

BYU Collegiate Wind Competition

Connection Creation Outreach Plan – Metrics Report

2022 / 2023



Introduction

The BYU Collegiate Wind Competition Team was privileged to participate in this year's Connection Creation Competition and other elements of the competition. The turbine design team consisted of 12 members participating in a capstone course and members of the BYU Wind Energy Club. This report summarizes the results of our goals and plans to fulfill competition requirements, grow the Wind Energy Club, and educate our peers about what we learn.

In the team's outreach plan, we set 4 goals to accomplish for this year's competition.

1. **Experience:** Increase our own understanding of the wind energy industry by contacting, interviewing, and interacting with industry professionals.
2. **Engage:** Recruit students from diverse academic backgrounds to join the Wind Energy Club
3. **Educate:** Teach wind energy principles to students from at least two local grade schools using the KidWind curriculum.
4. **Enlighten:** Raise awareness and inspire acceptance for wind energy using the BYU Wind Energy Club's social media accounts and BYU's school newspaper.

Recruitment Plan Outcomes

As mentioned in the team's outreach plan, our recruitment strategy was centered around increasing the size of the BYU Wind Energy Club. The club's purpose is to spread awareness of the benefits of wind energy at campus events and focus on the project development contest while the turbine team focuses on the turbine design. We recognized that success in the project development competition was dependent on the amount of academic and skillset diversity. Thus, we focused our recruitment activities throughout the school year on having more diverse members join the club.

The turbine team and the wind energy club participated in a wide variety of activities that produced improvements in the club's size and participation. These activities included BYU's annual "Club Rush" Event, BYU's celebration of "Green Week" (Figure 1), BYU's annual "Capstone Fair" (Figure 2), attending various BYU professors' lectures to recruit students from other majors, posting club invitations on social media, and posting club invitations on billboards and newsletters throughout BYU colleges. A summary of club membership growth can be found in Table 1:

Table 1: Summary of BYU Wind Energy Club growth throughout the year

| | Club Membership | Engineering Students | Non Engineering Students | Women |
|------------|-----------------|----------------------|--------------------------|-------|
| 1-Sep | 4 | 4 | 0 | 3 |
| 1-May | 9 | 9 | 0 | 3 |
| % Increase | 56% | 56% | 0% | 0% |

From September 2022 to May of 2023, the BYU Wind Energy Club increased its membership from 4 to 9 students. This 56% increase was an amazing accomplishment from our recruitment activities, one that our team considers a success. We were unsuccessful in our efforts to get students of different majors to join the club; however, 33% of our club and 16% of our turbine team is comprised of female engineers which exceeds BYU's College of Engineering makeup which is 10% female. Our team and club lack racial diversity which is emblematic of a major lack of racial diversity at BYU which is 80% white and the college of engineering has an even higher percentage of white students. We hope next year's team can improve these metrics and can continue to be a leader in diversity at BYU.

Social Media

Our team used the BYU Wind Energy Club’s social media outlets as a tool in our outreach efforts. We used social media to post exciting updates about our turbine, announce club meeting times, disseminate our team story, and educate our followers about what we are learning. The team used Instagram primarily because it’s where we were the most experienced.

In September 2022, the club’s Instagram page had 94 followers and 8 posts. Our team originally chose to post on the club’s Instagram page story at least twice a week: One on “Windy Wednesday” and one on “Fun Friday”. These regularly scheduled posts did happen concurrently with other club announcements and project updates throughout the year, although they did not happen every week as planned. However, we believe the team posted enough to make a difference in both the number of followers and interactions from them as shown in Table 2. We found that following a regular schedule maintained the interest of our followers, educated them about wind energy, and helped share the team's story. Today, the page has 120 followers and a total of 20 posts, and over 30 story posts. The team was pleased with the growth of followers and increased interaction with posts:

Table 2: Summary of social media growth over the year.

| | Followers | Total Posts | Average Number of Likes per Post |
|------------|-----------|-------------|----------------------------------|
| 1-Sep | 94 | 8 | 23 |
| 1-May | 120 | 20 | 27 |
| % Increase | 22% | 60% | 15% |

Interviews

The turbine team and the wind energy club interviewed four different wind energy professionals who helped team members connect and understand details about the wind industry.

- Hans Soerensen- Member of the Danish Wind Turbine Association; Copenhagen, Denmark
- Ray Clark- Vestas; Sourcing Manager; Phoenix, Arizona
- Brandon Crayne- Black & Veatch; Head Electrical Engineer; Denver, Colorado
- Eduardo De Frutos Salgado- AVANGRID; Executive Director of IT Infrastructure; Portland, OR

On average 8 members of the team attended these interviews. While none of these connections led to jobs for anyone on our team, the information that these professionals were able to share about wind energy contribute vital knowledge and understanding to turbine design and project development competition.

BYU Outreach Outcomes

To meet our education goal, the team visited two different grade levels at Orem Elementary School, on 2 separate occasions, to teach students about the wind industry, engineering, and problem-solving. We taught three 3rd-grade classes on November 18, 2022, and taught three 6th-grade classes on January 27, 2023. Twelve members of our team participated in each of these events. Each visit involved teaching a PowerPoint we prepared about wind engineering and hosting a homemade wind turbine engineering contest among the students (Figures 3 and 4). One teacher provided feedback, saying that “[our] activity taught the children more than any lesson from [the teacher] could have given them.” These experiences fulfilled our goal to educate by providing an opportunity for us to inspire and teach children how fun and powerful the principles of engineering can be.

On November 22, the social media manager from BYU’s engineering office accompanied us during our lessons at Orem Elementary. She took pictures of us teaching, interviewed the teachers, and

featured us in the BYU engineering newsletter and social media pages for the month of December. This experience helped us educate and enlighten hundreds of subscribers to the newsletter around the country.

Pictures



Figure 1: The BYU Wind Energy Club's booth for "Green Week", a week of promoting renewable energy sources sponsored by the BYU Sustainability Office.



Figure 2: The BYU Wind Competition Team's booth for BYU Engineering's Capstone Fair, a fair to advertise Capstone projects for incoming senior students.



Figure 3: A picture of two of our team members teaching 3rd graders at Orem Elementary School. This picture is one of the pictures posted on the BYU Engineering newsletter featuring our team's participation in the competition.



Figure 4: A picture of one of our team members setting up the homemade wind turbine engineering contest at Orem Elementary.