, the CPUC called for 5.5 GW of out-of-state wind by 2031, 7 GW by 2036, 17 GW by 2041 and 19 GW by 2045.[1] As those resources play a larger role in California's planning portfolios, it will become increasingly important to ensure that the screening methodology does not inadvertently favor out-of-state resources over in-state resources, or vice versa. Parity, however, should not become over-screening or quasi-conservation planning. The out-of-state methodology should represent the same categories of concern and approximately the same degree of constraint used in California. It should not combine multiple national and regional datasets in a manner that produces a more expansive exclusion than the corresponding California screens. Where a national dataset includes broader values than the California analog, the Commission's proposal to query or classify the data to approximate what is represented in California is a sensible starting point, but the results must be tested and discussed before implementation.

The Commission should report the incremental impact of each proposed dataset. Layering several partially overlapping biodiversity, connectivity, resilience, and intactness datasets may create cumulative effects that are not apparent when each dataset is reviewed independently. The Commission should identify overlap, inconsistency, and the specific rule used where two datasets assign different values to the same location.

Workshop references: CEC Workshop Presentation, slides 18-28 and 55 (current out-of-state screens, rationale for updates, proposed datasets, cropland approaches, citations, and requested feedback).

B. Wetlands and Hydrography

The workshop identified several possible wetland and hydrography sources, including the USFWS National Wetlands Inventory, the USGS 3D Hydrography Program, and LANDFIRE wetlands classes. These datasets were developed for different purposes and operate at different levels of precision. They should not be treated as interchangeable regulatory determinations.

LSA supports using the most current and reliable information to identify wetlands at a landscape scale, but recommends that any screen distinguish between mapped indicators and legally delineated wetlands. Buffers should be carefully calibrated and should not create large avoidance zones around generalized or modeled features, particularly because desktop mapping results can often conflict with more accurate on-the-ground surveys. This is especially important for solar resources that may require long generation-tie lines or that are located near existing transmission infrastructure. A broad buffer

[1] Decision Requiring 2029-2032 Electric Resource Procurement and Transmitting Portfolios for 2026-2027 Transmission Planning Process, p. 60.

applied to a coarse feature can remove large areas that may be developable through project-level avoidance and design.

The Commission should demonstrate the effects of each wetlands option at multiple map scales and explain whether a mapped feature would operate as a base exclusion, a constraint, or a suitability factor. Where the dataset is not intended for regulatory use, the screen documentation should say so explicitly.

C. Biodiversity, Connectivity, Intactness, and Climate Resilience

The workshop presented national and regional datasets addressing imperiled-species rarity, recognized biodiversity value, connectivity and climate flow, local connectedness, terrestrial development, ecological integrity, and climate vulnerability. These datasets range from approximately 30-meter cells to substantially coarser modeled units up to 18km^2. Their purposes also differ: some identify current biodiversity values, some conservation opportunity areas, some landscape permeability, and others projected vulnerability.

These datasets may be useful, but their application to resource screening requires careful calibration. Resolution alone cannot establish accuracy at the parcel or project scale. Coarse modeled datasets can be appropriate for regional planning, but they can also obscure disturbed areas, existing infrastructure, agricultural conversion, and restoration opportunities. The Commission should avoid translating a generalized regional score into categorical exclusions without ground-based validation of current land conditions.

Connectivity and climate-flow data warrant particular care. Solar facilities may be designed to preserve or restore movement functions within and between developed sites, especially on degraded land. A screen should therefore distinguish between development that creates an impermeable barrier and development like solar that can retain meaningful permeability through layout, setbacks, vegetation, and fencing. A suitability model might potentially identify design-sensitive areas without removing all technical resource potential.

NatureServe-style climate vulnerability information is more theoretical and generally coarser than site-specific or directly observed data. LSA does not oppose continued evaluation, but the Commission should explain the causal relationship between the modeled index and the proposed planning treatment, document uncertainty, and discuss further with stakeholders. Future climate projections should also inform planning, but they should not be treated as precise forecasts of future species presence or movement given uncertainties.

D. Out-of-State Cropland

The workshop presented two possible approaches: developing a California-style Cropland Index Model for Nevada and Arizona or using existing NRCS prime-farmland classifications in combination with recent Cropland Data Layer information. LSA supports further evaluation of the second, more direct approach as an initial method. Beginning with prime farmland and then narrowing the layer to land shown as recently cultivated can provide a clearer indication of land that is both agriculturally important and in active production.

Agricultural classification should not be divorced from water availability. Prime soils do not by themselves establish long-term agricultural viability. The Commission should seek water-availability and water-stress information for Nevada and Arizona, including groundwater trends and the reliability of surface-water supplies. Land that has not been cultivated in recent years and lacks a dependable water supply should be treated as having greater solar-repurposing potential, not as permanently protected cropland based solely on soil classification.

Before selecting either method, the Commission should quantify whether crop production is a material land-use constraint in the specific Nevada and Arizona areas mapped to CAISO substations and should compare the acreage outcomes produced by both approaches. More discussion is needed here.

E. Transmission Context and Geographic Scope

Out-of-state land screening should be evaluated in the context of transmission access. Some viable projects rely on generation-tie lines extending many tens of miles (up to 90 miles) to a CA-connected substation. In contrast to California approaches, a NV-AZ methodology based on a too-narrow radius around substations could overlook realistic development areas, while a broad environmental exclusion applied without transmission context could remove areas that are uniquely valuable for system planning. A non-binary approach, informed by real-world project development would help to better inform the process.

The Commission should expand its understanding of out-of-state distance assumptions and develop sensitivity cases showing different longer generation-tie distances. It should also begin a discussion of how comparable screens will eventually apply across the broader WECC region, as California's planning will now consider regional resources and market structures. The immediate focus on CAISO- and CA-connected portions of Nevada and Arizona is understandable, given the busbar mapping process, but it should not become the permanent geographic boundary of the analysis, to avoid disadvantaging CA projects compared to those in the greater WECC region. As discussed above, the CPUC's projections for out-of-state wind, which is typically located in states like New Mexico, Wyoming and Idaho, is expected to increase exponentially over the next 10 to 15 years. Though those projects are not mapped to busbars by the CPUC, the Commission should establish a methodology for scoring WECC projects that precludes holding them to a lower environmental standard than California.

IV. California Cropland Index Model

A. Water Stress Should Be a Central Factor

LSA supports the Commission's proposal to evaluate water stress as part of the Cropland Index Model. The workshop identifies local surface water, imported surface water, groundwater availability, year-to-year supply variability, groundwater-level trends, permanent fallowing, and aquifer-recharge potential as possible new factors. These considerations are directly relevant to the future viability of agricultural land and to the opportunity to repurpose land for clean-energy development.

A cropland score based on historic soil and agricultural quality can become misleading where water supplies are declining or likely to be reduced. If land is expected to be fallowed or to lose reliable water access, that forward-looking condition should receive greater weight than a historic classification indicating high agricultural quality. Prime farmland and farmland of statewide importance should likewise be considered in conjunction with realistic water availability.

The Commission's conceptual interpretation of groundwater trends is reasonable: deeper groundwater and declining groundwater levels generally indicate increasing scarcity and reduced agricultural resilience. The methodology should nevertheless distinguish regional signals from parcel-specific conclusions and should avoid implying a level of certainty that the data cannot support.

Workshop references: CEC Workshop Presentation, slides 29-38 and 56 (current Cropland Index Model, potential new factors, data gaps, and questions for stakeholders).

B. Fallowed and Retired Agricultural Land

The Commission correctly identifies the need for better information on retired and permanently fallowed agricultural land and on areas likely to face near-term water reductions. LSA does not have a statewide dataset to recommend at this time. The Commission should consult Groundwater Sustainability

Agencies, local watermasters, irrigation districts, counties, and other entities that maintain current information regarding pumping reductions, land retirement, and water transfers.

The Cropland Index should affirmatively identify repurposing opportunity rather than merely reducing an agricultural constraint. Lands facing sustained water stress, anticipated fallowing, or recent non-cultivation should appear as more favorable for solar in planning maps and should receive a higher-viability score in any suitability model. This would better align the screen with actual land-use transition pressures in the Central Valley.

C. Aquifer Recharge

LSA requests further explanation of how aquifer-recharge potential would be used. The presence of recharge potential should not automatically preclude solar development. Solar layouts can vary substantially, and project-level design may preserve infiltration, avoid key recharge features, or support compatible recharge strategies.

Recharge potential may therefore be better suited to a gradient or design-sensitive layer than a binary exclusion. The Commission should distinguish between lands that are actively managed for recharge, lands identified as high potential through modeling, and localized features that can be addressed through project design.

D. Landowner Decisions and Planning Uncertainty

The Commission appropriately notes that landowner willingness is a critical and unknowable variable. Maps of land that appears suitable for solar in no way establish that the land will be available, economically feasible, or capable of being interconnected. For this reason, the planning process should preserve a sufficiently broad and diverse land base rather than assume that every mapped acre can contribute to a portfolio.

This uncertainty further supports avoiding overly restrictive screens. A technical-resource estimate must include enough geographic optionality to account for willing sellers, interconnection constraints, project design, permitting outcomes, competing land uses, and development attrition.

V. Potential Suitability Model

A. A Suitability Model Could Provide Useful Additional Information

LSA is still assessing the benefit of a suitability model that would rank locations along a continuum rather than relying exclusively on binary included-or-excluded outcomes. As the workshop explained, suitability models can combine multiple criteria, visualize complex information, and support planning decisions. A well-designed gradient could potentially better represent the fact that many locations are neither wholly unconstrained nor categorically unavailable.

A suitability model may be particularly useful for identifying locations where renewable-energy development is feasible with additional design considerations, mitigation, or further study. It may also help identify highly favorable areas that combine low conflict, water-driven land-repurposing opportunity, access to infrastructure, and restoration potential. However, it is essential to prevent quasi-conservation planning through these screens.

Workshop references: CEC Workshop Presentation, slides 47-53 and 58 (definition, applications, development steps, model types, pros and cons, and stakeholder questions).

B. The Model Should Supplement, Not Obscure, Transparent Screens

While more discussion is needed to understand the approach, LSA believes that retaining a limited set of clearly defined binary exclusions for lands that are legally unavailable or plainly infeasible, while using a suitability model for more nuanced constraints and opportunities may present a useful

approach. Done properly, this dual structure has the potential to preserve transparency while allowing the planning process to capture areas that may be viable under appropriate conditions.

As the Commission considers this option, discussions with stakeholders should aim to improve understanding of the proper model inputs, reclassification rules, normalization methods, weight, and thresholds. To fully understand the implications of a suitability model, users should be able to both reproduce the models under consideration and view the contribution of each layer to the final score. During the iterative process, the Commission should also include sensitivity analyses showing how results change under different weighting assumptions.

The subjective nature of weighting should not be minimized. Overlay and regression models require judgments about data selection, correlation, causation, category boundaries, and relative importance. Those judgments are especially consequential because the resulting technical resource potential feeds busbar mapping and transmission planning – all of which entail a degree of subjective decision making, themselves. Any model should therefore be developed through a transparent stakeholder process with documented decision criteria.

C. Modeling Uncertainty and Updates

The quality of any suitability model will depend on the quality and currency of its inputs. Statistical and habitat models can illuminate patterns, but they may also embed incorrect assumptions that current relationships, species behavior, and landscape conditions will continue. Climate-related projections introduce additional uncertainty arising from modeled adaptation, competition, disease, disturbance, and other factors that cannot be forecast with precision.

The Commission should represent uncertainty explicitly. Scores should be grouped into understandable ranges, accompanied by confidence or data-quality indicators where feasible, and updated on a regular schedule. No single model run should become a fixed determination for future planning cycles.

Should the parties and the Commission agree that a suitability model is helpful, and in light of the implications for busbar mapping, infrastructure planning, and potential procurement, a pilot phase may be useful to consider. The Commission could apply a prototype model to several representative regions – in and out-of-state – compare the results with the existing screens and obtain stakeholder feedback before decisions are made regarding suitability model use.

VI. Responses to Commission Questions

The following summarizes LSA's initial responses to the questions presented on slides 55, 56, and 58. These responses are preliminary and should not substitute for the additional technical process requested above.

Commission Question	LSA Initial Response
OOS: Are there other datasets to consider?	Potentially, but LSA and the parties need additional time to assess the proposed datasets and any alternatives. The Commission should prioritize datasets that closely correspond to California screen components, are regularly updated, and can be transparently calibrated.
OOS: Strengths and limitations?	The principal limitations are differing purposes, overlapping coverage, inconsistent vintages, and resolutions ranging from approximately 30 meters to far coarser modeled units. These limitations could remove viable solar areas when multiple layers are stacked.
OOS: Can one national dataset represent ACE components?	Possibly, but only if the Commission accurately demonstrates that the selected dataset reasonably represents biodiversity, connectivity, and irreplaceability

Commission Question	LSA Initial Response
	without imposing a broader constraint than the California ACE layers. A live mapping exercise with the stakeholders would be helpful here.
OOS: How should factors be combined?	Use a transparent layered method, identify overlap and double counting, and consider a gradient for non-legal constraints. Provide live mapping and acreage/MW sensitivity results before selecting the method.
OOS cropland: Is crop production a major factor in NV/AZ?	The Commission should quantify this for the CAISO-connected study areas before deciding. The importance varies materially by subregion.
OOS cropland: Which method?	LSA supports further evaluation of the direct NRCS prime-farmland plus recent Cropland Data Layer approach as an initial method, supplemented by water-availability information, which appears to be missing from the proposed datasets.
Cropland: What additional future land-use factors?	Water-supply reliability, groundwater decline, anticipated pumping reductions, permanent fallowing, recent cultivation status, and realistic land-repurposing potential.
Cropland: Is modeled water-source information valuable?	Yes, provided uncertainty is disclosed and the results are tested through live mapping and sensitivity analysis.
Cropland: How should water stress be treated?	Water stress should increase the planning suitability of land for solar, particularly where it indicates likely fallowing or declining long-term agricultural viability.
Cropland: How should repurposing opportunity be shown?	As an affirmative favorable factor in the map and as a higher-suitability gradient, not merely as the absence of an agricultural constraint.
Suitability: Should CEC pursue a model?	The concept has value but requires further stakeholder discussion, transparency, and testing.
Suitability: Best use in planning?	To supplement clear binary exclusions with a more accurate representation of relative feasibility, design sensitivity, conflict, infrastructure context, and land-repurposing opportunity.
Suitability: What additional data?	LSA needs more time to assess. Potential categories include current disturbance, restoration potential, transmission context, land availability proxies, and project design practices and their relationship to onsite biodiversity, subject to data quality.
Suitability: Role for both binary and gradient tools?	Perhaps. Legal and categorical exclusions could remain binary; other factors may be better represented through a layered suitability model.

VII. Recommended Next Steps

1. **Conduct a workshop reviewing the performance of the current 2023 screen layers in recent busbar mapping, soliciting stakeholder feedback, and identifying specific deficiencies to be corrected.**
2. **Conduct one or more live GIS workshops demonstrating the proposed datasets, their classification, overlap with other layers, and incremental acreage and MW effects.**
3. **Publish draft technical documentation identifying data source, vintage, resolution, purpose, update frequency, known limitations, thresholds, buffers, and conflict-resolution rules.**

4. **Provide downloadable draft layers and sufficient time for stakeholders to perform independent analysis before staff selects final methods.**
5. For out-of-state screens, demonstrate parity with California and avoid cumulative restrictions that exceed the treatment of corresponding California values, and incorporate water availability data into cropland views. In addition, propose sightlines to WECC-wide land use screens for projects not directly interconnecting to California
6. Incorporate water stress, groundwater trends, likely fallowing, and land-repurposing opportunity into the California Cropland Index and explore comparable water information for out-of-state cropland.
7. Conduct a GIS mapping workshop – ideally with the CPUC – on how a suitability model would operate alongside existing screens and how it would impact overall screening and busbar mapping.
8. Establish a technical process to evaluate how solar design and management practices can preserve or enhance vegetation, habitat function, connectivity, and recharge on disturbed or agricultural lands.
9. Coordinate with the CPUC and CAISO so that changes to land screens, busbar mapping, portfolio development, and transmission planning are evaluated as an integrated planning chain.

VIII. Conclusion

LSA appreciates the Commission staff's work and its willingness to begin a public discussion of updated land use screens. The proposed datasets and modeling approaches could improve planning, but they could also unintentionally remove viable solar areas if applied at the wrong scale, combined without accounting for overlap, or converted into categorical exclusions without adequate validation.

The land use screens occupy a consequential position in California's resource-planning framework. They shape technical resource potential, busbar mapping, transmission planning, and potentially, procurement. The Commission should therefore proceed deliberately, transparently, and iteratively. Additional workshops, live mapping, sensitivity analyses, and a review of the existing screens are necessary before significant changes are adopted.

LSA looks forward to working with the Commission, the CPUC, other agencies, and stakeholders to develop screens that protect important environmental and agricultural values while preserving the geographic optionality required to build a reliable, affordable, and clean electric system.