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Joint Conservation Parties Comments 19-ERDD-01 DRAFT Utility Scale RE Generation Technology Roadmap

Additional submitted attachment is included below.

February 14, 2020

California Energy Commission
Dockets Office, MS-4
Re: Docket No. 19-ERDD-01
1516 Ninth Street
Sacramento, CA 95814-5512

Delivered via email to: docket@energy.ca.gov

RE: Docket No. 19-ERDD-01
Comments on Draft Utility Scale Renewable Energy Generation Technology Roadmap

Defenders of Wildlife, the Center for Biological Diversity, and Audubon (Joint Conservation Parties Conservation Parties) respectfully submits these comments on the February 4, 2020 Draft Utility Scale Renewable Energy Generation Technology Roadmap (Draft Roadmap) to the California Energy Commission (CEC). Audubon California and Defenders of Wildlife also submitted comments on July 12, 2019 on the June 2019 Draft of the Roadmap and incorporates those comments herein.

The Conservation Parties, on behalf of our 600,000members and supporters in California, works towards protection of wildlife, ecosystems, and landscapes while supporting the timely development of renewable energy resources in California. Achieving 100% carbon-free energy future is a shared goal of our organizations and is critical for California – for our economy, our communities, and the environment. Achieving this future—and *how* we achieve it—is critical for protecting California's internationally treasured wildlife, landscapes, productive farmlands, and diverse habitats.

Comments

DRECP

Identifying the what, how, and where for utility scale renewable energy development in California has been an area of intense focus for the past decade by federal, state, and local government as well as a diverse

group of stakeholders including environmental groups such as Defenders of Wildlife, Center for Biological Diversity, and Audubon. This has resulted in planning efforts to identify "least-conflict" areas for utility scale renewable energy development and transmission including the Desert Renewable Energy Conservation Plan (DRECP),[1] the San Joaquin Least Conflict Study,[2] and planning by cities and counties throughout California (some with funding from the CEC).

The DRECP is a collaborative effort between the CEC, California Department of Fish and Wildlife (CDFW), the U.S. Bureau of Land Management (BLM), and the U.S. Fish and Wildlife Service (USFWS) which resulted in a Land Use Plan Amendment (LUPA) approved by the BLM in 2016.

The DRECP is the cornerstone of California's land use planning for renewable energy resources on public lands in six counties. The CEC, as one of the lead agencies, has spent millions of dollars and thousands of hours of staff and Commissioner time over eight years in developing the DRECP. CEC's investment in the DRECP was specifically to support the ability to identify those places most suitable for RE development and that, in turn, would enable streamlined permitting to facilitate timely development of renewable energy generation and transmission while avoiding impacts to California's long history of conservation of the Mojave and Colorado deserts.

We emphasize again from our July 2019 comments that the Draft Roadmap's conclusions regarding DRECP are inaccurate and misleading and undervalue renewable energy planning. The Draft Roadmap states:

> The Desert Renewable Energy Conservation Plan (DRECP) also added constraints on land for renewable energy development. The DRECP set aside 828,000 acres (7.7 percent) out of 10.8 million acres of federal land in Southeastern California for potential renewable energy development with streamlined permitting processes to access 388,000 of those acres. The remaining 440,000 acres available for renewable energy development are defined as general public land or have another designation (DRECP 2016). Ideal wind resources are available on 78,779 acres of land covered by DRECP and available for renewable energy development. There is some concern that this availability of wind resource area is too limiting as there is over 2 million acres of land with ideal wind energy resources covered by DRECP. The federal lands are largely in the jurisdictions of the counties that enacted renewable energy development.[3]

As stakeholders in the eight year DRECP process, we disagree with the Draft Plan's characterization of the DRECP as a "constraint" to renewable energy development in the desert. This characterization shows a lack of research, understanding, or interviews with the California and federal agencies who partnered in the eight-year process. The DRECP provided for 388,000 acres of public lands suitable for efficient and rapid solar PV and wind permitting near to transmission, and an additional 400,000 acres of public lands that may be available to renewable development. The Plan does not "constrain" renewable energy

[1] https://www.drecp.org/
[2] https://www.law.berkeley.edu/research/clee/research/climate/solar-pv-in-the-sjv/
[3] Draft Utility-Scale Renewable Energy Generation Technology Roadmap pg. 15

development. It facilitates it. The BLM's 388,000 acres of Development Focus Areas (DFAs) are designed to streamline renewable energy development. The DFAs were identified because of their energy generation potential, proximity to transmission, and relatively low resource conflicts. The plan has been structured to help steer renewable energy development to these areas by providing a streamlined permitting path and predictable mitigation requirements. In addition to the DFAs, there are more than 400,000 acres of land outside of the DFAs that could also be considered for renewable energy development, however, these lands have not been pre-screened and, therefore, do not provide the same opportunities to streamline development.[4]

Additionally, the limitations on new wind energy development in the DRECP area are primarily due to prior buildout of the best wind resource areas (some of which are in the process of re-powering) and restrictions by the Department of Defense. These facts should be included in the final Roadmap.

Solar PV

The Draft Roadmap lists "resource availability" as a key barrier or challenge to utility scale renewable energy development in Chapter 2 and is defined as:

> **Resource Availability:** Is there a clear understanding of geographical locations appropriate for deployment? What regulatory or permitting barriers that may inhibit the development of utility scale systems? Are forecasting improvements necessary to enhance operations and certainty in power scheduling?[5]

Resource availability is considered in the section for PV solar power technology in the Draft Roadmap.

> **Many locations in California are ideal for PV but are restricted from development due to local and national ordinances.** Some counties have banned solar energy development outright. Existing national land use plans limit the amount of land available for renewable energy development in southwestern California. In these areas, steps can be taken to work with both local and national entities to open ideal land for solar development while balancing environmental and land-use concerns.[6]

The above statement is rife with incorrect generalities and includes assertions that appear to discount the decade of concerted landscape planning policy effort by the CEC, local government, and the federal government to identify appropriate lands for renewable energy development and transmission to meet California's energy needs. Indeed, this statement insinuates that the DRECP provides too little land for solar development when, in fact, this land use plan was developed with CEC leadership and provides nearly 400,000 acres of public land for development. Furthermore, no County in California has "banned solar energy development outright"[7] and in fact, the California Solar Act provides clear limitations of the

[4] https://www.drecp.org/faqs/DRECP_FAQs.pdf
[5] Draft Utility-Scale Renewable Energy Generation Technology Roadmap pg. 20
[6] Draft Utility-Scale Renewable Energy Generation Technology Roadmap pg. 13
[7] Please contact Scott Morgan at the California Governor's Office of Planning and Research

ability of local government to restrict rooftop and distributed generation solar.[8]

To further facilitate the siting and development of renewable energy including utility scale projects the CEC has invested significant effort in developing the tools and resources found in the California Energy Gateway.[9] In particular, the California Energy Infrastructure Planning Analyst[10] was created by the Conservation Biology Institute for the California Energy Commission to assist with planning energy development throughout the state to improve planning efficiency and to avoid environmental risks based on the best available spatial datasets. While much of the Draft Roadmap does not present particularly new information or analysis, we find the consideration of "resource availability" and the categorization of land use and conservation planning activities as a barrier to utility scale renewable energy development to be both inaccurate and counter to longstanding state policies and efforts by state and local agencies to plan for renewable energy.

We request that Draft Roadmap be revised to reflect the substantive planning efforts that have undertaken for utility scale renewable energy. We recommend the following language:

> There are hundreds of thousands of acres of land in California that have been identified through public planning processes as suitable for PV solar development based on solar resources, protection of natural resources, land use compatibility, and proximity to load or transmission. Additional land use planning efforts would further support identification of additional least conflict development areas to facilitate development while avoiding the problems of past conflicts over poor siting decisions by developers. Funding should be provided to support these efforts including on-going funding for the CEC's California Energy Infrastructure Planning Analyst.

Geothermal

Water use is a significant limitation on new Geothermal in California:
We agree that additional geothermal generation has the potential to be a very important part of the energy mix in the future, particularly as it provides baseload energy. Properly sited geothermal resources can provide significant local environmental benefits and environmental and ecological benefits to disadvantaged communities. Development of additional geothermal resources at the Salton Sea, for example, could provide air quality, economic, and carbon reduction benefits. However, we are concerned that the Draft Roadmap does not acknowledge the significance of high water use in geothermal projects as a limitation. The Draft Roadmap acknowledges only briefly that water is a limiting factor:

> One aspect of geothermal energy that is especially relevant to California is the water requirement for geothermal systems. New installations increasingly require water injection in hot formations to generate the steam required for power production. The constrained

[8] https://leginfo.legislature.ca.gov/faces/codes_displaySection.xhtml?sectionNum=65850.5.&lawCode=GOV
[9] https://caenergy.databasin.org/
[10] http://ceipa.databasin.org/

> nature of California's water resource threatens geothermal plants' ability to operate consistently in future decades. Possible solutions involve bringing water to constrained locations, but these approaches are area-specific and add another ongoing cost to geothermal power production. For example, transporting treated wastewater by pipeline to the power plant was a solution for the Geysers. At other geothermal sites, using desalinated water or disposed or treated water is a potential solution.[11]

However, the roadmap does not explain the scale of impacts to water resources and underplays this limitation. For example, geothermal projects have significantly depleted groundwater in some areas of California. While at the Geysers there may be sufficient treated wastewater relatively close, and Casa Diablo near Mammoth utilizes some treated wastewater to assist in cooling, in many areas of the state there are few such alternate sources. For example, the Coso Geothermal projects have depleted the aquifer near the plant and are now piping in water over 9 miles from another watershed with scarce resources, Rose Valley.

When this concern was raised during the webinar, someone responded that water use is a "process" issue and that dry cooling could help solve some of the water issues. This response likewise attempts to minimize the scale of the concern. While dry cooling could theoretically reduce water use significantly, industry has not widely adopted dry cooling due to costs and lowered efficiencies. Most recently, for example, dry cooling was considered but rejected in the alternatives for 3 BLM geothermal leases pending in the Haiwee areas (near Ridgecrest, California). BLM rejected dry cooling as a requirement because of reduced efficiency in dry cooling during hot summer months.[12]

Further, we are concerned with the draft Roadmap's focus on the use of enhanced geothermal systems (EGS) to increase geothermal production in California. The EGS technologies may not be appropriate or feasible in many areas particularly because they require additional water in areas that now have few ground water resources and because fracking for EGS recovery may have significant impacts on other resources, increase seismicity, and affect natural systems including surface water resources (springs and seeps).

[11] Draft Utility-Scale Renewable Energy Generation Technology Roadmap pg. 84
[12] BLM, Haiwee Geothermal Leasing Area FEIS, 2020, at 12-13

CEQA discussion is inaccurate and misleading:
In the context of discussing geothermal resources, the Draft roadmap states:

> On the regulatory side, the California Environmental Quality Act (CEQA) has a number of environmental restrictions that prevent project permitting. These restrictions put undue burdens on geothermal systems over 50 MW, which is changing the face of geothermal generation in the state. Addressing these concerns would help reduce the high risk already present at the outset of a geothermal project. Streamlining CEQA at the state level would help as well.[13]

This statement is inaccurate and confused. There is nothing in CEQA that treats projects over 50 MW differently from other projects—however, the Warren–Alquist Act provides the Energy Commission with the "exclusive power to certify all sites and related facilities in the state" for any thermal power plants over 50 MW. (*See* Public Resources Code §§ 25500 et seq., 25120 (defining thermal power plant as over 50 MW)). Therefore, the Draft Roadmap discussion appears to actually be complaining about some "undue burdens" that the CEC process for thermal power plants over 50 MW is putting on geothermal systems. This does not have anything to do with CEQA. All projects in California are subject to CEQA regardless of size; those above 50 MW are subject to Commission's power plant siting process which complies with CEQA through a certified regulatory program. (*See* Public Resources Code § 21080.5; 14. C.C.R. (CEQA Guidelines) § 15251(j).)

Because there is no information provided to support the implication that CEQA has delayed or inhibited any new geothermal projects, we suggest the Draft roadmap revise this section and remove the recommendation regarding streamlining as follows:

> On the regulatory side, the Warren-Alquist Act requires that all thermal power projects over 50-MW be licensed by the California Energy Commission. ~~the California Environmental Quality Act (CEQA) has a number of environmental restrictions that prevent project permitting. These~~ Most geothermal project proposals in California have been under 50-MW which appears to indicate that the industry believes that the CEC licensing process places restrictions or an ~~put~~ undue burdens on geothermal systems over 50 MW, which is changing the face of geothermal generation in the state. Addressing these concerns would help reduce the high risk already present at the outset of a geothermal project and encourage larger project proposals. ~~Streamlining CEQA at the state level would help as well.~~

[13] Draft Utility-Scale Renewable Energy Generation Technology Roadmap pg. 84

Conclusion/Recommendation regarding Geothermal Energy:
We recommend the following edits to the conclusions/recommendations section in the Draft Roadmap:

> **Geothermal**
> At page 113 -114 of the Draft Roadmap (with additions in bold):
> While geothermal has been a key part of California's energy mix since the 1960s, just under 3,000 MW out of the known 20,000 MW available has been tapped for energy production, making it a widely available resource that is waiting for new developments to take place. Despite its wide availability, geothermal systems are costly due to the process of siting and drilling for geothermal resources **and also due to high water use requirements**. **Water availability is a significant constraint to siting new geothermal power plants and the use of dry cooling or other technologies to reduce water use have not been widely adopted or researched.** Improvements in site assessment and drilling for potential enhanced geothermal sites can reduce these upfront costs **however fracking for EGS and additional water use requirements will remain a concern.** New materials for geothermal systems which reduce the amount of corrosion caused by brines can reduce both maintenance time and cost, enabling plants to produce more energy and minimize their time offline.

Wildlife and Renewable Energy

The Draft Roadmap takes a minimal approach to wildlife/renewable energy issues despite California's wildlife agency, NGO conservation groups and the public's keen interest in supporting well-sited renewable energy projects. Further, the authors are seemingly unaware of CEC's EPIC Program's own research grant funding, as well as the Department of Energy's Wind and Solar Technology Offices funding, that benefit the more rapid and economic, and publicly supported, deployment of renewable energy through risk assessment data collection that avoids, minimizes and mitigates effectively for impacts on wildlife, including grants to study impacts to birds and the places bird need now and in the future. Many of these grants include new technologies. This is a key gap in the Draft Roadmap and must be incorporated in the final version.

Audubon and Defenders collaborate with the utility-scale solar and wind industries in Avian Solar Work Group, American Wind & Wildlife Institute, California Offshore Wind Work Group, and Atlantic offshore Regional Science Entity to understand avian and other wildlife impacts and facilitate research to help address issues with birds and bats. The Draft Roadmap seemingly took a desktop search approach to wildlife issues and does not discuss current ongoing research through these collaborations, nor through the EPIC program as well as the Department of Energy (DOE) which is actually funding some of them, nor in research by American Wind & Wildlife Institute, US Fish & Wildlife Service, California Department of Fish & Wildlife and other agencies and institutions which support well-sited renewable energy projects.

The Draft Roadmap only discusses environmental/wildlife concerns twice in the document and then only

superficially on CSP and wind energy.

From the Draft Roadmap:

> **Environmental concerns tied to land-use and concentrated sunlight impact CSP installations.** Since CSP systems take up a lot of land in remote locations, there is a high chance these systems impact wildlife. Most recently, the Ivanpah facility in California ultimately had to be scaled back to avoid disturbing the habitat of the desert tortoise (Woody 2010). Land-use and the effect of concentrated sunlight on avian life will always be considerations for new CSP systems.[14]

First, the Draft Roadmap is incorrect in implying that Ivanpah avoided disturbing any desert tortoise habitat—the entire project footprint is in high-quality desert tortoise habitat. Second, no new CSP projects have been approved in California since Ivanpah in part due to unexpected and significant, in our opinion, impacts on wildlife especially birds and endangered Desert Tortoise as well as due to economics.

> **Radar for wildlife mitigation has been funded in the past and should continue to be advanced.** Wind energy farms negatively impact wildlife directly through fatal collisions and indirectly through the loss of a species' normal habitats or migration paths. However, the positive impact wind turbines play in addressing detrimental effects of climate change should be balanced with their other environmental impacts. Climate change poses a greater threat to birds and other wildlife in the long-term (Audubon 2019). Careful siting and specific location guidelines can help direct turbine installations into environmentally optimal areas. Additionally, radar systems exist that can detect birds and bats within several miles of wind turbines. Further advancement of this technology and coupling with wind turbine operations can protect wildlife.[15]

Radar is not the only technology to detect birds and bats. In addition to radar, CEC's EPIC program and others are currently funding research on camera, video, thermal imaging, geofences, geo-locator tracking devices, AI data processing, ultra-violet light, and other detection, deterrence and data collection tools for understanding and avoiding impacts to birds and bats.[16]

While we acknowledge that climate change poses a greater threat to species of birds and other wildlife in the long-term if we can't keep warming under 2 degrees, if the Draft Roadmap had done more research, it would find that climate change is not the greatest threat to all species of birds and wildlife. Addressing climate change with reduction of emissions through 100% clean energy is a top priority for our organizations. But our conservation science expertise also prioritizes some species and places they need as "climate refugia" that if lost would drive these species to extinction faster. For example, grassland species are a priority as reported in the Audubon Grassland Birds Report.[17] The conversion of grasslands to solar

[14] Draft Utility-Scale Renewable Energy Generation Technology Roadmap pg. 43
[15] Draft Utility-Scale Renewable Energy Generation Technology Roadmap pg. 53
[16] https://www.audubon.org/magazine/spring-2018/how-new-technology-making-wind-farms-safer-birds
[17] https://www.audubon.org/sites/default/files/audubon_north_american_grasslands_birds_report-final.pdf.

and wind and the loss of habitat from other land use issues are threats to the survival of these species as well as climate change making thoughtful siting of renewable energy a priority.

As summarized in a Brookings Institute study on renewable and land use:

> Technological and policy solutions can lessen the land use impact of renewable power and the resulting public opposition. Offshore wind eliminates land use, but it raises opposition among those concerned with the impact on the environment and scenic views. Building on previously disturbed land and combining renewable power with other land uses, like agriculture or building solar on rooftops, can minimize land use conflicts. Community involvement in project planning and regulations for land use and zoning can help to alleviate concerns. Nevertheless, there is no perfect way to produce electricity on an industrial scale. Policymakers must recognize these challenges and face them head-on as the nation transitions to a lower-carbon energy system.[18]

Wildlife Recommendations:
The Draft Roadmap should be updated with interviews with wildlife agencies, wildlife focused NGOs, and with industry/NGO collaborations on research and others facilitating and conducting research, in part from funding by EPIC program, before finalizing the Draft Roadmap sections that address wildlife issues.

We also recommend these studies for review and incorporation in the final Roadmap:

- Green Light Study: Economic and Conservation Benefits of Low-Impact Solar Siting in California[19]
- Power of Place: Land Conservation and Clean Energy Pathways for California[20]

Bioenergy

The bioenergy discussion does not explain loss of carbon sequestration and GHG emissions or the potentially significant loss of habitat when forest resources are used for bioenergy.

General Comments

Limited Review Period

The Draft Roadmap was released on February 3rd, just 48 hours before the webinar and only 10 days have been given to review a substantive 149-page document. The short time did not provide sufficient time to review the document prior to the webinar and undermines the public review and input process.

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[18] https://www.brookings.edu/wp-content/uploads/2020/01/FP_20200113_renewables_land_use_local_opposition_gross.pdf
[19] Dashiell, S.; Buckley, M.; Mulvaney, D. 2019.

[20] Wu, G.C.; Leslie, E.; Allen, D.; Sawyerr, O.; Cameron, D.; Brand, E.; Cohen, B.; Ochoa, M.;

Olson, A. *Power of Place: Land Conservation and Clean Energy Pathways for California*, 2019.

Technical Advisory Committee Composition

We note the Technical Advisory Committee (TAC) acknowledged in the Draft Roadmap is and continues to be a relatively small group and does not include key subject matter experts and thought leaders working on renewable energy in California. Nor does it include representatives from key energy participants such as large utility companies, Community Choice Aggregators, active renewable energy developers, or environmental organizations active in energy planning and policy as outlined in Task 1.10 in the scope of work for this project.[21] Inclusion of individuals currently active and knowledgeable in renewable energy development in California would provide much-needed accuracy and perspective to the Roadmap. We recommend that the CEC convene a panel of experts from the above groups to review the next draft Roadmap before a final document is released.

Conclusion

Thank you for the opportunity to review the Draft Utility Scale Renewable Energy Generation Technology Roadmap. We look forward to reviewing a revised and updated Draft.

Sincerely,

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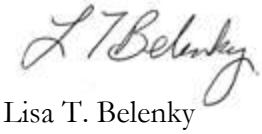

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[21] https://ww2.energy.ca.gov/business_meetings/2018_packets/2018-05-09/Item_21_300-17-005.pdf