The Nature Conservancy
Protecting nature. Preserving life.™

RENEWABLE ENERGY INITIATIVE

The challenge is to tackle the widespread threat of habitat degradation and destruction across the region without ignoring the urgent need to address another key threat to biodiversity: climate change. The Nature Conservancy believes it is possible to reduce anthropogenic greenhouse gas emissions by producing electricity from renewable sources such as the sun and wind while simultaneously protecting the plants, wildlife, and other values that nature provides. To achieve both goals decision-makers must use science-based plans designed to ensure that renewable energy facilities and other developments in the Mojave are fully and thoughtfully planned, sited, and mitigated.

California Desert Conservation Value:

Ecologically Core
Land with low levels of anthropogenic disturbance which support conservation targets and whose protection is critical for the long-term conservation of the ecoregion's biological diversity

Ecologically Intact
Land with low levels of anthropogenic disturbance or which supports conservation targets and which requires a level of protection that will enable it to continue to support ecological processes and provide connectivity

Moderately Degraded
Land fragmented by roads, off-road-vehicle trails or in close proximity to urban, agricultural and other developments

Highly Converted
Land in urban and agricultural area that is fragmented and most impacted by human uses

Here, we present the results of an analysis to characterize the distribution of conservation values across the Mojave Desert Ecoregion. Using an ecoregional planning approach followed worldwide by The Nature Conservancy and its partners, we identified a suite of conservation targets (521 species, 44 ecological systems, and seeps and springs are the focus of the plan) and set quantitative conservation goals for each target. We also characterized land-use impacts across the desert, such as roads, urban areas, and agricultural uses. We then used Marxan conservation planning software to help identify and map the relative conservation value of lands across the region for meeting the stated conservation goals. Marxan is designed to identify the most efficient configuration of places needed to protect a given set of conservation targets and to achieve a given set of conservation goals. It can also incorporate information on the distribution of threats to conservation targets and the relative importance of selecting sites that are clustered together to minimize the area-to-perimeter ratio, versus selecting isolated sites that contain conservation targets regardless of the resultant area-to-perimeter ratio.

Our analysis involved dividing the entire Mojave Desert Ecoregion into one-square-mile (259-hectare) planning units, synthesizing spatially-explicit information on the conservation targets and anthropogenic disturbance found in each planning unit, and then using this information to identify the relative value of each planning unit in meeting our conservation goals. High conservation value was attributed to areas with low levels of disturbance and unique conservation target occurrences or high concentrations of target occurrences.

The California portion of the Sonoran Desert was evaluated in a similar way in a previous analysis.

Report available at:
http://conserveonline.org/workspaces/mojave/documents/mojave-desert-ecoregional-2010/@@view.html

Miles
0 5 10 20

Renewable Energy in the Desert

Renewable Energy Project on Public Land
- Approved, Solar (~30,000 acres)
- Application, Solar or Wind (~835,000 acres)

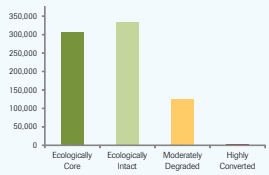
Acres per Application

Wind	Solar	
▲	●	30,001 - 65,000
▲	●	15,001 - 30,000
▲	●	10,001 - 15,000
▲	●	5,001 - 10,000
▲	●	13 - 5,000
▲	●	Project on private land (not all information known)

The minimum land area required to meet the RPS goal of 33% by 2020, using only solar, is roughly 225,000 acres, which is 7.5 times the size of San Francisco County.

● The Ivanpah Solar Power Facility will contain three solar towers (such as the shown above) with concentric rings of concentrating solar panels. Each tower and associated ring requires 1 square mile of bare ground.

Conservation Value of Land Under Application (acres)



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