NAU MECC25
Interview & Outreach Strategy
Feb 24, 2025
Word Count: 1,168

1 Interview Summary

The marine energy sector is a fast-growing part of the renewable energy industry. The rapid growth it has seen in recent years has made it necessary for future talents to be educated and informed about marine energy. Our team will be working on K-12 and higher education outreach to inform the future leaders about marine energy and the blue economy. Marine energy while growing is still not as developed and recognizable as other forms of renewable energy. Informing the next generation on the whole blue economy and marine energy specifically will spark the interest in innovation to further develop marine energy and the blue economy.

1.1 Interview #1: Alan Kenny and John Roscoe-Hudson

Sector: Under water communications

State/Region: San Diego California

Organization: Kenautics

Titles: CEO and Lead Engineer(s)

Summary of Topic Area:

Kenautics is an under-water communications device manufacture. They make devices for divers, underwater vehicle, and subsea engineers. The devices they create improves the way navigation and communication can be done underwater using a system of buoys and an interface device. The devices that they use has a battery system that needs to be replaced periodically and talking with them our device could be used to charge the batteries instead of having to replace them. This reasoning is why they have become our main end user for our device.

Key Take Aways:

Alan and John emphasized the modularity of their devices and how it could be used for many different applications. Understanding that from their device helped inform our device decision making. We also learned about the ways they have promoted their business and was able to get contracts with different clients. They also mentioned the importance of proper coatings to resist biofouling especially for long term devices like their buoys as well as different variations of testing our device when the time comes.

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1.2 Interview #2: Tom Acker

Sector: Water and Energy Distribution

State/Region: Arizona

Organization: Salt River Project

Titles: Principal Engineer for Innovation & Development

Summary of Topic Area:

Tom Acker informed us of the Salt River Project and their goal of providing clean and reliable water and energy to help the community grow and thrive. Our team learned that power storage is a big consideration for power suppliers. Each energy form has a different storage technique tailored to best fit that energy type and the distribution method. We also learned that SRP is trying to convert their energy sources to all renewable energy by 2035.

Key Take Aways:

The key take aways for this interview are that our team needs to research power storage and the economics for the project. We will be looking into the best way to store the energy produced from our device to best serve our end user. We also learned about the engineering economics that could apply to our project for a theoretical product. Looking at our equity to debt ratio and the possibility for loans. SRP's equity to debt ratio is very high because they have a large established customer base with low debt from their loans.

1.3 Future Interview Plans

Our team has one more interview planned with Cato Wilfert who is an engineer with Arizona Public Service on March 6th. We hope to learn about Arizona Public Service especially how their business is run and how a new product like ours could be integrated. Our team is also planning to reach out to Pacific Northwest National Labs through the connections we made from the Stemapalooza event.

2 Outreach Overview

Our teams main outreach strategy is to connect and inform the future of the blue economy. Our team will be doing reaching out to K-12 and higher education students to inform them of marine energy and the blue economy.

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2.1 Relationships for Outreach

Through our interviews we have learned a lot about the renewable energy industry. There are many challenges facing marine energy mainly that there is less exposure of it and its possibilities than other types of renewable energy. A frequent issue that the group have seen though the series of interviews done so far is the salinity of the sea water is a potential issue when it comes to the longevity of any marine device. One of our team members had an internship with Kenautics so was able to get in contact with the CEO Alan Kenny. We have also used the connections from our advisor to set up an elementary school visit to spark their curiosity and further expose marine energy. In the future we will use another team members connection to the local high schools engineering program to do a high school visit.

2.2 Plan of Action

Our team will be using our connections to further expose the future engineers to marine energy and the blue economy. We will be doing this based off the audience we are talking to. We will be doing different presentations to elementary school, high school and higher education students. Our team has presented at Willow Bend a local environmental education center renewable energy Science Saturday. We had an activity where the student made pressure turbines from recycled plastic bottles. In March we will be visiting Coconino High School to talk to the juniors about renewable energy and give them an activity. We will also be presenting to the introductory engineering class at NAY in March. Our team will also be presenting at two symposiums held by NAU in April. Our team has also been collaborating with NAU's Energy Club to get connection and promote marine energy to fellow students.

2.2.1 Solution #1: Spark of Interest

The first solution our team will pursue is creating a spark of interest in younger students. For students that are in elementary school and below we will we want to spark the interest in science and renewable energy. This could be done through activities that engage the student. This is what we did at Willow Bend with our pressure turbine activity. There could also be story telling or cartoons that could be shown to develop the curiosity of the students. The spark of interest is the start that will lead to the students pursuing science in the future.

2.2.2 Solution #2: Career Exposure and Skill Development

The second solution our team has come up with is to inform high school students about career opportunities and develop their technical skills. High school students have learned much about the world and are getting ready to choose a career path that they would want to pursue in the future. Our team wants to inform these students about the careers available in the blue economy

that they could possibly see themselves doing. Then we will have an activity to further develop some of the technical skills that these career paths are looking for. This is what our team plans to do with the visit to Coconino High School's Coconino Institute of Technology program.

2.2.3 Solution #3: Career Readiness

The teams third solution is to prepare and develop students in higher education for the careers they have chosen. This solution could also pair with solution two to help inform these students of what career opportunities are available to them. Our team will be showcasing the blue economy and the career opportunities available within marine energy and the blue economy. We will then work on developing the professional and technical skills that will be needed for the future career they are going into. This could be done through projects such as a capstone or research project. Our team will be doing a showcase and active and NAU's Water Symposium and Undergraduate Symposium.

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3 Outreach Photos

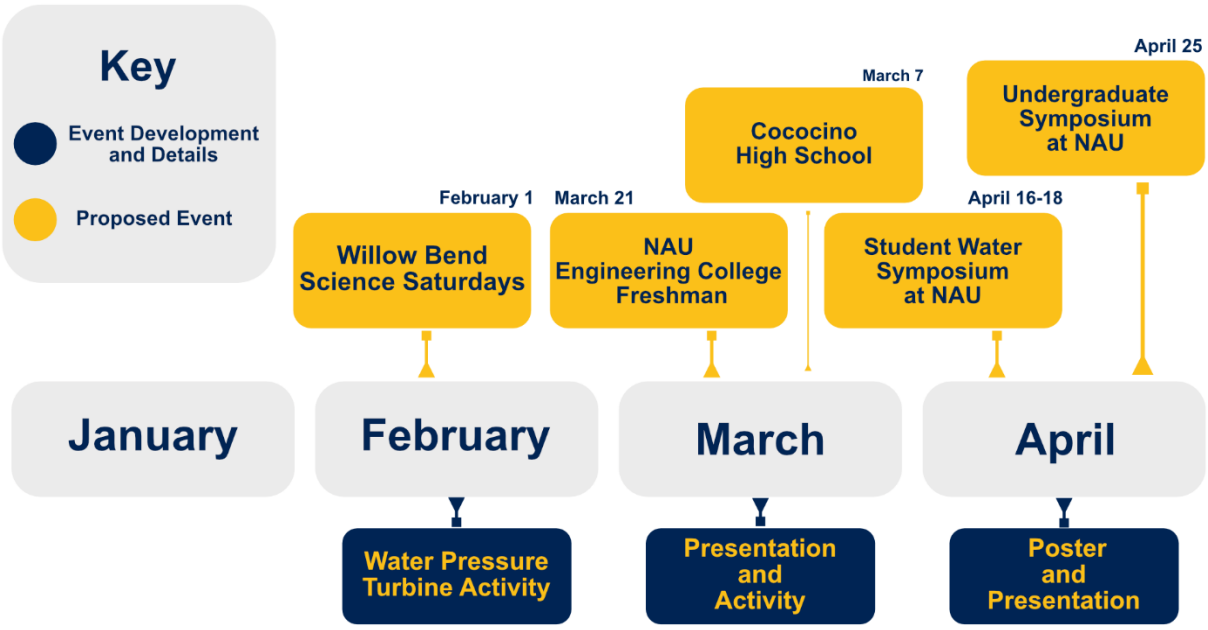

Figure 1: NAU MECC25 Outreach Timeline

Figure 2 : Willow Bend Science Saturday NAU MECC Team Photo

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Figure 3: Willow Bend Pressure Turbine Activity

Figure 4: Water Pressure Turbine Interactive Activity Setup

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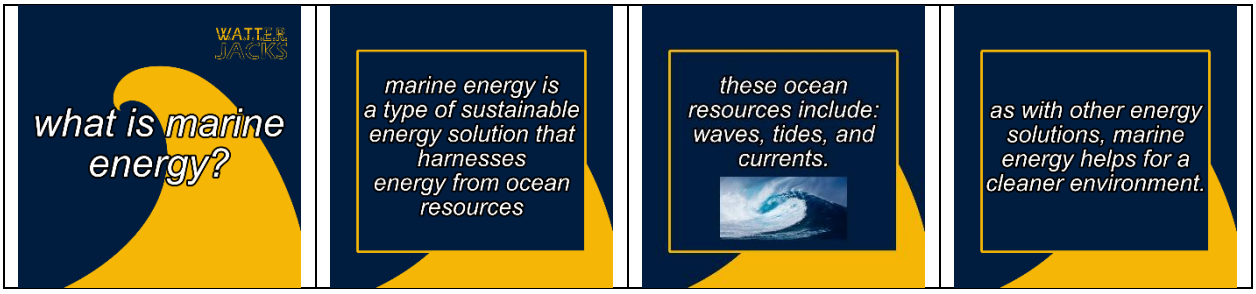

Figure 5: Marine Energy 101 Social Media Post

Figure 6: Wave Energy Converter Activity Demo