PENNSYLVANIA STATE UNIVERSITY WIND ENERGY CLUB

UNIVERSITY PARK, PA

METRICS REPORT

APRIL 18, 2024

STUDENT LEADS

Shana Hartwick | President

Caroline Brustoloni | Vice President

CONNECTION CREATION MEMBERS

Anna Tartaglia | Director of Connection Creation

Meysoon Quraishi | Social and Event Planner

Jack Pence | Membe

Madison Waehner | Member

FACULTY ADVISORS

Dr. Susan Stewart

Dr. Mark Miller

Recruitment Strategy Outcomes: The Pennsylvania State University (PSU) Wind Energy Club (WEC) participated in numerous recruiting events to attract a diverse set of team members. During the Fall 2023 semester, the WEC attended four involvement fairs: the university-wide fair, the Engineering Orientation Network (EON) fair, the Donald P. Bellisario College of Communications fair, and the College of Earth and Mineral Sciences fair. During the Spring 2024 semester, the WEC attended a variety of recruitment events, including the university-wide involvement fair, the Society of Women Engineers (SWE) Showcase, the Engineering Undergraduate Council Reverse Career Fair, and the Net Impact Student Sustainable Business Conference.

According to the WEC's OrgCentral profile—PSU's student organization platform—the WEC has a total of 85 members, which is a 10% increase in membership compared to the 2022-2023 academic year. Figures 1, 2, 3, and 4 highlight the team's demographics. These demographics were collected via anonymous survey and 25 responses were recorded, which does not encapsulate the entirety of the WEC's membership.

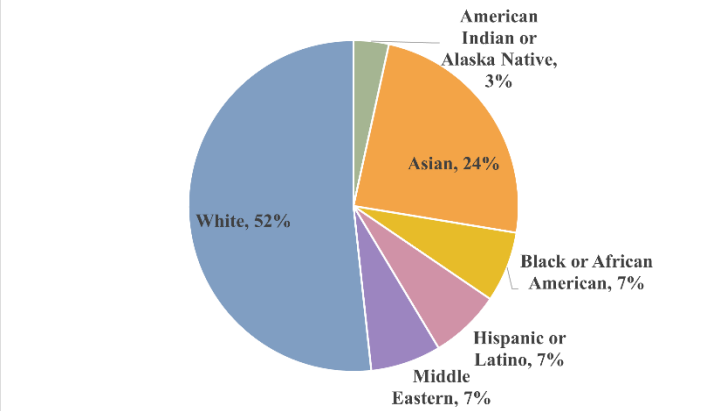

Figure 1: Race/Ethnicity.

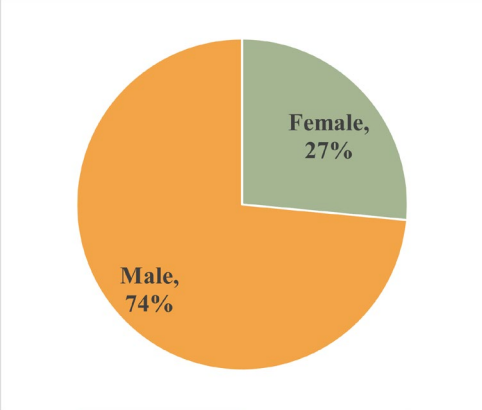

Figure 2: Gender.

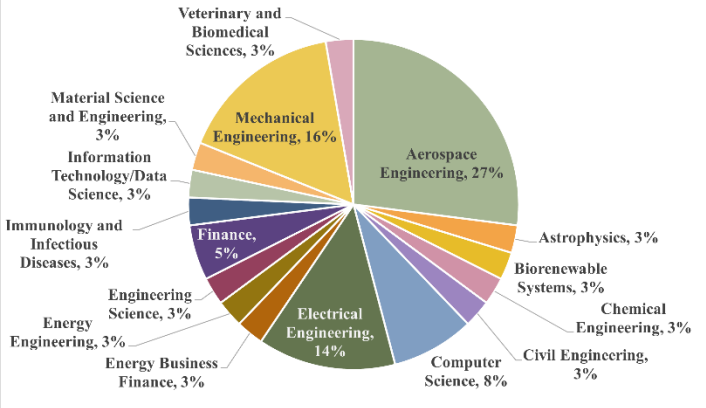

Figure 3: Majors.

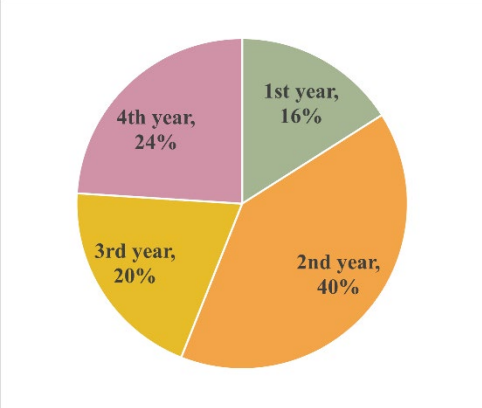

Figure 4: Grade Levels.

The PSU WEC also hosts and participates in special events aimed at retention. These events include holiday cookie baking/decorating, a LinkedIn workshop, an ice cream social, and an engineering organization formal. Figure 5 represents a sample of the number of semesters our members have participated in the WEC, showing consistent continued participation from first year to 4th year students. These events also accomplish the WEC's high-level outreach goal (5)—cultivate an inclusive and diverse environment within our club. The team also achieved outreach goal (4)—prepare our members to enter a career in the wind energy industry—by sharing career opportunities within our Microsoft Teams group throughout the year and interacting with industry members. In particular, the project development team regularly reached out to industry

members to understand floating offshore wind best practices in the Great Lakes. Kim Mortstock, a PSU alumna and Principal Project Manager for the Owner's Engineering Team at DNV, spoke to the entire team at one of the club's bi-weekly general body meetings.

Due to the WEC's attendance at college-specific involvement fairs and underclass-oriented recruitment events (EON, SWE showcase), the recruitment strategy was strongest in diversifying the type of major and grade level seen in the WEC. Although the strategy appears weak in race/ethnicity, PSU is a predominately white institution. The WEC exceeds or is comparable to PSU in race/ethnicity metrics. However, the WEC recognizes space to improve. For example, the WEC can have a greater presence within the Multicultural Engineering Program Orientation (MEPO) via their design challenge. Participating in MEPO could not only diversify the race/ethnicity of the WEC's membership but also further expose the organization to first-year students. Although the strategy was weak in diversifying gender this year, as the SWE showcase is an event for *incoming* first-year students, and thus it is unknown how the WEC's attendance will impact gender diversity. During the 2022-2023 competition year, the female aerodynamic subteam lead increased female membership within the subteam by 20%, which helped lead to increased female representation on the 2024-25 team's executive board (President, Vice President, Secretary, and Treasurer are all female). The 2024-2025 competition team currently consists of at least three female turbine subteam leads. The increase of female leadership could increase the amount of female participation. The WEC could also partner with female-oriented organizations across the university to increase the club's visibility.

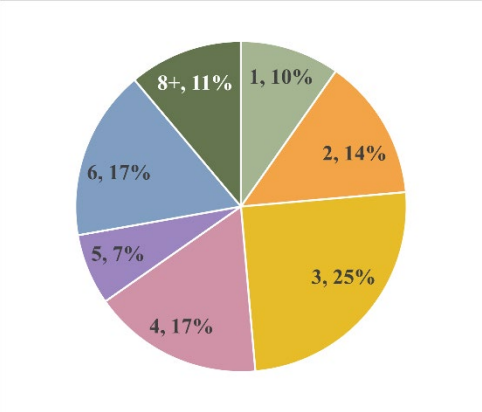

Figure 5: Semesters of Participation.

Social Media Strategy Outcomes: The WEC social media strategy focused on Instagram and Facebook, posting three times per week. The Instagram and Facebook accounts currently have 436 and 131 followers, respectively. Figures 6, 7, and 8 show the account metrics. In the figures, posts only refer to feed posts; story posts are not included. Most posts were the same on both accounts. In other words, if content was posted on Instagram, the same content was posted on Facebook as these are generally distinct audiences. These posts were made via Meta Business Suite, which was able to calculate the optimal posting time for Instagram only. Follower growth on Instagram remained on a steady upward trend since the beginning of the 2023-2024 competition year, while Facebook follower growth has been largely stagnant. It does not appear that the number of posts or likes correlates with follower growth. On average, Instagram posts garner more likes per month than Facebook. However, it appears that an increase in post frequency correlates to a decrease in likes. Although there are no quantitative trends between the data, a qualitative look through the social media feed suggests that photos with people in them tend to have higher like counts—sometimes two to three times more—than posts with words only.

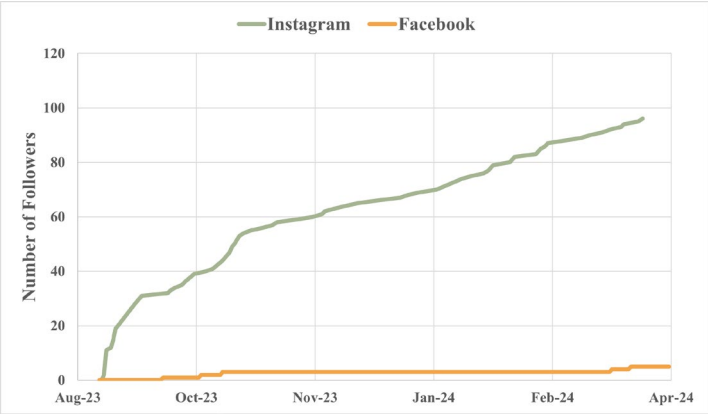

Figure 6: Follower Growth since August 2023.

Reflecting on the social media strategy, most of the posts were infographic style, which includes more words than photos. Future improvements could include decreasing the posting frequency to one to two

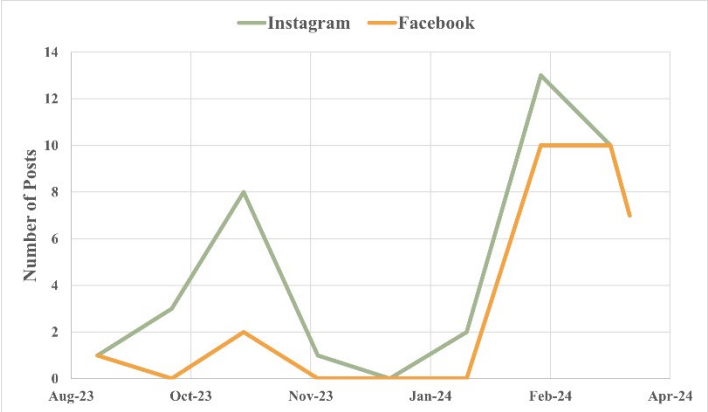

Figure 7: Number of Posts per Month.

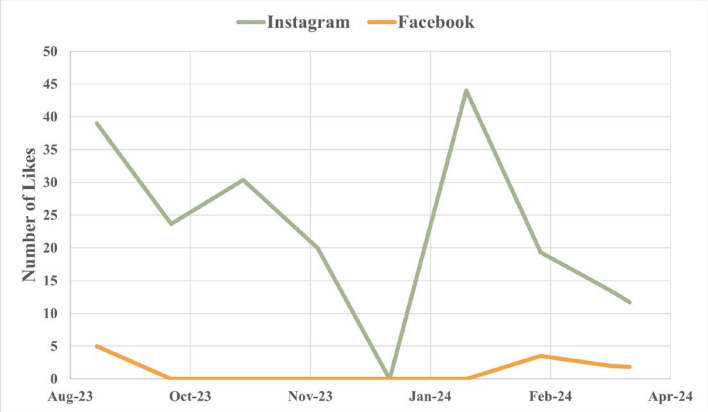

Figure 8: Average Number of Likes per Month.

times per week and limiting infographic-style posts. The average age of the WEC's Instagram followers is between 18-24 years old and are based in State College, PA. This suggests that most of the WEC's Instagram followers are directly associated with the WEC or are acquaintances with those associated with the WEC. Knowing this further supports why the WEC Instagram should focus on human-focused content because the WEC followers may be more engaged when they see people they know.

Overall, Facebook had little engagement compared to Instagram. The average age range following the WEC Facebook page is between 25-34 years old for men and 35-44 years old for women. This suggests that Facebook posts may need to be different than the Instagram posts. Facebook engagement could increase if the content is tailored to the audience age.

Contest Activity Outcomes: The team focused on engaging the local student and community population, hosting an interteam activity, and curating communications materials via social media. The outreach activities aim to achieve five high-level goals: (1) raise student and local community awareness of wind energy, (2) educate and excite young students about opportunities in wind energy, (3) disseminate facts about wind energy despite today's zeitgeist of misinformation, (4) prepare our members to enter a career in the wind energy industry, (5) cultivate an inclusive and diverse environment within our club.

The WEC hosted/participated in four local community engagement events. The WEC planned and hosted its 2nd Annual Sustainability Day on October 21, 2023. The team hosted 8 activities including windmill weightlifting, wind powered car, solar energy circuitry/water pumping, a club member-made PowerPoint renewable energy Jeopardy, letters to Mother Nature, hand crank lightbulbs, and wind tunnel tours. Prizes

were available to those who completed all 8 activities, collecting stamps in the event brochure. Ice cream was also available to attendees. Twenty people, including parents and children, and 25 WEC members attended the event. These numbers are comparable to last year's Sustainability Day. Sustainability Day accomplished 3/5 of the team's outreach goals. Participants were surveyed about how they heard about the event to best understand the best mechanisms for marketing future club run community events. The event accomplished goals (1) and (2) through the various hands-on wind-related activities. The event also achieved goals (3) and (4) through the renewable energy Jeopardy PowerPoint because the categories focused on basic climate science, wind energy myth busting, and careers in renewable energy.

The WEC participated in the 2024 PA Energy Challenges on March 27, 2024, encompassing the PA State KidWind competition and the PA Solar Energy Challenge. These challenges combined consisted of 138 4th through 12th graders plus their teachers and chaperones. Three current WEC members were present at the event to judge teams, manage the WEC team booth, assist with the KidWind wind tunnel, and deliver a presentation on careers in wind energy. Three WEC alumni also assisted with running the event. Participating in the PA Energy Challenges accomplished goals (1) and (2) because the WEC members were able to interact with the grade-school competitors directly.

Finally, two WEC members managed a windmill weightlifting activity at Penn State's 9th Annual STEM Rotor Day on March 16, 2024, which is run by the PSU chapter of the Vertical Flight Society. Over 200 community members were present at this event. Participating in STEM Rotor Day accomplished goals (1) and (2) similarly to the PA Energy Challenges.

The WEC curated three social media campaigns: Misinformation Monday, Throwback Thursday, and Fun Fact Friday. Misinformation Monday aims to dispel common misconceptions about wind energy. Throwback Thursday aims to educate the account followers about the history of wind energy and the PSU WEC. Fun Fact Friday aims to disseminate additional information about wind energy that the previous two campaigns do not cover, including current wind energy news, wind energy in pop culture, and more. All references were made accessible via a link in the WEC Instagram biography. On Instagram, Misinformation Monday averaged 17 likes, Throwback Thursday (wind energy history) averaged 14 likes, and Fun Fact Friday averaged 12 likes. In contrast, our PSU WEC Throwback Thursday posts and posts that feature our social events averaged a whopping 32 likes, which is double or more than double our other campaigns. These averages further support the claim that photos engage the WEC's social media audience than infographics. The social media campaigns accomplished goal (1) because the WEC's social media accounts are public, meaning that anyone with a social media account has the potential to engage with the posts. The campaigns also achieved goal (3) due to the content of the campaigns.

Last, the WEC organized a wind/renewable energy industry panel with the Johns Hopkins University and Virgina Tech/James Madison University teams. Nine potential panelists were invited; seven panelists attended, with most of the panelists being Collegiate Wind Competition (CWC) alumni. The panel began with moderated questions, focusing on entry into the energy industry along with how CWC prepared them for their role. The panel ended with audience questions. In total, 60 people attended the panel, with 25% of those being PSU WEC members. PSU enabled members to attend the panel in-person and via Zoom, which increased the accessibility of the panel. The panel achieved goal (4) by giving our members firsthand accounts of what the wind energy industry is like. The panel also expanded our members' networks to land future internship and employment opportunities. The panel also accomplished goal (5) by hosting the panel via Zoom and providing an in-person watch "party," all members were able to participate in the panel.

Photos and Social Media Posts

Figure 1: Wind Turbine Weightlifting at STEM Rotor Day.

Figure 2: Building Wind Powered Cars at Sustainability Day.

Figure 3: Instagram Post Advertising the Interteam Industry Panel.

Figure 4: WEC Team Booth at PA Energy Challenges.

Figure 5: WEC Member Presenting at PA Energy Challenges.

Figure 6: KidWind at the PA Energy Challenges.

Figure 7: Holiday Cookie Decorating.

Figure 8: Ice Cream Social.

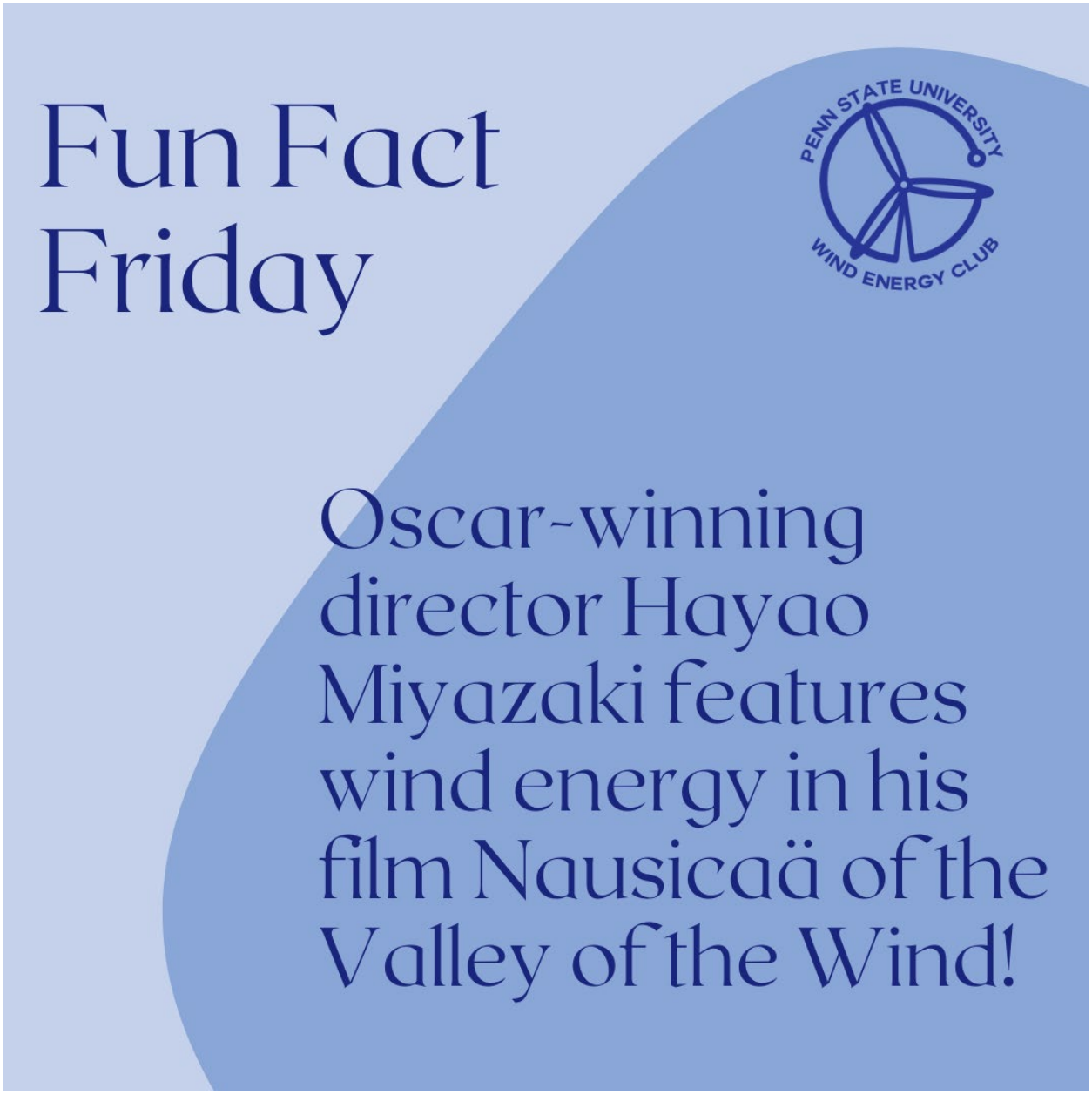

Figure 9: Fun Fact Friday Example.

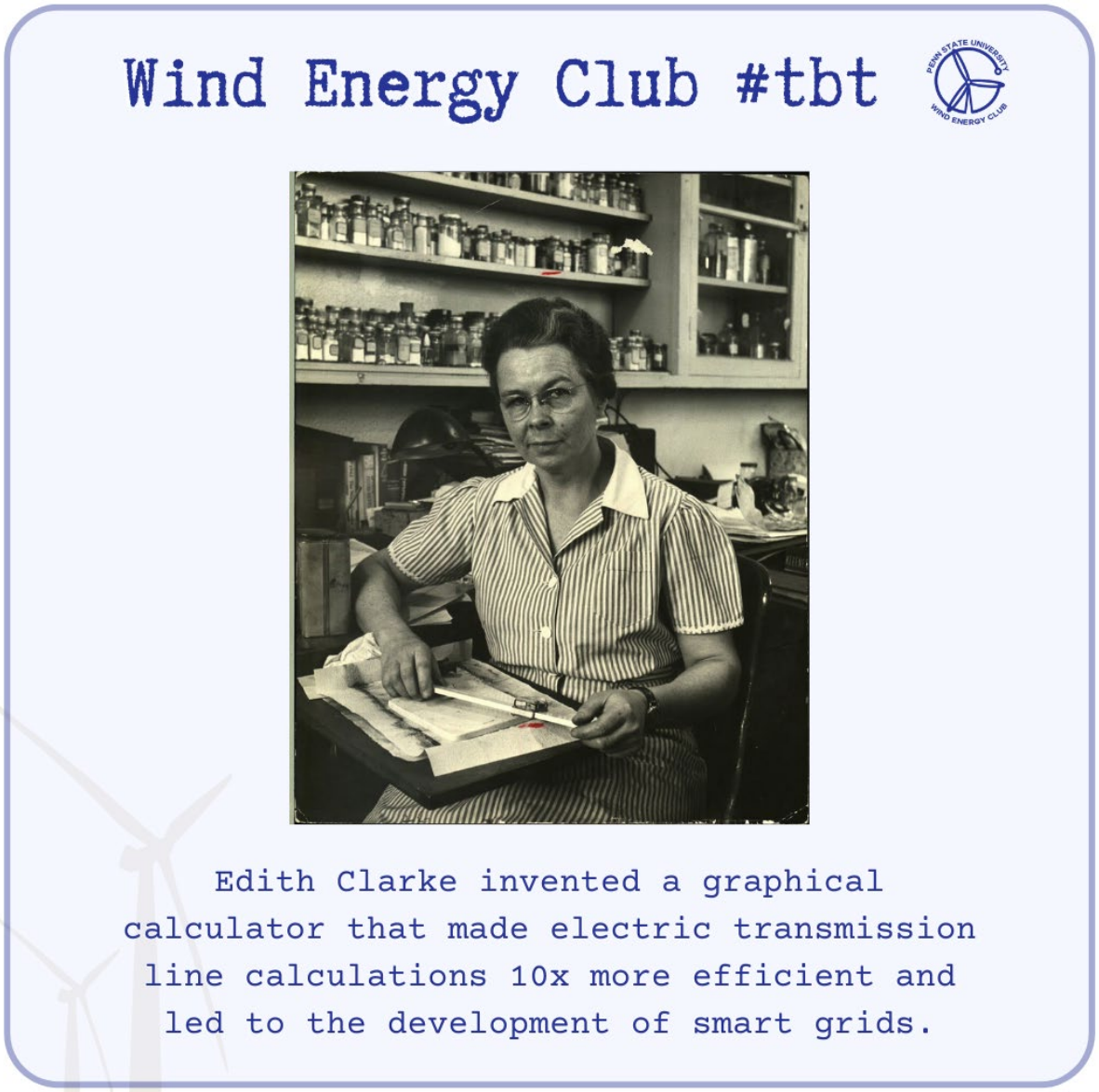

Figure 10: Wind Energy History Example.

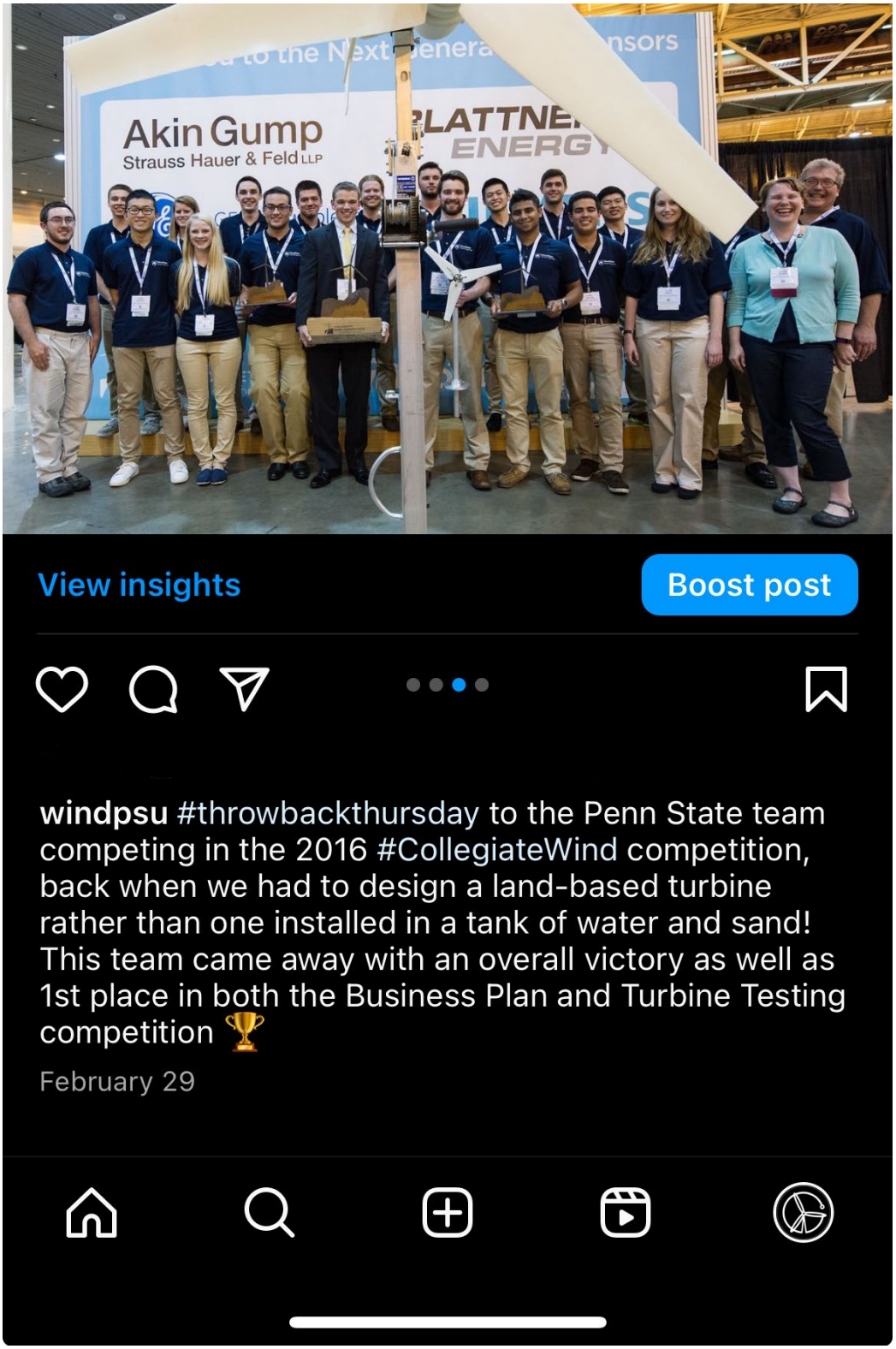

Figure 11: Example of WEC History Instagram Post with Caption.

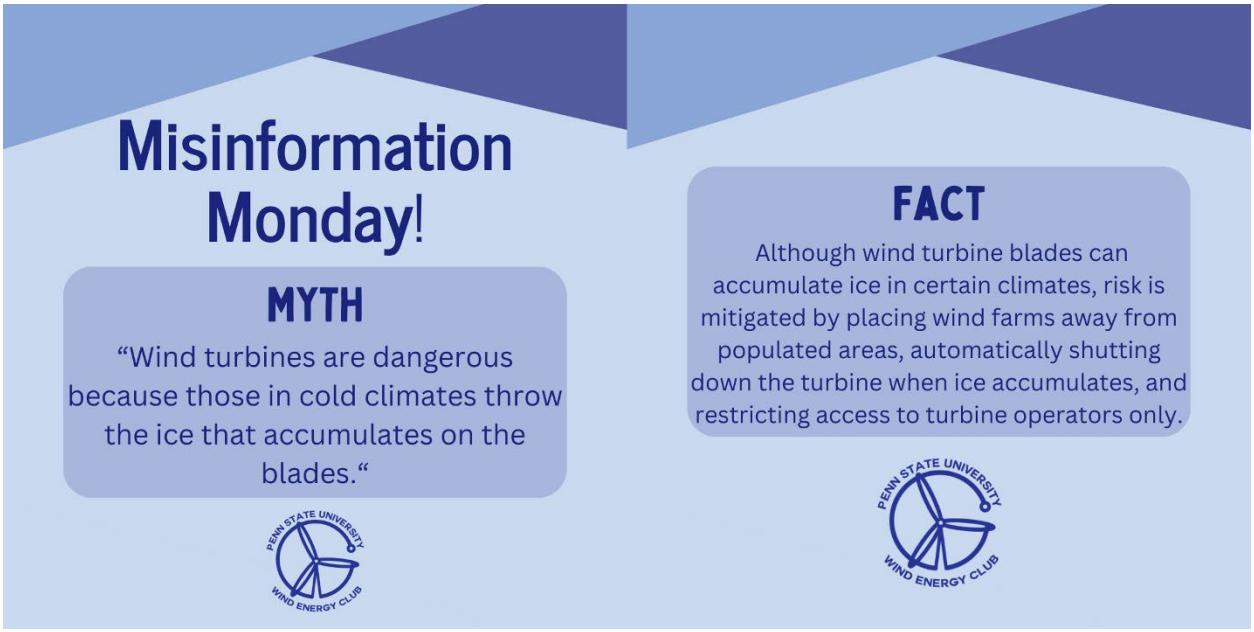

Figure 12: Misinformation Monday Example.

Figure 13: Sharing Team Story via Instagram Story.

Figure 14: Instagram Biography Link.

Figure 15: WEC Booth via Instagram Story at Spring 2024 University-Wide Involvement Fair