



2023

PNNL RENEW Pathway Summer School Intern

Sonya Alcocer
Western Washington University

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COLLEGE OF THE ENVIRONMENT



Internship Title:

Organization Worked For:

Student Name:

Internship Dates:

Faculty Advisor Name

Department

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STUDENT SIGNATURE _____

A handwritten signature in blue ink, which appears to read "Jorge Ather", is written over a horizontal line.

DATE: _____

I. STUDENT/INTERN INFORMATION

Name: Sonya Alcocer	W#: W01597891
Major: BA; Environmental Studies	Concentration: GIS minor
Internship Title: Pathway Summer School for the Department of Energy's Office of Science's Reaching a New Energy Sciences Workforce (RENEW)	
Period of Internship: 05JUL2023 – 02AUG2023	
Avg. Hours per Week: 35	Total Hours Worked: 135

II. HOST INSTITUTION INFORMATION

Institution Name: PNNL (Pacific Northwest National Laboratory)
Institution Address: 1529 W. Sequim Bay Rd. Sequim, WA, 98382
Institution Mission: Guided by federal policy, and in partnership with industry experts and the research community, PNNL scientists and engineers work every day toward a sustainable energy future for all that is not just imagined, but real. This immersive, cohort-based program introduces students to the teams at PNNL that conduct research in renewable energy science. The Pathway Summer School program provides students with mentoring, professional development, experiential learning, engaging field trips and tours, and conversations with leading experts in topics such as renewable energy, energy equity, and technology.
Supervisor Name and Title: Margarita Magana, Senior STEM Education Consultant
Supervisor Contact Information: margarita.magana@pnnl.gov (509) 366-8508

III. DESCRIPTION

As a DOE WDTS RENEW Pathway Summer School Undergraduate Intern, I focused on community resilience through renewable energy. I collaborated with five other interns and about 30 environmental professionals for five weeks to understand the fundamental science, socio-economic benefits, and environmental effects of renewable energy technologies. My role as an intern was to learn about the mechanics and capabilities of wind, marine, and hydropower energy and even new tidal technologies currently being developed at PNNL. Each week we focused on a different renewable energy and considered how it positively and negatively affects the surrounding environment. We were then challenged to discuss potential solutions to issues such as noise pollution and energy equity, displaying our ideas with case study presentations and wind and hydro modelling competitions. At the end of the program, we worked in groups to complete a poster project displaying a local area that uses renewable energy and how it affects the community. On our final day we presented our group's findings to PNNL and Peninsula College faculty and administration at the Long House Conference building in Port Angeles.

IV. DUTIES AND RESPONSIBILITIES

My responsibilities as a DOE WDTS RENEW Pathway Summer School Undergraduate Intern were to absorb as much information about renewable energy as possible. With so many wonderful instructors, seminars, workshops, mentors, and resources, learning the material was extremely accessible and interactive. I collaborated with the other interns to complete weekly projects and experiments that correlated to the topics we were focused on at the time. Additionally, each intern was required to submit a weekly reflection, reviewing what we had learned and what we needed further clarification on. The second week of the internship was spent in Richland, WA at the PNNL main campus. This educational trip included extensive tours of the Wild Horse Wind and Solar Farm, the McNary Hydroelectric Dam, and PNNL's Fish Science Laboratory. At the Fish Science Laboratory, interns had the opportunity to work closely with environmental scientists helping to tag fish, track them, measure environmental conditions, create a visual data display, and discuss methods for how to improve fish ladders over dams. In Richland we were also invited to have lunch with prominent PNNL leaders including indigenous representatives and PNNL President, Steven Ashby. As interns studying renewably energy, we were also responsible for understanding the tribal lands that so many energy facilities stand on. We spent a day at the Wanapum Heritage Center in Mattawa, WA learning the history of the Wanapum people and their relationship to rivers and dams. Our final requirement as PNNL interns was to complete a poster project elaborating on the impacts of the Wild Horse Wind and Solar Farm, the McNary Hydroelectric Dam in Richland, WA, which we presented at a small conference to PNNL and Peninsula college faculty.

V. LEARNING OBJECTIVES

I was very fortunate to find an internship program that connected so strongly to my course work and degree of Environmental Studies. Since my internship was based on renewable energy in Washington and often touched on how these institutions affect underrepresented communities, I found myself drawing a lot of knowledge from my previous courses. The McNary dam, for example, stands on Wanapum Tribal lands which the dam operators and administration are now very conscious of when changing infrastructure and policy. Understanding the perspectives of various stakeholders that play a part in the energy creation and distribution system was one of the main topics of my internship. As interns, we were challenged daily to take on the personas of energy CEO's, workers, politicians, social groups, the environment, and even future generations. The exercises and projects we completed were difficult and sometimes seemed to be puzzles with missing pieces, but those challenges were realistic and gave us interns a taste of what a career in environmental work would be like. We visited the fish laboratory at the Richland campus where technology is created to tag fish and monitor their life cycles in the Pacific Northwest rivers. The experience of getting to talk to the environmental scientists doing the jobs that I strive to have one day was very impactful. By speaking to these environmental professionals, I was able to connect my course work with my future aspirations, and I saw how being well rounded academically is vital to one day becoming a well informed and effective environmental professional myself. During my internship at PNNL, I was assigned a mentor who spoke to me weekly about my interests and career goals. From there she set up several meetings for me with PNNL professionals in various fields. I was able to have one on one discussions with these people, asking them questions about the educational paths, advice, and most recommended me to talk to other colleagues of theirs. This networking portion of the internship was incredibly helpful, and it allowed me to speak with people I would have never met otherwise. My internship also required me to have a complete professional portfolio by the end. This portfolio included an updated resume, essays for future PNNL internship applications, professional headshots, as well as practicing interview skills. I will continue to utilize each of these professional development experiences on my educational and career journeys.

Department Student Learning Objectives:

ENVS 1: Ethically evaluate social priorities and their risks in the context of environmental problem solving.

As a DOE WDTS RENEW Pathway Summer School Undergraduate Intern, I focused on community resilience through renewable energy. I collaborated with other interns and environmental professionals to identify how my local community would be impacted by renewable energy technologies.

ENVS 2: Apply an integrative approach towards understanding human-environment interactions.

During my five-week internship at PNNL, I engaged in immersive and active learning through culturally relevant STEM studies, on and off campus field trips, networking, and mentoring activities.

ENVS 3: Work collaboratively to identify and analyze complex environmental problems, recognize diverse stakeholder perspectives, and synthesize creative solutions.

One of the eligibility requirements of the DOE WDTS RENEW Pathway Summer School was that applicants had to identify as native American. The reason for this requirement is because native Americans are often underrepresented stakeholders in the renewable energy industry. By collaborating with other interns who identify as native American, had a centralized perspective aimed at finding creative solutions for this complex environmental problem.

ENVS 4: Transfer academic learning to a real-world context of constraints and opportunities.

As an intern of the Department of Energy at PNNL, I was introduced to the mechanics and capabilities of wind, marine, and hydropower energy. I combined this and my prior academic environmental learning to real-world problems and opportunities the DOE is facing today.

ENVS 5: Produce, interpret and apply research in a solution-oriented context.





I collaborated with other interns to identify what energy deficiencies our community is facing, and how our community will be impacted by renewable energy technologies. We also explored environmental policy and how it affects certain cultural groups.

ENVS 6: Analyze and communicate ideas effectively in oral, written, and visual forms

At the end of my five-week internship I was required to give a presentation to the RENEW Pathway Summer School interns and supervisors on what I had learned, how I have applied it to indigenous communities, and what renewable energy solutions we can hope to see in the future.

APPENDIX I. SUPERVISOR LETTER

Attach a signed letter from your supervisor, on the host institution's letterhead, stating that you have completed the internship according to the organization's expectations and confirming the dates and number of hours of your internship work.

 Magana, Margarita <margarita.magana@pnnl.gov>   

To: Catherine Reidy Liermann Mon 8/14/2023 6:47 AM

Cc: Jenise Bauman; Sonya Alcocer

Reidy Liermann,

Between July 5th to August 2nd, Sonya Castillo completed 135 hours as a DOE RENEW Pathways Summer school intern. She completed 5 weeks of her internship in a hybrid format at the Pacific Northwest National Laboratory in Sequim, and one week was completed in Richland, WA.

Please let me know if you have further questions or if I can support Sonya in any other way.
Thank you,

Margarita V. Magaña, Ph.D.
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APPENDIX II. SUPPORTING DOCUMENTS

Attach copies of any reports, presentations or other deliverables that you produced during your internship, if applicable.

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