



## Postdoctoral Position in Sustainability Science *Ecological Economics of Multi-Functional Solar Parks*

\*\*\*Owing to the immediacy of the position, applications are ***open for submission now and they will be reviewed on a rolling basis***. Applications received before 25 October 2023 are guaranteed to be given full consideration. \*\*\*

Project Description: Prof. Rebecca R. Hernandez ([www.GESLab.org](http://www.GESLab.org)), Prof. Sarah M. Jordaan (<https://sites.google.com/view/jordaan-etapa/home>), and the multi-sector, global **UC Wild Solar Team** of the **Wild Energy Center** ([www.WildEnergy.org](http://www.WildEnergy.org)) at the University of California Davis invite applications for an **interdisciplinary postdoctoral scholar position** to conduct **ecological economic assessments** of different types of PV projects, including costs and benefits (relative to conventional PV project types), to support California state- and local PV approval processes, industry needs, and decision-making. In addition to a supportive academic mentoring team, each **UC Wild Solar Postdoctoral Scholar will be matched with at least one non-university end-user 'Champion Mentor'**.

Photovoltaic (PV) solar energy development is expanding on land and water throughout the state of California. The rate of development is expected to increase such that solar energy is the dominant source of electricity. According to the California Air Resources Board (CARB) Scoping Plan, at least 72 gigawatts (GW) of PV solar energy capacity (with 37 GW of storage) is anticipated to fully decarbonize the state's energy system by 2045. Alongside this critical threshold for addressing climate change stands the need to address biodiversity loss. Native species in the state of California have been reduced by over 20%, 75% of the vegetation has been altered, and over 600 species are vulnerable to extinction owing to both climate change and habitat loss. Unfortunately, solar energy development to date, in the state of California, is 'land-intensive' and a driver of land-use and land-cover change that simply 'trades' agricultural and ecosystem services for low-carbon electricity. In fact, the majority of solar energy installations in California are sited on lands that were formerly natural and agricultural areas. **Further, almost 70% of PV installations within the state's Central Valley are on former cropland (wheat, pasture, hay, cotton, orchards, in descending order) and sub-optimal in spacing. Overall, this may pose risks for ecosystem services and food security in the state. Although a small number of techno-economic analyses have shown that agrivoltaic (AV) and biodiversity-friendly PV projects can increase the capital costs of a solar project, to our knowledge, few studies have comprehensively assessed all costs and benefits, specifically assessing, mapping, modeling, and/or monetizing their multifunctional benefits (e.g., lower panel temperatures from transpiration by vegetation can reduce panel temperature, which can increase PV generation).**

This position will be one of several postdocs on the UC Wild Solar Team, with the others addressing topics including aquatic ecosystem ecology of floating photovoltaic solar energy and biodiversity-



friendly mitigation strategies for solar parks. Applicants may indicate their interest in any one of the open positions.

**We seek a highly motivated postdoctoral scholar to draw from sustainability, economic, and ecological theory to answer the following questions using interdisciplinary methods:**

- How much do biodiversity-friendly (“ecovolatics”), agrivoltaic, and rangevoltaic solar energy projects cost in California compared to conventional projects?
- What ecological and/or agricultural benefits are produced from ecovoltaic, agrivoltaic, and rangevoltaic projects and what is their monetary value?
- What are the critical opportunities for PV cost reduction, innovation, demonstration, and scaling that UC Wild Solar Team can address in the near-term and rapidly?

The answers to these questions will meet the needs of the Legislature, CARB, and other state agencies to understand costs, permitting wait times, and delays associated with an ambitious buildout of solar energy.

Job Duties: The postdoctoral scholar will build on lesson’s learned from previously published data while incorporating novel developments based on the applicant’s creativity and scholarship. For all assessments, the postdoctoral scholar will be responsible for leveraging interdisciplinary methods to calculate, map, and scale economic, ecological, and agricultural benefits (and costs) across the state of California (following methods from previous Project Team studies).

Interdisciplinary methods may include:

- environmental economics;
- ecosystem service assessment;
- energy science;
- knowledge co-production (<https://www.nature.com/articles/s41893-021-00755-x>); and/or,
- energy modeling.

**The postdoctoral scholar will be responsible for identifying relevant financial, logistical, zoning/permitting, and other legal barriers to their implementation, and identify cost reduction opportunities.** Lastly, the postdoctoral scholar will be responsible for using results from the assessments to **lead the development of peer-reviewed journal articles as well as industry spreadsheet tools and guidance** to allow developers/operators to evaluate costs and benefits of implementing specific biodiversity-friendly mitigation strategies, as well as identifying approaches to reduce biodiversity-friendly mitigation costs.

Job Qualifications & Expectations: **Applicants must possess a PhD from an accredited university by 31 October 2023** in one of the following fields: Ecology, Economics, Energy Science, Sustainability Science,



Environmental Economics, Geography, Earth System Science, or a related field. The scholar will be expected to adhere strictly to project goals and milestones, while taking initiative with tasks. The scholar will be expected to collaborate compassionately, inclusively, and effectively among highly diverse peers, students, and as part of the larger multi-sector team from academia, local government, and nonprofits, spanning diverse disciplines.

Given the interdisciplinary nature of the research, other professional skills and experiences that could be beneficial for hiring might include a background in or demonstrated experience in geographic information systems, data science, translational ecology, desire & proficiency to publish in scientific journals, ability to communicate (oral and in print) research findings to multiple academic and nonacademic audiences, and/or transdisciplinary outreach to energy-related stakeholders.

Applicants must have:

- Research experience in one or more of the following: environmental economics, ecosystem service assessment, energy science, knowledge co-production and/or participatory action research, and energy modeling;
- Experience and skill with organization, time management, data management, oral and written communication, and the publication of scientific journal articles;
- Proficiency in written and spoken English; and,
- Commitment to staying in the role for the entire two-year duration of the UC Wild Solar Project.

Owing to the nature of research activities, remotely located employment is not an option. The successful candidate will receive training as needed to supplement their initial capabilities.

Salary & Benefits: The initial appointment duration for this 100%-time position is two years. All University of California postdoctoral scholars receive benefits and are paid according to a publically available, union-negotiated salary scale with mandatory annual increases, which can be accessed here: (<https://ucdavis.app.box.com/s/d2cv7dqvg2moyw5ymr1gokliyn3ddfzqz>). The successful applicant's salary will be determined based on their individual status with respect to "step" criteria at the time their employment begins.

Application & Contract Information: Owing to the immediacy of the position, applications are ***open for submission now and they will be reviewed on a rolling basis***. Applications received before 25 October 2023 are guaranteed to be given full consideration. In addition to submitting the online application, candidates should send a copy of the following materials to <[rrhernandez@ucdavis.edu](mailto:rrhernandez@ucdavis.edu)>:

- (1) A well-crafted, single-page cover letter summarizing their research and career interests tying to their reason for applying for this job;
- (2) A curriculum vitae with a final sub-section listing contact information for three academic or professional references; and,



(3) All applications (e-mailed as a single PDF file) should be addressed and emailed to Professor Rebecca R. Hernandez <[rrhernandez@ucdavis.edu](mailto:rrhernandez@ucdavis.edu)>.

Apply link: <https://recruit.ucdavis.edu/JPF06068>

University Information: The position is held within the Wild Energy Center ([www.WildEnergy.org](http://www.WildEnergy.org)) and the Land, Air & Water Resources Department (<https://www.lawr.ucdavis.edu>) at the University of California, Davis.

UC Davis is a smoke and tobacco-free campus (<http://breathefree.ucdavis.edu/>). We are an Affirmative Action/Equal Opportunity employer, and particularly encourage applications from members of historically underrepresented racial/ethnic groups, women, individuals' with disabilities, veterans, LGBTQ community members, and others who demonstrate the ability to help us achieve our vision of a diverse and inclusive community. For the complete University of California nondiscrimination and affirmative action policy see: <http://policy.ucop.edu/doc/4000376/NondiscrimAffirmAct>  
Under Federal law, the University of California may employ only individuals who are legally able to work in the United States as established by providing documents as specified in the Immigration Reform and Control Act of 1986. Certain UC Davis positions funded by federal contracts or sub-contracts require the selected candidate to pass an E-Verify check. More information is available at: <http://www.uscis.gov/e-verify>.

The University of California, Davis (UC Davis) is committed to inclusive excellence by advancing equity, diversity and inclusion in all that we do. UC Davis celebrates the multi-cultural diversity of its community by creating a welcoming and inclusive environment demonstrated through a variety of resources and programs available to academics, staff, and students. Diversity, equity, inclusion, and belonging are core values of UC Davis that are embedded within our Principles of Community and are tied with how to best serve our student population. Our excellence in research, teaching, and service can best be fully realized by members of our academic community who share our commitment to these values, which are included in our Diversity and Inclusion Strategic Vision, our strategic plan: "To Boldly Go," our Principles of Community, the Office of Academic Affairs' Mission Statement, and the UC Board of Regents Policy 4400: Policy on University of California Diversity Statement. UC Davis is making important progress towards our goal of achieving federal designation as a Hispanic-Serving Institution and an Asian American, Native American, and Pacific Islander-Serving Institution. The Office of Diversity, Equity, and Inclusion offers a plethora of resources on their website, and the Office of Health Equity, Diversity, and Inclusion (HEDI) has outlined similar goals in their Anti-Racism and DEI Action Plan." There is a plethora of links available where you can learn more about our Administration, Diversity and Inclusion, Rankings, Locations, Native American Land Acknowledgement, Sustainability, Visiting UC Davis, UC Davis Health, and Campus Safety.

The university is consistently ranked among the top institutions in the world for campus sustainability practices by the UI Green Metric World University Rankings. UC Davis is focused on achieving net-zero



greenhouse gas emissions and repeatedly shown its commitment to preserving a healthy and sustainable environment for generations to come.

As a condition of employment, you will be required to comply with the University of California Policy on Vaccination Programs - With Updated Interim Amendments. All Covered Individuals under the policy must provide proof of receiving the COVID-19 Vaccine Primary Series or, if applicable, submit a request for Exception (based on Medical Exemption, Disability, Religious Objection, and/or Deferral based on pregnancy or recent COVID-19 diagnosis and/or treatment) no later than the applicable deadline. All Covered Individuals must also provide proof of receiving the most recent CDC-recommended COVID-19 booster or properly decline such booster no later than the applicable deadline. New University of California employees should refer to Exhibit 2, Section II.C. of the SARS-CoV-2 (COVID-19) Vaccination Program Attachment for applicable deadlines. All Covered Individuals must also provide proof of being up-to-date on seasonal influenza vaccination or properly decline such vaccination no later than the applicable deadline. Please refer to the Seasonal Influenza Vaccination Program Attachment. (Capitalized terms in this paragraph are defined in the policy.) Federal, state, or local public health directives may impose additional requirements.