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|------------------------------|
| California Energy Commission |
| <b>DOCKETED</b>              |
| <b>09-RENEW EO-1</b>         |
| TN # 75313                   |
| FEB 23 2015                  |

Appendix A: Updated List of DRECP Projects  
On-line, Under Construction, and Approved

| PROJECTS ONLINE OR UNDER CONSTRUCTION POST 2010 | MW          |
|---|-------------|
| <b>SOLAR PV</b>                                 |             |
| CAMPO VERDE                                     | 139         |
| ALPINE  | 63          |
| IMP SOLAR CTR SOUTH                             | 130         |
| NRG SOLAR BORREGO                               | 26          |
| CENTINELA                                       | 170         |
| SOLAR GEN 2 IMPERIAL                            | 150         |
| FSE BLYTHE                                      | 21          |
| SUN PEAK  | 23          |
| DESERT SUNLIGHT                                 | 550         |
| STATELINE                                       | 300         |
| SOL ORCHARDS                                    | 14          |
| PINE TREE                                       | 9           |
| IMP SOLAR CTR WEST                              | 150         |
| AV SOLAR RANCH 1 & 2                            | 230         |
| ANTELOPE VALLEY NOW SOLAR STAR                  | 579         |
| CATALINA  | 143         |
| ROSAMOND I & II                                 | 40          |
| DEL SUR   | 38          |
| MT SIGNAL                                       | 266         |
| BEACON  | 250         |
| <b>SOLAR PV ONLINE OR UNDER CONSTR</b>          | <b>3291</b> |
|   |             |
| <b>SOLAR THERMAL</b>                            |             |
| GENESIS   | 250         |
| ABENGOA MOJAVE                                  | 250         |
| IVANPAH   | 370         |
| <b>SOLAR THERMAL ONLINE OR UNDER CONS</b>       | <b>870</b>  |
|   |             |
| <b>WIND</b>                                     |             |
| ALTA OAK CREEK MOJAVE                           | 1100        |
| MANZANA   | 189         |
| OCOTILLO EXPRESS                                | 315         |
| NORTH SKY RIVER                                 | 163         |
| WINDSTAR  | 120         |
| ALTA EAST                                       | 153         |
| JAWBONE   | 39          |
| CORAM   | 50          |
| PACIFIC WIND                                    | 140         |
| <b>WIND ONLINE OR UNDER CONSTRUCTION</b>        | <b>2269</b> |
|   |             |
| <b>TOTAL MW ONLINE OR UNDER CONSTRUCTION</b>    | <b>6164</b> |

| <b>APPROVED LARGE SCALE PROJECTS</b>                |               |
|---|---------------|
| TEHACHAPI   | 40            |
| SPRINGBOK & ORYX (LADWP)                            | 125           |
| DESERT HARVEST [RIV]                                | 150           |
| BLYTHE "  | 485           |
| MC COY "  | 750           |
| SILVERADO / SUSTAINABLE POWER GROUP [LA]            | 172           |
| SUSTAINABLE POWER GROUP [LANCASTER]                 | 250           |
| ANTELOPE SOLAR GREENWORKS                           | 52            |
| IMPERIAL SOLAR CENTER WEST                          | 250           |
| CHOCOLATE MOUNTAINS                                 | 66            |
| CALIPATRIA  | 26            |
| CALEXICO 1 AND 2                                    | 524           |
| MIDWAY  | 66            |
| ROSAMOND  | 300           |
| <b>TOTAL SOLAR PV APPROVED</b>                      | <b>3256</b>   |
| <b>SOLAR THERMAL</b>                                |               |
| PALEN   | 500           |
| RICE SOLAR RESERVE                                  | 150           |
| <b>TOTAL SOLAR THERMAL APPROVED</b>                 | <b>650</b>    |
| <b>WIND</b>   |               |
| MORGAN HILLS  | 200           |
| PINE TREE   | 0             |
| CORAM   | 3             |
| CORAM   | 3             |
| WINDSTAR ADDENDUM                                   | 70            |
| AVALON  | 300           |
| LOWER WEST  | 14            |
| ADDISON   | 100           |
| RISING TREE   | 150           |
| CLEARVISTA  | 20            |
| CATALINA  | 200           |
| WINDSTREAM  | 80            |
| DIFI WIND   | 1             |
| PINE CANYON [DWP]                                   | 150           |
| TULE WIND   | 186           |
| <b>TOTAL WIND APPROVED</b>                          | <b>1477</b>   |
| <b>TOTAL MW APPROVED POST 2010</b>                  | <b>5383</b>   |
| <b>TOTAL MW ONLINE U/CONSTpost 2010 OR APPROVED</b> | <b>11,813</b> |

## Appendix B: DRECP Comments Reply to Sierra Club

Several of the summaries and replies below in the DRECP Appendix F3 do not exactly match the comments that Sierra Club actually submitted. For this reason, we are attaching our original

□□ *Sierra Club (2012)*: The growth rate in electricity demand due to economic and demographic factors over 2011 – 2040 should be lower than forecasted by the Energy Commission for 2011 – 2020, as:

o (a) the forecasted population growth rate over 2011 – 2020 was revised downward by the California Department of Finance (CDOF) subsequent to development of the Energy Commission forecast, and

o (b) the CDOF population growth rate projection for 2021- 2040 was lower still. Furthermore, the energy efficiency savings rate assumed in the model/scenario should be increased as the value used was based on historical data from 1990 – 2010, a period during which expenditures on energy

o **RESPONSE**: Staff understands Sierra Club to be proposing that demand growth (not including from electrification) remain constant or decreases by 2040. The Energy Commission’s latest ten-year demand forecast however projects positive growth rates.

**Sierra Club Comment 2015**: This is a gross mischaracterization; Sierra Club urged the DRECP use real data from official population forecasts and also use the Energy Commission official forecast. There is also a big difference between decreasing growth (which we said was consistent with population data) and decreasing demand, which is possible. There are also factors not in the demand forecast, such as what happens after 2020, and the forecast from 2010 did not include additional energy efficiency as in subsequent iterations after the 2012 comments.

□ *Sierra Club (2012)*: Central station solar takes 7.0 acres/MW, not 9.1 acres/MW.

o **RESPONSE**: Staff agreed to this reduction, although it would appear to be a lower bound. A report issued by NREL in June 20134 – well after staff agreed to reduce the acreage requirement - found that 1 -20 MW solar PV projects in the U.S. require 8.3 acres/MW on average, with larger PV facilities requiring 7.9 acres/MW, and concentrating solar power technologies requiring 10 acres/MW.

**Sierra Club Comment 2015**: The NREL study is based on general information about projects nationally; this may not apply to specific projects in DRECP, and DRECP should use real data for the existing and proposed projects; we have provided a summary in the comments that reflects this for wind power, and urge staff to collect data specific for all projects in the DRECP rather than rely on national reports. This should be a primary task.

□ *Private letter (2011)*: It’s wrong to assume other renewable technologies will not improve by 2040.

o **RESPONSE**: Model is limited in that it cannot predict dynamic technology shifts, such as deep offshore wind or tidal renewable. Staff does not have sufficient evidence to show that these technologies will be deployed by 2040, or data on their efficiency. However, it is possible.

**Sierra Club Comment 2015:** Sierra Club knows that the model does not “predict” technology shifts, however, it does take inputs that reflect assumptions about technology. Sierra Club did not mention tidal technology, but may have mentioned wave power. Technology improvement is not limited to novelties, but has a long record with existing solar and wind power. There is a lot of publicly available data if DRECP wishes to obtain evidence we are willing to provide some.

□ □ *Sierra Club (2012):* A blip in population growth rates skewed estimates before. Corrected?  
o **RESPONSE:** July 2012 scenario updated to use revised growth estimates taken from Department of Finance and US Census Bureau.

**Sierra Club Comment 2015:** Sierra Club was not referring to a “blip”, but to long term demographic trends, which we urged DRECP to account for. That was the reason for switching to official forecasts.

□ *Sierra Club (2012):* Percentage of vehicle miles traveled with grid-supplied electricity: should be 72.6%, not 90%.  
o **RESPONSE:** Staff agreed and changed to 72.6%.

**Sierra Club Comment 2015:** Sierra Club proposed a value up to about 66%, because this was consistent with EPRI modeling for driving 13,000 miles per year. Staff agreed with Sierra Club’s broad point that 90% was too high, but did not use a valid value from EPRI’s data chart.