# **Connection Creation Metrics Report**

2024 Collegiate Wind Competition

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# California Polytechnic State University, San Luis Obispo

# Team Lead:

Trevor Ortega

# **Team Manager:**

Nora Riedinger

**Club Advisor:** 

Andrew Kean

# **Outreach Officer:**

Olivia Hoffsis

#### Introduction/Summary of Goals from Outreach Plan

Cal Poly Wind Power's outreach goal was to strengthen and grow our diverse community of individuals united by our shared interest in and passion for wind power. To achieve this goal, we expanded our club membership and connected to groups of people already interested in renewable energy. We also worked to inspire and build awareness of wind energy among the general public. This metrics report will show that we met our goal in our recruitment, social media, and outreach events.

#### **Recruitment Strategy**

To build a diverse and focused club, we had two main recruitment objectives. First, we aimed to increase our club's exposure to reach a larger pool of potential club members, as we are a relatively small club on Cal Poly's campus. Our second recruitment goal was to retain a large and diverse subset of people who expressed interest in the club at campus-wide recruitment events as engaged members of our club.

#### **Recruitment Events**

To achieve our first recruitment goal, we hosted booths at university-wide and College of Engineering events and spoke to first-year classes about our club at the start of the year. Our most successful recruitment event was the fall club showcase, a school wide event Cal Poly organizes yearly during new student orientation. At the club showcase, we talked to over 300 people, and had 47 people sign up for our email list. We set up booths at four additional events: one with the Society of Women engineers and three hosted by the Mechanical Engineering Department. Each event allowed returning club members to meet first year and transfer students new to Cal Poly and spark interest in our club. After meeting many prospective club members, we focused on our second goal of new member retention. To achieve this goal, we spent our initial meetings and workdays introducing new members to the club. Club officers incorporated hands-on, introductory tasks into their first few meetings so new members could contribute to projects early on. We also hosted a team-wide fan box testing day during the first week of class so new members could experience the exciting "learn by doing" environment of our club.

## **Recruitment Data and Results.**

To assess the effectiveness of our recruitment strategy, we sent out a form to all active club members that quantified participation and surveyed club demographics. We then compared the results of this survey to data from previous years' forms. The form showed a 71% increase in the number of respondents from our team's previous competing year: from 14 respondents to 24.

The survey indicated that two-thirds of members joined the club because of one of the start-of-year recruitment events listed. The remaining third found the club through word of mouth. Our two-pronged plan helped us retain many more members than in previous years. We had 30 people attend our first meeting, and member loss since then has been minimal. We also have seen continual growth throughout the year, with 22 active members in the winter and 24 in the spring.

As part of our overall outreach goals, we strived to improve club diversity to strengthen our club. The variety of academic majors involved in the club moderately improved. Last year, the club was 70% mechanical engineers. We lowered this percentage to 58% with the diversification of areas of study to incorporate more electrical engineers, a computer engineer, and a finance major (Figure 1). Our racial diversity improved from last year and broadly aligns with the Cal Poly engineering racial makeup: 62% of our club is White, 4% Hispanic, 17% Asian, and 17% multi-ethnic (Table 1). Although women hold 50% of our officer positions, the total club gender diversity more closely reflects the College of Engineering's gender distribution (Table 2). Figures 2 and 3 show grade and sub team distribution.

While we achieved our recruitment goals by almost doubling the size of our team, and by seeing sustained dedication and engagement from students we recruited from events at the start of the year, we want to

continue to improve the diversity of our club in the future. We worked closely with the Society of Women Engineers this year and hope to continue our relationship with them. We also plan to diversify our spread of academic majors by building connections with non-engineering clubs, such as the Cal Poly Geography Club. These connections will increase the general knowledge of the club, strengthen our project development and outreach teams, and make the club an even more welcoming environment.





Figure 2: Percentage of Sub Team Figure 3: Percentage of Grade

Table 2. Percentage of Club and College of

Engineering Gender Identity

# Table 1: Percentage of Club and College of Engineering of Ethnic Background

Cal Poly Wind Power	Cal Poly Engineering	Cal Poly Wind Power	Cal Poly Engineering
Race Composition	Race Composition [1]	Gender Composition	Gender Composition [2]
52% White 4% Hispanic 0% Black 17% Asian 20% Multi-Ethnic	55% White 20% Hispanic 1% Black 14% Asian 10% Multi-Ethnic	25% Female 75% Male	28.5% Female 71.5% Male

# Social Media Strategy

Social media is an excellent tool for exposure and engagement. To best use this tool, we focused on informing our club members, Cal Poly students, friends, and supporters, and our broader community through our media outlets. We primarily used Instagram (@calpolywindpower), email, and LinkedIn to reach our current audience and develop a strong portfolio of posts that develop our brand and introduce new prospective members to our club. To achieve these goals we planned to post on Instagram every other week as well as send out a quarterly email.

# Social Media Data

Instagram was our main social media focus this year. Over one year, our follower count grew from 219 to 301 followers, a 64% increase. Starting in late August, we posted 22 times, slightly more than one post every two weeks, meeting our goals. This posting rate contributed to a 144% increase in post count from our 9 main feed posts last year. Still, this relatively slow posting rate allowed us to focus on the quality of the posts, resulting in a significant spike in engagement. Our average like count increased from 31 to 45 likes per post versus last year, and our comment rate skyrocketed, from an average of less than one comment per post to 3.5 comments per post. We also noticed that creative posts and group photo posts saw the most engagement. Our most commented post was a Taylor Swift spoof Instagram post with 15 comments. Two group photo posts tied for most liked, at 64 likes each.

We sent three emails out this year, and plan to send a fourth after the conclusion of the competition. Our audience, a mixture of club members, alumni, family, friends, and industry members, grew from 219 to 298. In previous years, the email was used as a platform solely to update and communicate with active club

members. We pivoted to a newsletter format aimed at our broader community and saw an increased open rate from 34% to 42% demonstrating improved engagement with our high-quality creative content.

The growth of our LinkedIn community highlighted a deliberate effort to expand our social media presence. Our follower count grew organically from 51 to 76 people over the last year. We posted twice in the past few months, with 21 and 45 reactions, respectively. The high follower-to-reaction rate we observed indicates the potential to achieve better engagement and reach a broader professional community, so we will make LinkedIn more of a focus next year.

Lastly, we appeared on the Cal Poly College of Engineering's LinkedIn and Instagram and were featured in an article on the College of Engineering's website.

The quality and diversity of platforms of our social media content this year helped us achieve our goals of expanding our community. Our followers increased on all platforms, as did our engagement, showing that our community is interested and engaged with our club.

#### Activities

Events	# CPWP	# Additional Guests	# Industry Members
Energy Innovation Conference	8	19	3
Interteam Conference	7	32	6
Build an Engineer Day	5	30	NA

Table 4.	Summary	Metrics	of all	Events
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# **Energy Innovation Conference**

# January 23rd, California Polytechnic State University

We chose to "Execute a Cross-Technology Collaborative Opportunity" in the form of the Energy Innovation Conference (EIC) for our first outreach event to foster cross-technology connections and build stronger renewable-minded communities within our Cal Poly. The event consisted of two other renewable energy-focused clubs: Future Fuels, a project-based club with 6 members attending, and the Power and Energy Society, a professional club of electrical and computer engineers with 4 members attending. All three clubs presented their current projects (Figures 8 & 9). We also invited two senior capstone-project teams working on different Department of Energy competitions: the Marine Energy Collegiate Competition and the Hydropower Collegiate Competition, with 8 attendees. Along with our 8 club members, we had 27 attendees (Figure 4). We were fortunate to host guest speakers from three wind and energy companies at the EIC: Erica Crawford from Golden State Wind (Figure 5), Jessica Dent from RWE (Figure 6), and James Vance from Clearway Energy (Figure 7). Our guest speakers educated all attendees about the current field of renewable energy and what job prospects might be available.

# Impact

The Energy Innovation Conference brought together three renewable energy clubs and two teams of graduating seniors to discuss the opportunities within the renewable energy industry and connect them with companies. In addition to learning about their companies, hearing from industry members provided students with valuable insight into their career paths and advice for professional development. A joint event between multiple renewable-focused clubs was an excellent way to foster student collaboration and build our professional network. We will continue partnering with Future Fuels and the Power and Energy society to

host this event again during the next academic year and are looking forward to touring a solar farm with these two clubs in May. This event also initiated our connection with Golden State Wind, an organization we are incredibly excited to work with in the future, as they have one of the leases off Morro Bay. All industry representatives gave feedback that they enjoyed participating and were excited to share internship opportunities with all our clubs.

#### **Interteam Conference**

#### February 16th - 18th, California Maritime University

We chose to "Host an Industry, Alumni, or Interteam Activity" for our second outreach event. The Interteam Conference (IC) was a collaboration between Cal Poly Wind Power (7 attendees), UCLA Wind Project (14 attendees), and Cal Maritime Wind Team (15 attendees) (Figure 10). The conference occurred over Presidents' Day weekend, February 16th - 18th, and included four different activities. First, Cal Maritime hosted an industry panel, "Outlook & Challengers for the CA Offshore Wind Industry." Panelists included Nancy Krisner-Rodriguez, the Western Director of Oceantic Network; Kevin Jackson, the president of Pacificos Energy Inc.; and Cole Van Gundy, Vice President of Construction & Engineering at Crowley. We also had the chance to speak to the President of Cal Maritime, as well as the Mayor of Vallejo and some Vallejo council members. All teams presented their turbine and project development designs to attending members. The next day, all teams participated in a design conversation and turbine testing activity planned by our team (Figures 12 & 15).

#### Impact

The Interteam Conference brought many communities of wind power enthusiasts together and fostered an environment where members of all communities could learn from each other. All CWC team members learned about the substantial challenges facing offshore wind off the coast of California. All team members gained valuable presenting experience, as well as important design feedback. Through our turbine design and project development presentations, companies and government officials attending the event learned what college students in wind energy are engaged with. Every attendant left the event with more connections in the wind industry, uniting our communities of wind enthusiasts.

#### **Build an Engineer Day**

#### January 23rd, California Polytechnic State University

For our final event, we executed the "Student and Local Community Engagement." The Cal Poly chapter of the Society of Women Engineers hosted its annual Build An Engineer Day (BAE Day), which we took part in for the first time. Two groups of 15-20 middle school students came to learn about wind power during this event (Figures 14-17). After a brief club-led discussion on the basics of wind power, we engaged the 8th graders in a blade design competition. Teams of two competed to score the highest voltage measurement over a constant resistance using crafted blades. Five club members assisted in the event.

#### Impact

This event embodied Cal Poly's motto, "Learn by Doing," by introducing middle school students to wind power and the engineering design process through a hands-on activity. They also experienced a realistic engineering design process while competing with their classmates by learning from their successes and failures during testing. When most students left, they took their blades with them, a testament to their enjoyment of the event. Activities like these are valuable because they foster confidence, excitement, and interest in engineering in young students. They also provided a safe and inclusive environment in which students can make mistakes. We also spoke to the students' teachers, who showed great interest in bringing a Kid Wind turbine into their classrooms for future demonstrations.

# References

- College Data Analytics Team Unbiased Factual Guarantee, "The engineering major at California [1] Obispo," College Polytechnic State University \_ San Luis Factual, https://www.collegefactual.com/colleges/california-polytechnic-state-university-san-luisobispo/academic-life/academicmajors/engineering/#:~:text=The%20engineering%20program%20at%20Cal%20Poly%20San%20Luis,m en%20with%20the%20other%2029%25%20going%20to%20women (accessed Apr. 17, 2024). Obispo," Polytechnic University-San [2] "California State Luis Data USA,
  - 2] "California Polytechnic State University-San Luis Obispo," Data USA, https://datausa.io/profile/university/california-polytechnic-state-university-san-luisobispo#enrollment\_race (accessed Apr. 17, 2024).

# Figures



Figure 4: EIC, Group Photo



Figure 5: EIC, Golden State Wind Presentation (From Instagram)



Figure 6: EIC, RWE presentation



Figure 8: EIC, Cal Poly Wind Power Presentation



Figure 7: EIC, Clearway Energy Presentation



Figure 9: EIC, Future Fuels Presentation



Figure 10: IC, Cal Poly, UCLA, and Cal Maritime Team Photo



Figure 11: IC, Cal Poly Wind Power Team Photo (From LinkedIn)



Figure 12: IC, Design Discussion



Figure 13: IC, Cal Poly Wind Power Presentation



Figure 14: IC, Team Bonding



Figure 16: BAE Day, Blade Testing (From Instagram)



Figure 18: BAE Day, Group Photo (From Instagram)



Figure 15: IC, Wind Tunnel Testing



Figure 17: BAE Day, Blade Testing Assembly



Figure 19: BAE Day, Blade Construction