



COMET WIND

May
2023

Metrics Report

Prepared for the 2023 Collegiate Wind Competition
Organizers and the U.S. Department of Energy

Connection Creation Team Lead

Alyssa Tran

Connection Creation Team

Kevin Sun

Simon Park

Hannah Bahrami

Srinidhi Malladi

Jose Marquez

Dan Bouzolin

Faculty Advisor

Dr. Todd Griffith

Graduate Advisor

Thor Westergaard



Recruitment

Approach to Team Growth

Comet Wind approached campus outreach and recruitment with the following methods: speaking in classes, attending organization fairs, posting flyers, and holding recruitment events. We aimed to not only increase membership but also increase organization and leadership within the club. A few engineering professors allotted time during their classes for Comet Wind to invite students to learn about wind, show our previous years' turbine, and talk about the CWC. We talked to students in the following classes:

- *Design of Mechanical Systems*
- *Introduction to Engineering and Computer Science*
- *Introduction to Mechanical Engineering I & II*

We also posted both digital and physical flyers on social media and on campus respectively to invite people to our first meeting.

New Engagement

This year, our team formed a student organization on campus to support our Collegiate Wind Competition efforts: the Wind Energy Club. Our early efforts gained tremendous interest in the club. There were 43 attendants at the first general meeting. Compared to working as four members doing a little bit of everything as a learn-along team in 2021-2022, this year, there were seven teams: aerodynamics, load-side electronics, turbine-side electronics, kinematics, structures, project development, and connection creation. Initially, the design team had two sub-group leaders, while the project development and connection creation teams worked in one group. At the end of 2023, we have 25 active members.

Team Composition

Grade Level	
Freshman	16%
Sophomore	28%
Junior	28%
Senior	24%
Graduate	4%

Major	
Mechanical Engineering	44%
Electrical Engineering	36%
Computer Engineering	8%
Computer Science	8%
Geoscience	4%

Member of LGBTQIA Community	
Yes	20%
No	72%
Maybe	8%

Race	
Hispanic or Latino	21%
White	31%
Black or African American	3%
Asian or Pacific Islander	42%
Native American	3%

Gender	
Female	28%
Male	72%

Age	
Mean	22
Median	20
Mode	19
Range	20

Reflection

The impact of our promotions successfully manifested in the form of club interest and participation. Today, our Discord server has grown to 136 members. Not everyone who has shown interest in the club chose to

join the competition team, but we are always presenting opportunities to learn about wind energy, volunteer at Connection Creation events, and apply to wind industry jobs/programs. Since this academic year was only the second year since Comet Wind's founding, there was a lot of room for growth. We are happy to have 25 dedicated, organized members. As we continue our recruitment efforts, we hope to diversify the team more. There are many environmental organizations and engineering communities we want to partner with next year. At the beginning and end of the school year, our members took a survey where they rated their current knowledge of wind energy, self-perceived ability to obtain a career in wind energy, and belief in wind energy's essential role in the transition to a renewable future. The average ratings for these results increased by 54%, 36%, and 5% respectively!

Social Media

Start of Fall 2022 (October)

Instagram	
Posts	4
Followers	70
Average views	NA
Average likes	17
Total likes	66

TikTok	
Posts	4
Followers	70
Average views	NA
Average likes	17
Total likes	85

End of Spring 2023 (April)

Instagram	
Posts	25
Followers	161
Average views	117
Average likes	18
Total likes	450

TikTok	
Posts	38
Followers	260
Average views	49348
Average likes	2140
Total likes	81400

Additionally, our TikTok content has the highest relevance when searching under the hashtag #collegiatewind which hopefully has increased awareness of the Collegiate Wind Competition.

Reflection

We opened our social media accounts this year. Understanding that this would be the best medium to teach as many people about wind energy as possible, we aimed to post regularly. We kept to our standard, and gradually increased our posts and our presence! Starting from zero, we gained 421 followers combined across our Instagram and TikTok accounts. Our growth on Instagram is slower than our growth on TikTok, but it has been steady and positive. We post about our journey in the competition and wind energy topics people often have questions about. On TikTok, we post similar video content with a "wind energy twist" on the latest trends. We have one viral video where we test our turbine foundation prototype. It has been viewed over 1,800,000 times and shared 107 times. It has 78,800 likes and 1,033 saves. There are 96 comments, as many people were curious about our screw pile. We have gained a large audience on social media so far, and we hope to grow it so we can show more people what Comet Wind does.

Interviews

Attendance and Participation

Our industry interviews were conducted by one leading and one supporting connection creation team member. During our interview with Kevin Cousineau, the founder of KLC Electronics and Renew Controls, two load-side electronics teammates joined as well. We were able to get valuable advice for our turbine design from Kevin, and we gained insight into the wind industry from all four interviews. The interview

transcripts and the Understanding the Wind Energy presentation are accessible to the entire team on our Box.

Industry Connections

In addition to the four professionals we interviewed, Comet Wind connected with many people in the industry this year. These connections span further through the industry and even cross into the more general renewable and energy industries. We invited the North Texas Renewable Energy Group to tour our lab and support our CWC journey. We invited Leeward Renewable Energy to speak at one of our general meetings, where they encouraged us to apply for summer internship positions. Members of the connection creation team were able to connect with sustainability professionals at EarthX, including:

- **DFW Solar Tour** - Educating homeowners about sustainably powered houses
- **ECO Hydroflow** - Selling innovative water conditioning systems for industry
- **Uprise Energy** - Providing the world's first 10kW portable wind turbine
- **EHS** - Installing solar panels and evaluating energy consumption for households

Through the competition, many Comet Wind students were motivated to reach out to professionals for advice. This included our faculty advisor Dr. Griffith, other professors on campus, the Institute of Electrical and Electronics Engineers professionals, financial analysis companies, software engineering companies, additive manufacturing companies, and our peers!

Reflection

Each connection has helped us immensely on our CWC journey and individual career paths. All the people we were able to connect with this year have helped us with our tasks for turbine design, project development, or connection creation. This will help Comet Wind next year as well since we have grown our web of professionals we can turn to for advice or internships. At the end of this academic year, some members reported jobs and benefits they achieved with the help of the Comet Wind team and connections. These include acceptance into the wind energy master's program at the Technical University of Denmark, acceptance into the undergraduate research experience in wind energy systems at UTD, a position as a student research assistant in Dr. Griffith's structural dynamics lab, and a job as Business Development Analyst at Copenhagen Offshore Partners.

Outreach Events

Notable Events

- **Workshops with Noorishment**

Comet Wind reached out to Noorishment, a nonprofit organization that provides educational opportunities to students. In the spring, Noorishment holds workshops at Ma'ruf, another non-profit organization focused on serving refugees. Throughout two workshops, we taught middle to high-school students at Ma'ruf about the inner workings of a wind turbine. The students participated in the MacGyver activity and were taught a lesson on the applications of wind energy. Then, students did the KidWind Basic Wind Experiment Kit, where they designed rotors for a mini wind turbine tower with a small generator. They saw firsthand for themselves how much electricity they could generate, how much weight the torque could lift, and how much water could be pumped.

- **EarthX Expo**

We ran an interactive Comet Wind booth at the EarthX Expo, the world's largest green gathering. The turnout we had was overwhelming. Over the course of three days, we had in-depth conversations with 580 people at our booth where we had them answer trivia about the wind industry. Of our visitors, 67 people were further interested in participating in KidWind experiments, either the MacGyver or the Firefly. We also got connected with various industry professionals, opening up possibilities for future collaborations.

Multiple local schools took KidWind flyers and exchanged contact information with us. Next year, we will bring the well-enjoyed KidWind activities to Harmony Public Schools North Texas and the Richardson Independent School District.

Publicity

- **Features in UTD News** - Two articles in the UTD Newsletter highlighting Comet Wind activity
 - *New Forces Power Passion for Wind Energy Research, Student Group*
 - *Accolades: UTD Students Shine in National Competitions*
- **The College Tour** - TV show that recently filmed an episode about UT Dallas which featured Comet Wind in a sustainability segment (episode to be released on Amazon Video in July)
- **Hello Studios' "The Solomon Tentation Podcast"** - A podcast interviewing EarthX exhibitors, including Comet Wind (episode to be released)

On Campus Promotion and Recruitment		
Event	Team Attendance	Participant Attendance
MECHE Open House	3	43
Engineering and CS College Org Fair	2	47
Business College Recruitment	6	16
Scholar's Day	2	39
Earth Fest	2	33
UTD Homecoming Parade	7	53
Fundraising Bake Sale	7	24
Spring Fundraiser	3	18
Makerspace Workshop	2	5
Total	34	278

Wind Energy Education		
Event	Team Attendance	Participant Attendance
Plano Youth Summit	3	31
SASE STEM Night at Skyview Elementary	3	52
Noorishment KidWind Workshops #1	3	13
Noorishment KidWind Workshops #2	3	15
STEAM Stop with Plano Public Library	2	27
EarthX Convention	7	580
NTREG Tour	3	29
Total	24	747

Reflection

After finishing this year's Connection Creation events, we believe we have met our goals for deeply connecting with our surrounding communities. The presence of Comet Wind has increased in the DFW Metroplex and on the UTD campus. Our social media posts have been a useful tool to educate the public on wind energy. It has been a pleasure seeing kids and adults alike becoming passionate about sustainability and engineering through our efforts.