The development of large-scale solar energy (LSSE) in the California desert is of vital importance to the state’s renewable energy goals. LSSE development can help California meet its 33% Renewable Energy Portfolio Standard by 2020 and reduce greenhouse gas emissions from electricity generation. However, LSSE also has large and permanent impacts on sensitive species habitat, water use and land use. To provide a deeper understanding of LSSE development in California, this project compares the potential tradeoffs between the renewable energy gained and the resource impacts from the solar industry’s expansion within the CDCA.

### How much energy will solar contribute in 2020?

**SCENARIOS OF LSSE’S CONTRIBUTION TO 2020 ELECTRICITY SUPPLY**

- **6.3% Scenario**: Existing Facilities Only
- **3.3% Scenario**: Currently Permitted 2010
- **9% Scenario**: Business as Usual
- **15% Scenario**: Moderate Changes
- **25% Scenario**: Significant Changes
- **33% Scenario**: 100% of the RPS

### What technologies will be used?

**POSSIBLE LSSE TECHNOLOGY MIXES IN 2020**

<table>
<thead>
<tr>
<th>Portfolio A</th>
<th>Portfolio B</th>
<th>Portfolio C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current Use</td>
<td>Currently Permitted</td>
<td>1/3 PV</td>
</tr>
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</table>

### Which areas within the CDCA are most suitable for solar development?

The spatial analysis provides a macro-scale view, rather than a site-level analysis, of potential solar development in the CDCA. By taking into account various physical, environmental and legal constraints, this analysis identifies and quantifies highly-suitable available land for LSSE development in the CDCA.

The analysis consists of three steps: (1) eliminating the area that is physically or legally unavailable for LSSE development; (2) ranking the remaining area by its suitability according to essential criteria (Figures 7 – 9); and (3) combining these criteria using a weighted sum analysis to produce an overall suitability map (Figure 10).

### FINDINGS:

By 2020, LSSE development will likely:

- Provide between 3.3% and 9% of California’s electricity supply.
- Reflect the use of water-efficient technologies.
- Require between 54,000 and 120,000 cumulative acres of land. Currently, about 420,000 acres of highly-suitable land is available for development.
- Require between 54,000 and 120,000 cumulative acre-feet of water.

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