DOCKETED	
Docket Number:	21-SIT-01
Project Title:	21-SIT-01, SB100 Implementation Planning for SB100 Resource Build
TN #:	249496
Document Title:	GridLiance West Comments on March 12 Land Use Screen Workshop
Description:	N/A
Filer:	System
Organization:	GridLiance West
Submitter Role:	Public
Submission Date:	3/30/2023 10:15:00 AM
Docketed Date:	3/30/2023

Comment Received From: GridLiance West
Submitted On: 3/30/2023
Docket Number: 21-SIT-01

GridLiance West Comments on March 12 Land Use Screen Workshop

Please see attached comments of GLW in response to the Commissions March 12, 2023 IEPR workshop on land use screens.

Additional submitted attachment is included below.

March 30, 2023

RE: IEPR Land-Use Screen Workshop

TO: California Energy Commission, Public Utilities Commission, and Air Resources Board

GridLiance West (GLW) is a Participating Transmission Owner (PTO) in the California Independent System Operator (CAISO) that owns and operates approximately 165 miles of 230-kilovolt (kV) high-voltage transmission lines and related substation infrastructure located in rural southern Nevada. The southern Nevada region served by GLW offers diverse and substantial renewable resource capability. At present, over 30 gigawatts (GWs) of solar/storage hybrid, wind, and geothermal resources have submitted requests into the CAISO interconnection process or received executed interconnection agreements to interconnect to the GridLiance West system.

GLW appreciates the efforts of the California Energy Commission (CEC), Public Utilities Commission (CPUC), and Air Resources Board in developing robust and realistic land-use screens for California. GLW appreciates the opportunity to offer these comments in response to the Draft Staff Report on Land-Use Screens for Electric System Planning (Draft Report) and discussion at the workshop held on March 12, 2023 (March Workshop).

Summary of Comments

The Draft Report recognizes the aggressive goals of Senate Bill 100 (SB 100) and California's increased Renewable Portfolio Standards (RPS) and the important environmental, land-use, and physical characteristics of the land that must be considered in electric system planning.[1]

GLW's comments focus on the need to put in place screens that are effective at planning the CAISO's electric grid for those locations where renewable supplies or storage would be outside of California yet are part of the CAISO grid. GLW's service area is predominantly located outside

[1] Draft Report at 9.

of California in Nevada. Californians can benefit significantly from prudent development of renewables and transmission in these areas.

During the March Workshop, the CEC clarified that while they intend to enhance land use screens for CAISO grid areas outside of California, they have not yet devoted the resources to doing so. The CEC indicated that it had previously used Western Electric Coordinating Council (WECC) land classifications to define resource buildout potentials in these areas.

Without adequate land-use screens for these areas, the CEC, CPUC, and CAISO cannot effectively consider trade-offs with siting in these locations. Further, with the likelihood that the CAISO will update the 20-year transmission study in 2023, it is imperative that incorrect assumptions for this region of the CAISO grid should be corrected.

California should consider all available locations on the CAISO grid

Suitable land available for renewables development in California is becoming more and more scarce. In many instances, the CEC's land-use screen enhancements refine exclusion areas and thereby identify additional portions of land potentially available for renewable development. However, these areas often face opposition to project development given attributes not yet identified in the CEC screens, such as screens reflecting Northern California forests and California beaches.

At the same time, there is more available land adjacent to the California border with very high commercial interest for renewables and storage development. Numerous developers are pursuing solar and solar-storage hybrid facilities in Nevada. GLW currently has approximately 30 GWs of renewable development within its footprint that are in the CAISO queue. Attachment 1 shows – both visually and in tabular form – the extensive developer activity in Nevada in GLW's service area. Attachment 2 contains a larger form of the table. Applications filed with the Bureau

of Land Management for renewable projects are indicative of the strong level of interest in renewable development in this region[2].

The CEC, CPUC, and CAISO should develop mechanisms to consider renewables development in these areas as is done with CAISO queue information.

The land-use screens used to date for Nevada are unrefined and exclude many suitable development sites and opportunities

The CEC proposes to use WECC land-use screens to determine mapping in the portfolios it develops.

> At this time, the land-use analysis does not apply to out-of-state renewable resource potential that may be used to serve California load. Consistent with the approach currently used in busbar mapping and proposed for use in the CPUC's Inputs & Assumptions for the 2022-23 IRP Cycle, CEC staff recommends using publicly available spatial datasets from the Western Electricity Coordinating Council (WECC) Environmental Risk Dataset to map resources outside of California. [3]

It is not clear how the CEC proposes to use the WECC Environmental Risk Dataset to map the resources. GLW suggests that the CEC should treat the WECC risk along with available mitigation strategies.

Further, the WECC screens have several limitations. These were outlined in the WECC-wide Environmental Recommendations for Transmission Planning – Final Report of the Environmental Task Force (WECC Screening Report) (May 6, 2011).[4] Data sets have varying degrees of

[2] Data sourced from Bureau of Land Management Solar Energy Permitting and Program Resources
[3] Draft Report at 22.
[4] Available at this link.

granularity[5] and may be too gross to accurately reflect available land use. In the most general sense, data sets were developed for the planning of inter-regional transmission lines and may thereby have granularity only at the level warranted for transmission corridors and not for renewable generation siting which may be able to interconnect via smaller generation tie lines.

The report also indicated that the exclusion areas were found to be overly conservative.[6] For example, when four of the exclusion areas were further examined, the study group found that sufficient non-precluded lands remained within those "exclusion areas" that would allow not just renewable generation projects to be sited but even allow transmission corridors to be sited.[7] Given that the WECC Risk Levels were intended for large-scale transmission projects, even linear barriers such as a narrow waterway would, in the WECC Risk Levels, render a large portion of land as exclusionary when significant lands may still exist that are ideal for renewable generation siting.

Significant renewable and storage development potential exists in and around the GLW portion of the CAISO grid

The GLW portion of southern Nevada has significant amounts of accessible and buildable land. This portion of the CAISO grid offers lower-cost and faster renewable generation construction with minimal environmental impacts. This desert portion of Nevada also has essentially no wildfire risks to challenge the resilience of generating resources and transmission infrastructure. Concerning solar and storage development, the resource potentials captured in the CPUC's IRP process to date are significant in southern Nevada. Transmission limits – essentially the only limiting development feature for solar[8] and storage in this region – can be addressed by very cost-effective transmission element upgrades. For example, in its comments in response to the

[5] WECC Screen Report, 31-33.
[6] *Id*. 33 - 34.
[7] *Id*. 34.
[8] GLW comments to the CAISO in response to the CAISO's Draft 20-Year Transmission Outlook report, February 22, 2022. Available here.

CAISO's 20-year Transmission Study, GLW discussed how the CAISO identified a number of projects indicated by the Starting Point portfolio to cost between $8 and $12 billion. However, within the GLW system, over 2,000 MWs of additional wind, solar, or geothermal energy could be interconnected and fully deliverable within 36 months for an incremental cost of $260 million.

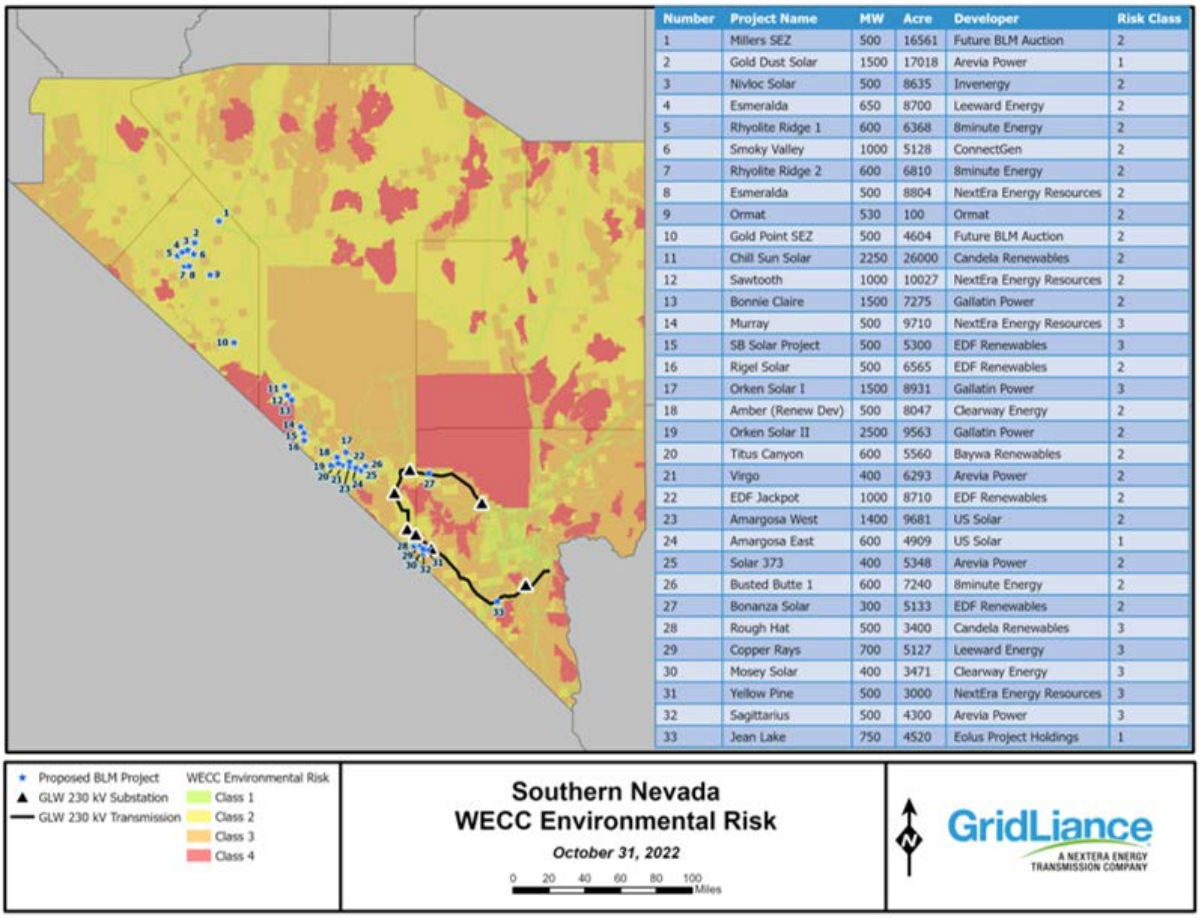
The availability and desirability of land for development in Nevada has created significant commercial interest in renewable development

Given the desirable attributes of development of resources in the GLW footprint, commercial development interest in that region is extremely high. Within the CAISO queue, there are over 7 GWs of active generation interconnection requests in Nevada.[9] In addition to the 7 GWs of active queue request development, other early-stage development in this area includes over 20 GWs of renewable generation and storage resources.[10] This commercial development activity demonstrates that this region is not constrained by land-use limitations as might be suggested by treating the WECC level 3 and 4 risks categories essentially as indicative of representing strict development exclusions. Rather, land-use selection and mitigation requirements for southern Nevada are being cost-effectively managed by developers, suggesting that alternative land-use screens are warranted by the CEC to properly reflect the environmental and commercial realities in this portion of the CAISO.

A graphical overlay of the development projects with the WECC risk areas illustrates that significant development can occur despite the need to manage land considerations. Figure 1 below shows renewables development currently underway within Southern Nevada, layered on top of the WECC land use screens. The figure demonstrates that significant land is available despite the differing WECC screens developed for this region. In short, the graphic shows that it would be incorrect to assume that development in Nevada is infeasible by only considering these WECC land screens.

[9] Please refer again to Attachments 1 and 2 for commercial development details.
[10] *Id.*

Figure 1 - WECC Land Use Screens overlayed on Southern Nevada Development



Number	Project Name	MW	Acre	Developer	Risk Class
1	Millers SEZ	500	16561	Future BLM Auction	2
2	Gold Dust Solar	1500	17018	Arevia Power	1
3	Nivloc Solar	500	8635	Invenergy	2
4	Esmeralda	650	8700	Leeward Energy	2
5	Rhyolite Ridge 1	600	6368	8minute Energy	2
6	Smoky Valley	1000	5128	ConnectGen	2
7	Rhyolite Ridge 2	600	6810	8minute Energy	2
8	Esmeralda	500	8804	NextEra Energy Resources	2
9	Ormat	530	100	Ormat	2
10	Gold Point SEZ	500	4604	Future BLM Auction	2
11	Chill Sun Solar	2250	26000	Candela Renewables	2
12	Sawtooth	1000	10027	NextEra Energy Resources	2
13	Bonnie Claire	1500	7275	Gallatin Power	2
14	Murray	500	9710	NextEra Energy Resources	3
15	SB Solar Project	500	5300	EDF Renewables	3
16	Rigel Solar	500	6565	EDF Renewables	2
17	Orken Solar I	1500	8931	Gallatin Power	3
18	Amber (Renew Dev)	500	8047	Clearway Energy	2
19	Orken Solar II	2500	9563	Gallatin Power	2
20	Titus Canyon	600	5560	Baywa Renewables	2
21	Virgo	400	6293	Arevia Power	2
22	EDF Jackpot	1000	8710	EDF Renewables	2
23	Amargosa West	1400	9681	US Solar	2
24	Amargosa East	600	4909	US Solar	1
25	Solar 373	400	5348	Arevia Power	2
26	Busted Butte 1	600	7240	8minute Energy	2
27	Bonanza Solar	300	5133	EDF Renewables	2
28	Rough Hat	500	3400	Candela Renewables	3
29	Copper Rays	700	5127	Leeward Energy	3
30	Mosey Solar	400	3471	Clearway Energy	3
31	Yellow Pine	500	3000	NextEra Energy Resources	3
32	Sagittarius	500	4300	Arevia Power	3
33	Jean Lake	750	4520	Eolus Project Holdings	1

A comparable methodology for land use screens to the one developed by the CEC for CA should be used for the area in and around the GLW footprint

GLW urges the CEC to not use the WECC screens and rather employ land-use screen metrics to comparable to those proposed by the CEC for California.

Recognizing the CEC's extensive effort enhance California's land use screens, GLW offers screening data comparable to what is being proposed by the CEC in its proposed land use screens Appendix D for the CEC's consideration.

GLW performed a land use screening analysis for Southern Nevada using the same methodology as Appendix D to the CEC draft report, by excluding LandScan areas (D-1) and excluding Terrestrial 30x30 Conserved Areas (D-2).[11] Attachment 3 provides a listing of the data sources used in generating the Nevada land use screens.

The land use data and screen results were posted in October 2022 for the CEC and other stakeholders.[12] GLW does not anticipate it would take much effort for the CEC to implement these screens for southern Nevada, and GLW would be pleased to work further with the CEC staff and interested stakeholders in the finalization and adoption of such CAISO Nevada screens.

Should the CEC not be able to fully adopt comparable land use screens at this time, the CEC should update their current use potentials based on estimates of improved screens

As detailed above, using the previously applied WECC screens for the Nevada portion of the CAISO is an untenable approach. If the CEC does not implement GLW's proposed screening data, GLW offers the following resulting wind and solar buildable land layer use information and resultant wind and solar potentials from analysis of the screens. These results could be easily adopted by the CEC and CPUC.

County Name	Wind BLL (ac)	Solar BLL (ac)	Wind Potential (MWs)	Solar Potential (MWs)
Clark	1,210,685	1,242,829	30,267	177,547
Esmeralda	281,239	1,549,845	7,031	221,406
Lincoln	680,553	3,568,476	17,014	509,782
Mineral	139,642	1,047,084	3,491	149,583
Nye	1,241,497	5,510,206	31,037	787,172

Power densities of 7 acres/MW and 40 acres/MW are used to convert area to electrical power generation for solar and wind, respectively. (CEC March 2023 land use screen presentation slide 9)

[11] GLW has not been able to identify a Nevada equivalent data set for exclusions included in the CEC's D-3 data tables.

[12] Data sets are available for access and download here: https://www.gridliance.com/companies/gridliance-west/cec.html.

With respect to geothermal potential, GLW has filed comments regarding updated geothermal potential data[13], including The US Geological Survey's (USGS) assessment of moderate- and high-temperature geothermal resources in the United States. According to the USGS assessment, Nevada has over 15% of the US's geothermal resources, nearly 15% of the country's additional undiscovered resources, and nearly 20% additional geothermal potential that could likely be developed through enhanced geothermal systems (EGS).[14] The potential for future stores is thus significant. According to the USGS report, Nevada has the geothermal potential of the different development stages as follows:[15]

- Identified Resources – 1,391 MWs
- Undiscovered Resources – 4,364 MWs
- Enhanced Geothermal Systems – 102,800 MWs

Certainly, the currently assumed geothermal potential of 320 MWs for Nevada is inaccurate. GLW recommends that in absence of implementing the USGS-based screens for the CEC's layers, the Nevada geothermal potential should be set to 4,000 MWs, given that 1,391 MWs have already been identified and another 4,364 MWs of additional geothermal capacity is expected to be accessible through additional discovery. Whether staff sets the level at closer to 4,364 MWs or develops separate cost curves for Undiscovered and Enhanced Geothermal supplies, the CEC and CPUC should recognize higher levels of potential to avoid rendering transmission planning portfolios inaccurate and suboptimal.

[13] See for example, GLW comments to the CPUC in response to their IRP Inputs and Assumptions, in R.20-05-003, October 6, 2022.
[14] Assessment of Moderate- and High-Temperature Geothermal Resources in the United States, Fact Sheet, USGS, 2008, at 2.
[15] *Id*. at 4, Table 1 (mean model values).

It is critical to remedy the underrepresentation of Nevada geothermal potential now. Geothermal development is much more challenging and costly than development of wind or solar energy. Yet geothermal capacity is becoming increasingly valuable to the CAISO grid. Remaining California stores of geothermal are only available (with very minimal exceptions) in the Salton Sea area which is not directly connected to the CAISO grid. The CEC and CPUC should consider all reasonable means to encourage, and not discourage, all potential CAISO-grid interconnected geothermal development. California should not wait for policymakers to correct the planning distortion that is created by using outdated potential information that understates geothermal potential. GLW urges the CEC to use a southern Nevada potential of 4,000 MWs if the fully updated screens cannot be implemented for this CAISO region at this time.

Summary

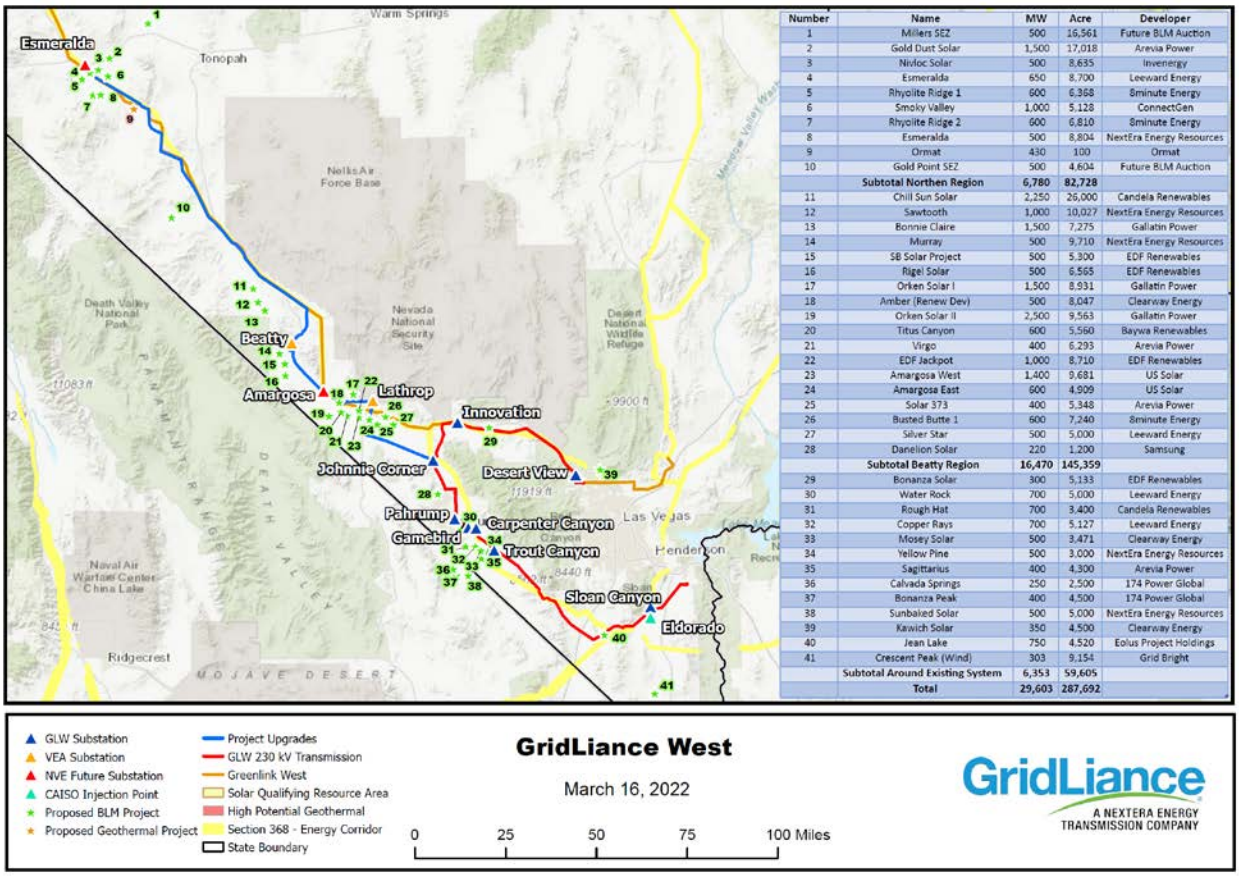
GLW appreciates the effort of the CEC staff to develop robust land use evaluation screens for the CEC's SB100 planning processes and for use by the CPUC staff in IRP and its other related planning processes. GLW seeks the CEC's endorsement of the comparable proposed screen data layers summarized herein and provided in conjunction with these comments. Implementation of such data screens will levelize the planning processes across CAISO and ensure that the most effective resource development areas are identified to meet California's carbon and electricity reliability goals.

Sincerely,

/s/ Alona Sias

Alona Sias
President, GridLiance West

Attachment 1
Commercial Development in and around GridLiance West Service Territory



Number	Name	MW	Acre	Developer
1	Millers SEZ	500	16,561	Future BLM Auction
2	Gold Dust Solar	1,500	17,018	Arevia Power
3	Nivloc Solar	500	8,635	Invenergy
4	Esmeralda	650	8,700	Leeward Energy
5	Rhyolite Ridge 1	600	6,368	8minute Energy
6	Smoky Valley	1,000	5,128	ConnectGen
7	Rhyolite Ridge 2	600	6,810	8minute Energy
8	Esmeralda	500	8,804	NextEra Energy Resources
9	Ormat	430	100	Ormat
10	Gold Point SEZ	500	4,604	Future BLM Auction
	Subtotal Northen Region	**6,780**	**82,728**	
11	Chill Sun Solar	2,250	26,000	Candela Renewables
12	Sawtooth	1,000	10,027	NextEra Energy Resources
13	Bonnie Claire	1,500	7,275	Gallatin Power
14	Murray	500	9,710	NextEra Energy Resources
15	SB Solar Project	500	5,300	EDF Renewables
16	Rigel Solar	500	6,565	EDF Renewables
17	Orken Solar I	1,500	8,931	Gallatin Power
18	Amber (Renew Dev)	500	8,047	Clearway Energy
19	Orken Solar II	2,500	9,563	Gallatin Power
20	Titus Canyon	600	5,560	Baywa Renewables
21	Virgo	400	6,293	Arevia Power
22	EDF Jackpot	1,000	8,710	EDF Renewables
23	Amargosa West	1,400	9,681	US Solar
24	Amargosa East	600	4,909	US Solar
25	Solar 373	400	5,348	Arevia Power
26	Busted Butte 1	600	7,240	8minute Energy
27	Silver Star	500	5,000	Leeward Energy
28	Danelion Solar	220	1,200	Samsung
	Subtotal Beatty Region	**16,470**	**145,359**	
29	Bonanza Solar	300	5,133	EDF Renewables
30	Water Rock	700	5,000	Leeward Energy
31	Rough Hat	700	3,400	Candela Renewables
32	Copper Rays	700	5,127	Leeward Energy
33	Mosey Solar	500	3,471	Clearway Energy
34	Yellow Pine	500	3,000	NextEra Energy Resources
35	Sagittarius	400	4,300	Arevia Power
36	Calvada Springs	250	2,500	174 Power Global
37	Bonanza Peak	400	4,500	174 Power Global
38	Sunbaked Solar	500	5,000	NextEra Energy Resources
39	Karwich Solar	350	4,500	Clearway Energy
40	Jean Lake	750	4,520	Eolus Project Holdings
41	Crescent Peak (Wind)	303	9,154	Grid Bright
	Subtotal Around Existing System	**6,353**	**59,605**	
	Total	**29,603**	**287,692**	

Attachment 2
Detail of the GLW Territory Development Tabular Data

Number	Name	Developer	MW	Acre
1	Millers SEZ	Future BLM Auction	500	16,561
2	Gold Dust Solar	Arevia Power	1,500	17,018
3	Nivloc Solar	Invenergy	500	8,635
4	Esmeralda	Leeward Energy	650	8,700
5	Rhyolite Ridge 1	8minute Energy	600	6,368
6	Smoky Valley	ConnectGen	1,000	5,128
7	Rhyolite Ridge 2	8minute Energy	600	6,810
8	Esmeralda	NextEra Energy Resources	500	8,804
9	Gold Point SEZ	Future BLM Auction	500	4,604
10	Alum Geothermal	Ormat	530	
	Subtotal Northern Region		**6,880**	**82,628**
11	Chill Sun Solar	Candela Renewables	2,250	26,000
12	Sawtooth	NextEra Energy Resources	1,000	10,027
13	Murray	NextEra Energy Resources	500	9,710
14	Orken Solar I	Gallatin Power	1,500	8,931
15	Orken Solar II	Gallatin Power	2,500	9,563
16	Rough Hat	Candela Renewables	500	3,400
17	Copper Rays	Leeward Energy	700	5,127
18	Mosey Solar	Clearway Energy	400	3,471
19	Yellow Pine	NextEra Energy Resources	500	3,000
20	Sagittarius	Arevia Power	500	4,300
21	Bonnie Claire	Gallatin Power	1,500	7,275
22	SB Solar Project	EDF Renewables	500	5,300
23	Rigel Solar	EDF Renewables	500	6,565
24	Busted Butte 1	8minute Energy	600	7,240
25	Solar 373	Arevia Power	400	5,348
	Subtotal Beatty Area		**13,850**	**115,257**
26	Amargosa East	US Solar	600	4,909
27	Amargosa West	US Solar	1,400	9,681
28	Virgo	Arevia Power	400	6,293
29	Titus Canyon	Baywa Renewables	600	5,560
30	Bonanza Solar	EDF Renewables	300	5,133
31	EDF Jackpot	EDF Renewables	1,000	8,710
32	Amber	Clearway Energy	500	8,047
33	Jean Lake	Eolus Project Holdings	750	4,520
	Subtotal Around Existing System		**5,550**	**52,853**
	Total		**26,280**	**250,738**

Attachment 3
Sources of Data for Nevada Land Use Screens

Category	Source
Population Buffers	https://catalog.data.gov/dataset/tiger-line-shapefile-2017-2010-nation-u-s-2010-census-urban-area-national
Railroads	https://data-usdot.opendata.arcgis.com/maps/north-american-rail-network-lines
Water Features	https://www.arcgis.com/home/item.html?id=0eb5f7b586ea4e08b5003b3554032453
Slope	https://www.sciencebase.gov/catalog/file/get/5540ebe2e4b0a658d7939626?f=__disk__9c%2F24%2Fd5%2F9c24d5062c98ecf82988b4e6c827d07c374e9776&transform=1&allowOpen=true
Airports	https://data-usdot.opendata.arcgis.com/datasets/usdot::runway-lines/explore?location=9.547223%2C-1.628750%2C2.67
Flood Zone	https://hazards.fema.gov/femaportal/wps/portal/NFHLWMS
Military 1	https://wwmp.anl.gov/maps-data/
Military 2	https://adds-faa.opendata.arcgis.com/datasets/dd0d1b726e504137ab3c41b21835d05b_0/explore?location=21.666817%2C-6.828018%2C2.83
Military 3	https://ais-faa.opendata.arcgis.com/datasets/0c6899de28af447c801231ed7ba7baa6_0?geometry=-154.771%2C19.488%2C141.948%2C62.840
Military 4	https://catalog.data.gov/dataset/military-installations-ranges-and-training-areas
Active Mines	https://mrdata.usgs.gov/mineplant/
Conservation Easements	https://www.conservationeasement.us/downloads/
Inventoried Roadless Areas	https://www.fs.usda.gov/detail/roadless/2001roadlessrule/maps/statemaps/?cid=stelprdb5400185
PAD Database	https://www.sciencebase.gov/catalog/item/622262f0d34ee0c6b38b6bd7
BLM National Conservation Lands	https://www.blm.gov/programs/national-conservation-lands/nevada
Greater Sage Grouse Habitat Conservation Area	https://www.arcgis.com/home/item.html?id=c436a3d49b204edbbab5ac14e9216d8f#!
American Indian and Alaskan Native Land Area Representations (LAR)	https://biamaps.doi.gov/bogs/datadownload.html