

**Lawson Hardrick**

**Benefits, Barriers, and Opportunities for Renewable Energy and Natural Resources  
Program**

**San Diego State University – Imperial Valley**

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### **Acknowledgements**

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## **Executive Summary**

San Diego State University's Sustainable Energy Center (SEC) prides itself on promoting renewable energy research, education, and training. Through its research it offers professional and academic education pertaining to California's renewable energy future, contributing to the social and economic development of the Imperial County, which is the second largest geothermal energy-producing county in the nation. Additionally, by capitalizing on the SEC's nature of synergistic public-private partnerships, during my internship, my SDSU campus became home to many successful prototype renewable energy systems. One of purposes this internship is to identify and address the students' and community's needs of STEM-related education in the Imperial Valley, where little to no programs are offered for students who are seeking a degree in fields such as engineering, sustainability, agriculture, and environmental science. This will assist in increase the low number of individuals who currently have positions in STEM-related jobs in the county by retaining talent locally.

Duties I performed included enhancing the image, education, and outreach of SEC on campus and for the community. By producing materials in both digital and print formats, I promoted SDSU SEC's potential to enhance renewable energy, natural resources, and sustainability education. In addition, I also participated in research by conducting a literature review of scholarly articles on academic databases that provided information on the implementation of new STEM-related programs and workforce training for minority, low-income, and first-generation college students. The exposure for students was an important factor to me, which is why I populated an entire bulletin board at our campus that maintains a permanent position to display the SEC's current programs, grants, and initiatives.

## **Project Objectives**

On average, Imperial County benefits from sunny weather 350 days per year, which is no surprise why it serves as a prime location for the production of all types of renewable energies. The county currently produces solar, wind, biomass, and geothermal types of renewable energies. With these thoughts in mind, the SEC in Imperial Valley could also be an ideal location to provide renewable energy education and training. The Sustainable Energy Center may champion those efforts, as I myself as an intern have.

The primary objectives of this project included becoming familiarized with the SEC's potential for renewable energy education, provide awareness, and identify the needs and demands of students interested in STEM-related programs. As a student intern, I gained more knowledge about the current state of renewable energy in the Imperial Valley and California as a whole. Another goal of the internship was to address the community's needs and serve as a liaison between the community and SDSU's SEC that allowed me to educate any individuals on what the center could offer them. While looking through the many agencies in the USDA, I felt that the Economic Research Service (ERS) would be a hugely beneficial career opportunity because it is the USDA's principal social science research agency that focuses on analyzing quantitative and qualitative data sets, much like I have done throughout my academic career.

Participating in The Water Resources and Policy Initiatives 11<sup>th</sup> Annual Conference was a huge highlight of my entire internship. It introduced me to students, faculty, and administrators who share water-related education, research, policy development, in common to resolve current issues. Through this experience, I was able to understand California's current water resource management shortcomings and how we can resolve them.

## **Project Approach**

Creating informative materials allowed me to focus on why Imperial County is an extremely favorable location for the renewable energy industry. The state of California has mandated that utility companies must generate 50% of their electricity from renewable energy sources by 2030, according to the Imperial Valley Economic Development Corporation. Imperial County does not only benefit from increased sunlight, but also low-priced land, geothermal activity, and liberal water rights. During my work, I reviewed a distribution list of local stakeholders who are nonprofits and governmental agencies involved in environmental issues such as water, energy, and agriculture with the intention of collaborating in order to make more of their initiatives known and how students could participate.

SDSU in Imperial County does not offer a wide array of majors due to its status as a satellite campus. As a result, I became much more aware of the lack of STEM-related opportunities offered to students. Through this internship, it was agreed upon to collect data from students to assess which STEM-related major if added, would present a true need. Most recently, the university has been authorized to add mathematics as a standalone major at my campus. This would be the first. Lastly, it was incredible to see that there are many grants available for eligible rural areas like Imperial County through the USDA's Rural Development agency. The growth of Imperial County is inevitable.

### **Project Outcomes**

I attribute a portion of this project's success to the transparency of SDSU in working with an intern like myself, by providing data that I could analyze and make projections from. Since the renewable energy industry is alive and well in Imperial County, I believe the informational materials I created for students will be beneficial for years to come. A major lesson for myself as a psychology and public administration major, was that simply because one does not study within a STEM-related field, it does result in those jobs being immediately closed off to them. More specialized employment opportunities may be the exception; however, these types of industries require researchers, project managers, and analysts. Learning about my community and it's exciting future relating to renewable energy was not simply for myself, and informing others about these important facts will help the county grow further.

## **Conclusions**

This internship has granted me the opportunity to grow intellectually and experientially by allowing me to explore an industry that was unheard of to myself and determining which careers I would be best suited for. As I mentioned, working in the ERS as a researcher or project manager would be a favorable career opportunity as it mirrors much of my duties and responsibilities. Eventually, I would like to work for the Office of Personnel Management (OPM), in order to assist all agencies with human resource-related tasks. Aside from careers, I would like to continue to expand my academic journey by pursuing a master's program in business administration and or law, because of policy making and analysis that I was exposed to. Most importantly, this internship served as a gateway for myself to steward all students at my campus whenever matters of the SEC or renewable energy arise. Throughout this experience, I was elected as President of the Associated Students, and coupled with this internship on my back, it will always be one of my priorities to introduce students to the center, it's initiatives, the role of Imperial County, and how it may change their lives, as it did for me.



## Appendices



**Interns at the Water Resources and Policy Initiatives 11<sup>th</sup> Annual Conference in April 2019**



**These two images depict different million-dollar systems of renewable energy production. They are located in the backyard of SDSU's campus in Brawley, CA producing energy for the campus.**





**An image I took of my supervisor, Research Technician, Araceli Saucedo with the CEO of a private renewable energy company, Hyperlight, during a ribbon-cutting ceremony to commemorate the installment of their prototype technologies on our campus.**