

July 19, 2023

The Honorable Deb Haaland  
Secretary  
Department of the Interior  
1849 C Street, NW  
Washington, DC 20240

The Honorable Camille Touton  
Commissioner  
Bureau of Reclamation  
1849 C Street, NW  
Washington, DC 20240

**Re: Deploy Solar Energy Systems on Bureau of Reclamation Canals and Aqueducts to Accelerate Renewable Energy, Protect Wildlife Habitat and Reduce Water Loss**

Dear Secretary Haaland and Commissioner Touton:

On behalf of our organizations, we ask you to develop a bold, new initiative to accelerate the widespread deployment of solar photovoltaic energy systems above the Bureau of Reclamation's network of water conveyance canals and aqueducts. If the Bureau of Reclamation were to cover most of the 8,000 miles of canals and aqueducts it owns and operates, this could potentially generate over 25 gigawatts of renewable energy—enough to power nearly 20 million homes—and reduce water evaporation by tens of billions of gallons.<sup>1</sup> Prioritizing the deployment of solar energy above these facilities creates a win-win situation that would better conserve public lands, support renewable energy jobs, and benefit communities throughout the west in numerous ways.

While less damaging than fossil fuel extraction and power plants, utility-scale renewable energy projects on public lands permanently destroy and convert public lands to industrial zones that can no longer provide any other benefits such as wildlife habitat or recreation opportunities. Focusing the deployment of solar energy on water-conveyance canals—an already built environment—and already within the Bureau of Reclamation's control, could allow the Department to meet the requirements of the Energy Act of 2020 mandate to deploy 25 gigawatts of onshore renewable energy on public lands without destroying a single additional acre of habitat.<sup>2</sup> By prioritizing already disturbed lands first, the Department can minimize impacts to wildlife, while increasing renewable energy generation.

Despite a wet winter, much of the western United States remains in a long-term drought that is likely to worsen as climate change intensifies. The Bureau of Reclamation and the states dependent on the Colorado River are already considering unprecedented water cuts to protect the water supplies for 40 million people who rely on the river. In a study examining similar action on water canals within California, scientists estimated that shade provided from solar panels could reduce the water loss due to evaporation by 63 billion gallons of water per year, an amount equivalent to annual water consumption of roughly 2 million people per year.<sup>3</sup> Given that the Bureau's canal

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<sup>1</sup> See Nathan Frandino, *California to cover canal with solar panels in experiment fight drought, climate change*, <https://www.reuters.com/business/environment/california-cover-canal-with-solar-panels-experiment-fight-drought-climate-change-2022-08-25/> (“if California's ~4,000 mile canal network were covered with solar panels, it could produce 13 gigawatts of renewable capacity...[and reduce water loss by] 63 billion gallons.”) See also McKuin, Brandi, et al. *Energy and water co-benefits from covering canals with solar panels*. *Nature Sustainability* 4.7 (2021): 609-617, <https://escholarship.org/content/qt8cj5j07p/qt8cj5j07p.pdf>.

<sup>2</sup> 43 U.S.C. 3004(b).

<sup>3</sup> EPA, *Statistics and Facts*, <https://www.epa.gov/watersense/statistics-and-facts>; Soumya Karlamangla, *California Wants to Cover Its Canals With Solar Panels*, *NY Times*, <https://www.nytimes.com/2023/04/13/us/california-solar-panels-canals.html>.

system is twice as large as California's, the water saving from this could be significant.<sup>4</sup> Furthermore, shading provided by solar panels provides additional benefits, such as reducing aquatic weed and algae growth, which can reduce maintenance and the use of pesticides in these canals.

Moving water requires the use of massive pumping systems, which consume significant amounts of energy solely for the purpose of transporting the water. For example, the California Central Valley Project's pumps alone use approximate one billion kWh of electricity annually.<sup>5</sup> Deploying solar power on canals would allow these systems to efficiently provide clean energy to pump water and reduce the need to rely on diesel power generators, which increase localized air pollution.

Many of the areas where the Bureau of Reclamation's canals are located are in environmental justice communities, some of which suffer from the worst air quality in the country. Thus in addition to addressing air pollution, focusing the deployment of renewable energy on the Bureau's canal system could also provide additional benefits of providing clean energy that displaces existing dirty energy in those communities, while also providing increased job opportunities for Black, Brown, Indigenous and low-wealth communities throughout the west.

The Bureau of Reclamation has full authority to execute this plan. Congress has provided the Department of the Interior with the clear authority to grant leases to authorize uses of Bureau of Reclamation lands, including for utilities, transmission lines, and other appropriate uses.<sup>6</sup> Indeed, given the Bureau of Reclamation's long history of creating hydroelectric power, the generation of gigawatts of solar power on its canals would be a purely additive benefit, and could even help address shortfalls in electricity generation as when hydroelectric facilities are unable to operate due to low water levels.

California is moving forward a pilot project to install solar panels over some of its existing canals, with widths ranging from 20-100 feet wide.<sup>7</sup> Solar panels covering canals have also begun to be installed in other nations including Lebanon and India.<sup>8</sup> The United States should be the leader in implementing innovative ways to combat the climate crisis while also protecting public lands and wildlife for current and future generations. Covering the Bureau of Reclamation's canal system with solar panels would be a strong step in the right direction.

Sincerely,

1000 Grandmothers for Future Generations

198 methods

350 Eugene

350 Hawaii

350 Montana

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<sup>4</sup> Constructing solar atop the Central Arizona Project, for example, could realize water savings and power production benefits while providing non-fossil power for lost hydropower output at Glen Canyon Dam, consistent with utilities' greenhouse gas reduction targets. A map of utility greenhouse reduction targets and state requirements for 100% carbon-free electricity is at <https://sepapower.org/utility-transformation-challenge/utility-carbon-reduction-tracker/>.

<sup>5</sup> Environmental Working Group, *Power Drain*, <https://www.ewg.org/research/power-drain>.

<sup>6</sup> 43 U.S.C § 387.

<sup>7</sup> Turlock Irrigation District, *Project Nexus*, <https://www.tid.org/about-tid/current-projects/project-nexus/>.

<sup>8</sup> Kalpana Sunder, *The 'solar canals' making smart use of India's space*, BBC, <https://www.bbc.com/future/article/20200803-the-solar-canals-revolutionising-indias-renewable-energy>.

350 Seattle  
350 Ventura County Climate Hub  
Action for the Climate Emergency  
Alabama Interfaith Power & Light  
Alliance for the Wild Rockies  
American Bird Conservancy  
Animals Are Sentient Beings  
Animas Valley Institute  
Benedictine Sisters of Erie, PA  
Bronx Jews for Climate Action  
Buffalo Field Campaign  
California Wilderness Coalition  
Californians for Western Wilderness  
Center for Biological Diversity  
Center for Cultural Evolution  
Church Women United in New York State  
Citizens Action Coalition of Indiana  
Citizens Alliance for a Sustainable Englewood  
CLEO Institute  
Climate Hawks Vote  
Community for Sustainable Energy  
Cooperative Energy Futures  
CWA Local 9415 (Communications Workers of America)  
DC Environmental Network  
Detroit Hamtramck Coalition for Advancing Healthy Environments  
Earth Ethics  
Endangered Species Coalition  
Energy Allies  
Environmental Communion New Jersey Association Social Justice & Witness Task Force  
Environmental Justice Ministry Team, Cedar Lane Unitarian Universalism Church  
Extinction Rebellion Portland  
Extinction Rebellion Western Massachusetts  
First Church Unitarian, Littleton MA  
First Wednesdays San Leandro  
Fly Fishers of Davis  
Food & Water Watch  
Forest Keeper  
Friends of the Earth  
Green Workers Alliance  
GreenFaith  
Greenpeace USA  
Hispanic Access Foundation  
Honor the Earth  
Humane Action Pennsylvania  
Humane Action Pittsburgh  
inNative  
Inspiration of Sedona  
Interfaith EarthKeepers

In the Shadow of the Wolf  
Knox Climate Watch  
Labor Network for Sustainability  
Maryland Ornithological Society  
Mid-Missouri Peaceworks  
Ministry for Earth of UUA New Orleans  
Mojave Desert Land Trust  
Mothers Out Front  
Nassau Hiking and Outdoor Club  
Native Plant Society of the United States  
Natural Capitalism Solutions  
Network NOVA  
New Energy Economy  
New Mexico Climate Justice  
North American Climate, Conservation and Environment  
Northeast Organic Farming Association of New Hampshire  
Northern California Council, Fly Fishers International  
Northern Michigan Environmental Action Council  
Nuclear Information and Resource Service  
NY4WHALES  
NYPAN Greene  
Ocean Conservation Research  
Oceanic Preservation Society  
Ohalah: the Associate of Rabbis and Cantors for Jewish Renewal  
Physicians for Social Responsibility, AZ Chapter  
Predator Defense  
Preserve Montgomery County VA  
Protect All Children's Environment  
Protect Our Water, Heritage, Rights  
Public Justice Center  
Public Lands Project  
Putnam Progressives  
Repowered  
Resource Renewal Institute  
Responsible Decarbonization Alliance  
Revolving Door Project  
San Bernardino Valley Audubon Society  
San Francisco Bay Physicians for Social Responsibility  
San Luis Valley Ecosystem Council  
Santa Barbara Standing Rock Coalition  
Santa Barbara Urban Creeks Council  
Santa Cruz Climate Action Network  
Santa Cruz Fly Fishing  
Save the Pine Bush  
Sisters of St. Dominic of Blauvelt, New York  
Snake River Alliance  
Solar Bear/Native Sun Community Power Development  
Solar United Neighbors

South Asian Fund For Education Scholarship and Training Inc  
St. Andrews Austin Texas Earth Care Committee  
STAND.earth  
Sunrise Movement Durham  
Syracuse Cultural Workers  
Taproot Earth  
Terra Advocati  
The Climate Center  
The People's Justice Council  
The Rewilding Institute  
Tidelines Institute  
Tó Nizhóní Ání - "Sacred Water Speaks"  
Touching Earth Sangha  
Transition Sebastopol  
Tucson Audubon Society  
Turtle Island Restoration Network  
Umpqua Watersheds  
Unitarian Universalist Fellowship of Hidalgo County Texas  
Unite North Metro Denver  
Veterans for Climate Justice  
Veterans Green Jobs Initiative  
Vibrant Littleton  
Vote Climate  
Wall of Women  
Wasatch Clean Air Coalition  
Waterspirit  
WESPAC Foundation, Inc.  
Western Watersheds Project  
WildEarth Guardians  
Wild Arizona  
Women's Earth and Climate Action Network, International