

APPENDIX C
LAND EVALUATION AND SITE ASSESSMENT
TECHNICAL MEMORANDUM

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Administrative Draft

Technical Memorandum

Date: October 19, 2018
To: Aarty Joshi, Senior Manager, Environmental Permitting
Clearway Energy
From: Jess Taylor, Soil Conservationist/Ecologist, and
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Subject: Land Evaluation and Site Assessment – Daggett Solar Power Facility Project

1.0 Introduction

The Land Evaluation and Site Assessment (LESA) model the primary approach for rating the relative quality of land resources based upon specific measurable features. The LESA model was first developed by the federal Natural Resource Conservation Service (NRCS) in 1981. It was subsequently adapted in 1990 by the California Department of Conservation to evaluate land use decisions that affect the conversion of agricultural lands in California (Public Resources Code Section 21095). The formulation of the California Agricultural LESA Model is intended to provide lead agencies under the California Environmental Quality Act (CEQA) with a methodology to ensure that agricultural land conversions are quantitatively and consistently considered in the environmental review process.

Tetra Tech, Inc. has completed a California Agricultural LESA Model for the proposed Daggett Solar Power Facility project. The project area is in proximity to existing high voltage electrical infrastructure, existing energy generation facilities, and other industrial uses. These include the existing non-operating Coolwater Generating Station, a 626-megawatt (MW) natural gas-fired power plant, the 44-MW photovoltaic Sunray Solar Project, several high-voltage substations and transmission lines owned by Southern California Edison (SCE), the Los Angeles Department of Water and Power (LADWP) high-voltage transmission corridor of approximately 1,000 feet in width, major highway and railroad infrastructure, and Barstow-Daggett Airport. Lands to be developed by the project largely comprise active or formerly active agriculture land, as well as existing infrastructure associated with the nearby inoperative Coolwater Generating Station and an associated transmission corridor. Railroad infrastructure and other supporting infrastructure used to deliver coal to the power plant is present. The project site also contains utility-related uses on land owned by SCE. Private lands in the central and eastern portions of the site consist of agricultural lands that produce primarily alfalfa and pistachios, sparsely spaced rural residential dwellings, previously disturbed and now fallow farmland, and some undeveloped desert land.

The analysis concludes that the conversion of the agricultural land by the project **will not result in a significant loss of farmland** according to the LESA Model.

2.0 California Land Evaluation and Site Assessment Model

The following sections align with the California Land Evaluation and Site Assessment Model worksheets published by NRCS. Each section is built on the information in the previous section and results in a final score that is the basis for the final determination. The scores for each section are derived from the tables within the LESA manual.

Land Capability Classification and Storie Index Scores

The Land Capability Classification (LCC) indicates the suitability of soils for most kinds of crops. Soils are rated from Class I to Class VIII, with soils having the fewest limitations receiving the highest rating. Subclasses designated with a lower case letter (identified as e, w, s, or c) are typically used in conjunction with the roman numerals to further describe soil limitations. The letter “e” shows that the main limitation of the soil is erosion; “w” shows that the presence of water either within or on the soil causes limitation in plant growth; “s” shows that the soil is shallow, droughty, or stony; and “c” shows that the limitation is a climate that is generally too cold or hot for many plants. The LCC has separate scales used independently for irrigated and non-irrigated lands.

The NRCS supplied Storie Index provides a numeric rating (based upon a 100-point scale) of the relative degree of suitability or value of a given soil for intensive agriculture use. The rating is based only on soil characteristics, such as depth, texture of the surface soil, density of the subsoil, drainage, salts and alkalinity, and relief. Other factors, such as availability of water for irrigation and climate are not considered in the Storie Index.

Table A summarizes the findings for the soils within the proposed Daggett Solar Power Facility and shows a highly variable mix of soil types.

Table A. Land Capability Classification (LCC) and Storie Index Scores

A	B	C	D	E	F	G	H
Soil Map Unit ¹	Project Acres	Proportion of Project Area	LCC ¹ (irrigated)	LCC Rating ² (irrigated)	LCC Score (C x E)	Storie Index ¹	Storie Index Score (C x G)
112	1505.2	0.453	IIIe	70	31.69	51	23.09
113	499.7	0.150	IVe	50	7.51	47	7.06
115	36.4	0.011	IVs	40	0.44	34	0.37
117	547.1	0.165	IIIe	70	11.52	64	10.53
127	196.1	0.059	IVs	40	2.36	27	1.59
128	376.8	0.113	IVs	40	4.53	27	3.06
137	91.6	0.028	Ile	90	2.48	88	2.42
138	32.1	0.010	Ile	90	0.87	82	0.79
151*	34.7	0.010	N/A		0.00	N/A	
157*	5.3	0.002	N/A		0.00	N/A	
Totals	3325.00	1		LCC Total Score	61.40	Storie Index Total Score	48.91

¹The Soil Map Unit information and acreage, LCC and Storie Index information were determined from the current soil survey information available at the U.S. Department of Agriculture Natural Resources Conservation Service website: <https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx>

²The LCC Rating for irrigated land was determined from the LCC Point Rating Table 2 from the LESA Instruction Manual (California Department of Conservation 1997)

* Soils not considered suitable for agricultural use per NRCS designation. Information found here: <https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx>

Project Size Scores

The Project Size rating recognizes the role that farm size plays in the viability of commercial agricultural operations. In general, larger farming operations can provide greater flexibility in farm management and marketing decisions. Larger operations tend to have greater impacts upon the local economy through direct employment. In terms of agricultural productivity, the size of the farming operation can be considered not just from its total

acreage, but the acreage of different quality lands that comprise the operation. Lands with higher quality soils lend themselves to greater diversity in crop selection and the potential for greater economic return per acre unit. The Project Size rating is determined by summing the acres in a project that fall within one of three consolidated LCC categories.

Under the Project Size Score rating (Table B), relatively fewer acres of high quality soils are required to achieve a maximum Project Size Score. The proposed Daggett Solar Power Facility project received the maximum score in each LCC category.

Table B. Project Size Scores

	I	J	K
	LCC Class I-II	LCC Class III	LCC Class IV-VIII
Total Acres	123.7	2052.3	1109
Project Size Scores ¹	100	100	100
Highest Project Size Score	100		
¹ Project Size Score was determined from the Project Size Scoring Table from the LESA Instruction Manual (California Department of Conservation 1997).			

Water Resources Availability

The Water Resources Availability rating for the project site is based upon identifying the various sources that may supply the project area, and then determining whether different restrictions in supply are likely to take place in years that are characterized as being periods of drought and non-drought. Table C summarizes the limited water availability in the project area.

The Water Resources Availability Score is scored on a scale of 1-100. Water for the current agricultural operations is pumped from the Mojave River Basin, specifically from the Baja Subarea of the Basin. The Basin is subject to adjudication under a Stipulated Judgment and pumping is controlled by a Water Master. The Water Master has determined that the Baja Subarea is in a condition of overdraft and as a result the Water Master has steadily reduced pumping rights over time. Pumping rights are expected to be further reduced in 2019. Dryland agriculture is not feasible in the region due to an annual precipitation rate of 5 to 6 inches.

Table C. Water Resources Availability

A	B	C	D	E
Project Portion	Water Source	Proportion of Project Area	Water Availability Score ¹	Weighted Availability Score (C x D)
1	Groundwater	0.69	30	20.7
2	None	0.31	0	0
Total Water Resource Score				20.7
¹ Water Resources Availability Score was determined from the scoring table from the LESA Instruction Manual (California Department of Conservation 1997).				

Surrounding Agricultural Land Rating

The Surrounding Agricultural Land Rating is designed to provide a measurement of the level of agricultural land use for lands within the Zone of Influence of the project area. The California Agricultural LESA Model rates the potential significance of the conversion of an agricultural parcel that has a large proportion of surrounding land in agricultural production more highly than one that has a relatively small percentage of surrounding land in agricultural production.

The Surrounding Protected Resource Land Rating is essentially an extension of the Surrounding Agricultural Land Rating and is scored in a similar manner. Protected resource lands are those lands with long term use restrictions that are compatible with or supportive of agricultural uses of land including: publicly owned lands maintained as park, forest, or watershed resources; Williamson Act contracted lands; and lands with natural resource easements that restrict the conversion of such land to urban or industrial uses.

The definition of the “Zone of Influence” is the amount of surrounding lands up to a minimum of one-quarter mile from the project boundary. Table D summarizes the findings for the Daggett Solar Power Facility site.

Table D. Surrounding Agricultural Land Rating

A	B	C	D	E	F	G
Zone of Influence						
Total Acres	Acres in Agriculture	Acres of Protected Resource Land	Percent in Agriculture (B/A)	Percent Protected Resource Land (C/A)	Surrounding Agricultural Land Score ¹	Surrounding Protected Resource Land Score ¹
6778.80	2548.34	0	38%	0	0	0
¹ Score was determined from the scoring table from the LESA Instruction Manual (California Department of Conservation 1997).						

Final LESA Score Sheet

The California LESA Model is weighted so that 50 percent of the total LESA score of a given project is derived from the Land Evaluation factors, and 50 percent from the Site Assessment factors. Table E shows a final LESA score of 45.69 for the proposed Daggett Solar Power Facility project.

Table E. Final LESA Score Sheet

	Factor Scores	Factor Weight	Weighted Factor Scores
Land Evaluation Factors			
Land Capability Classification	61.40	0.25	15.35
Storie Index	48.92	0.25	12.23
<i>Land Evaluation Subtotal</i>		0.5	27.58
Site Assessment Factors			
Project Size	100	0.15	15.00
Water Resource Availability	20.7	0.15	3.11
Surrounding Agricultural Land	0	0.15	0.00
Protected Resource Land	0	0.05	0.00
<i>Site Assessment Total</i>		0.5	18.11
		Final LESA Score	45.69

3.0 Final Result

According to the California Agricultural Land Evaluation and Site Assessment Model Instruction Manual, the Daggett Solar Power Facility project will not have a significant impact on agricultural land use in the project area or Zone of Influence (Table F).

Table F. LESA Model Significance Determination

Total LESA Score	Scoring Decision
0-39 Points	Not considered significant
40-59 Points	Considered significant <i>only</i> if both the Land Evaluation and Site Assessment (found in Table E) weighted factor subscores are each <i>greater</i> than or equal to 20 points.
60-70 Points	Considered significant <i>unless</i> either of the Land Evaluation and Site Assessment weighted factor subscores is <i>less</i> than 20 points.
80-100 Points	Considered significant