2023-2024

Annual Report

KidWind®

Contents


WORLD
KidWind
CHALLENGE

Our Mission

For the last 20 years KidWind has been focused on helping educators and students explore renewable energy. I wish I had kept track of all the teachers and students our team has trained and impacted over those years. But let's just say it's a pretty big number.

The idea of the KidWind Project started in 2003 when I was a sixth grade science teacher in California. Unhappy with the poor quality of products and curricula available for teaching wind energy science, I set out to develop some new materials. With an initial investment of $1,000 and a fellowship at the Wright Center for Science Education at Tufts University, I developed a new approach to educating the world about wind energy.

Today, KidWind has a large network of educators teaching our curricula in schools across the U.S., Mexico, and Taiwan.

KidWind and our team of amazing instructors focus on three major areas: teacher training, curricula and materials, and the KidWind Challenge.

None of this happens without our generous sponsors, the great educators and students willing to try something new, and the parents that support them! Thanks for all your passion and vision!

Michael Arquin
Director & Founder
KidWind

Thank you to our 2023-2024 Sponsors

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Windy Riders (+$10,000)

Community Offshore Wind
Sea Grant Oregon
Mortenson
AVANGRID
OW Ocean Winds

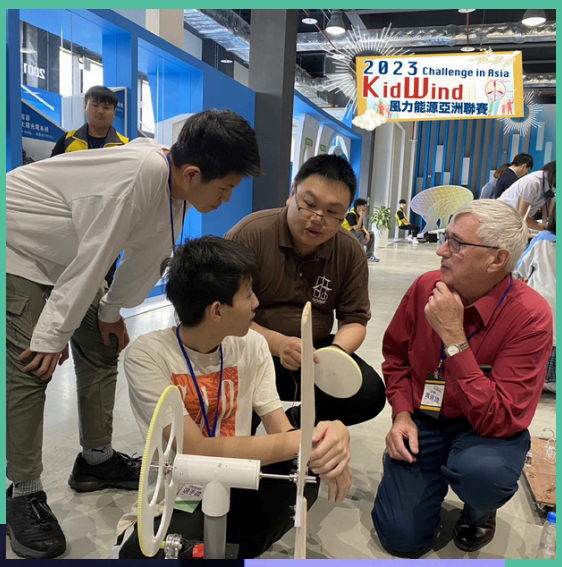
The KidWind Challenge

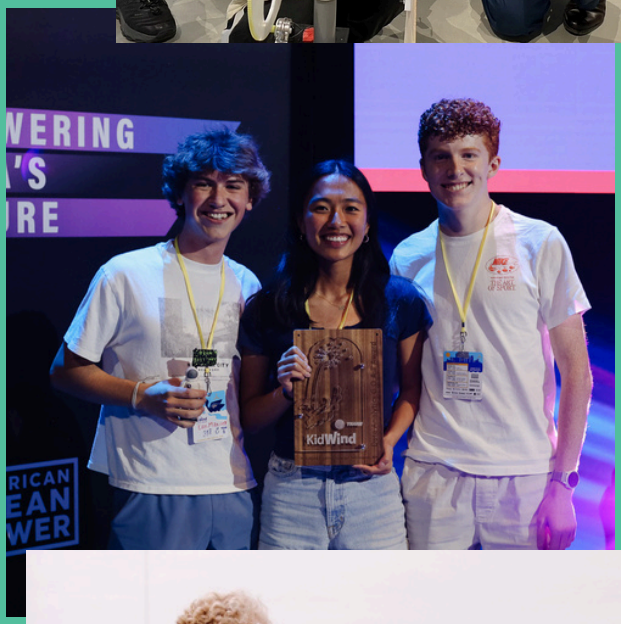
50 KidWind Challenges

41 Regional KidWind Challenges

8 State KidWind Challenges

1 World KidWind Challenge





The KidWind Challenge: Overview

In the 2023-2024 season, KidWind organizers from around the globe hosted 50 different challenges. 41 of these events were regional challenges, 8 were state challenges, and 1 was KidWind's annual Worlds Challenge, formally known as "Nationals." This name change reflects one of the most exciting developments of the KidWind challenge over the past few seasons. Event organizers from Taipei, Taiwan hosted their very first KidWind Challenge this year, "KidWind Asia," and event organizers in Mexico held two challenges. Teams from both Taiwan and Mexico flew to Minneapolis, Minnesota to compete in this year's Worlds Challenge.

Regional and State KidWind Challenges

26 states, Mexico, and Taiwan hosted 49 Regional and State KidWind challenges this season. These local challenges attracted over 3,500 students from over 500 different schools and organizations.

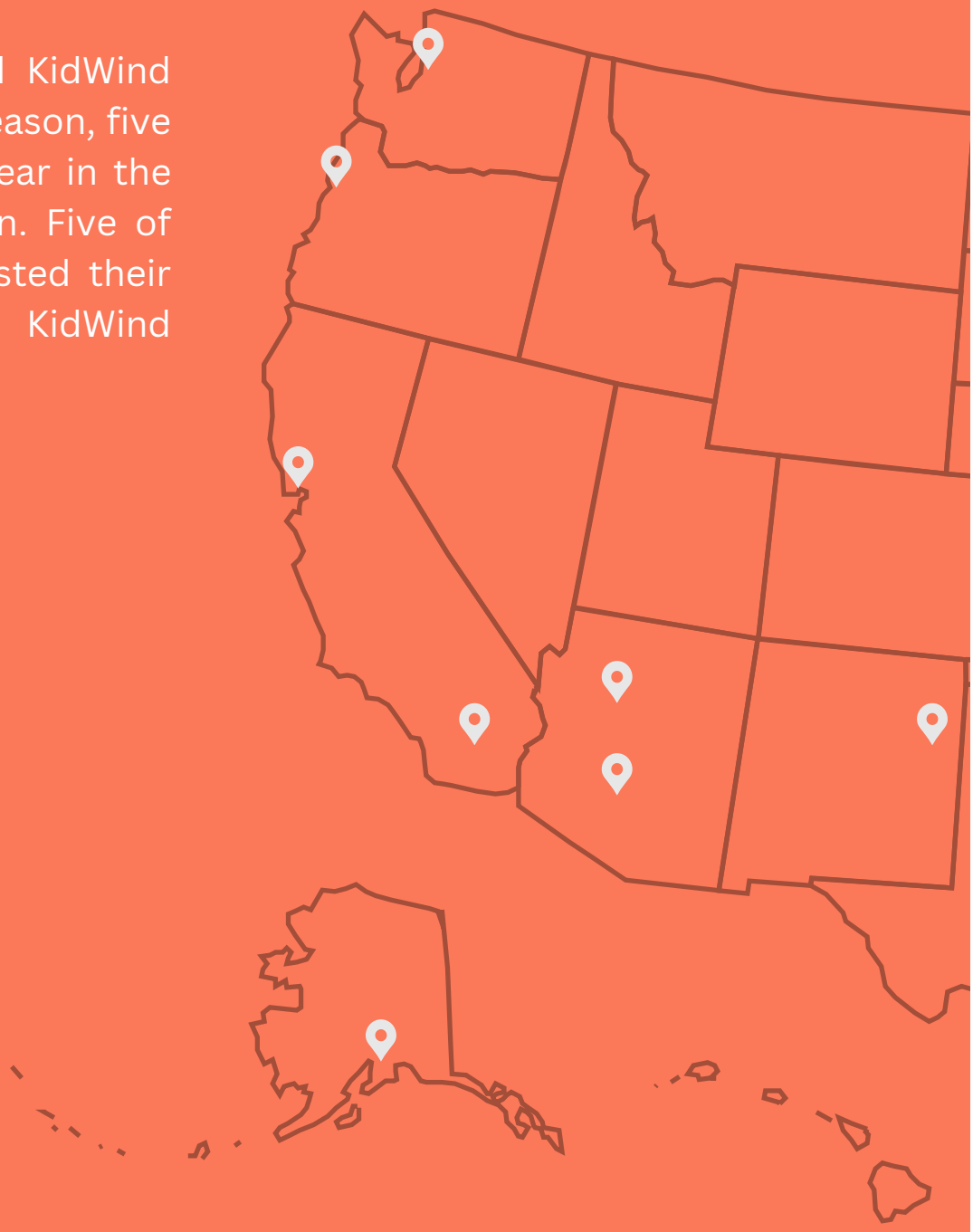
We were able to collect data on 46 of the 49 regional and state KidWind Challenges from this season. From those 46 challenges, there were a total of:

- 526 participating schools and organizations
- 947 participating teams (594 4th-8th grade teams and 353 9th-12th grade teams)
- 3,674 participating students (2,249 4th-8th grade students and 1,425 9th-12th grade students)
- 754 female participating students
- $277,092 raised and $275,493 spent

KidWind Challenge Reach

26 states hosted KidWind challenges this season, five more than last year in the 2022-2023 season. Five of these states hosted their first -ever KidWind challenge.

KidWind also hosted three international challenges this season. Two in Baja, California Peninsula, Mexico and, for the first time ever, one in Tainan, Taiwan. Over 60 teams competed in the Mexico challenges and over 150 teams competed in the Taiwan challenge.



Our National Reach


LARGE MIXING TUB

The World KidWind Challenge

This season's annual Worlds competition welcomed almost 400 students from 92 teams (43 high school teams, 34 middle school teams, and 15 elementary school teams). These teams represented 21 U.S. states, Mexico, and Taiwan. 63 teams competed in Worlds for the first time.

At the 9th Annual World KidWind Challenge, hosted in Minneapolis, Minnesota, there were a total of:

- 73 Participating schools and organizations
- 91 Participating teams (42 4th-8th grade teams and 39 9th-12th grade teams)
- 369 Participating students (208 4th-8th grade students and 89 9th-12th grade students)
- 700+ Attendees
- $184,500 raised and $132,500 spent

National Wind Energy Art Contest

With support from the U.S. Department of Energy's Wind Energy Technologies Office, KidWind held its first National Wind Energy Art Contest. The competition was led by artist Asia Ward. U.S. students from Kindergarten–8th grade submitted artwork relating to the theme:

"Beautiful Wind Energy"

National Wind Energy Art Contest

KidWind received 678 submissions from students representing 40 states and Washington, D.C.

A panel of judges including staff from KidWind, the U.S. Department of Energy's Wind Energy Technologies Office, and the National Renewable Energy Laboratory selected eighteen winners, two from each grade. Each winner received a $200 prize. Their work was displayed at the nation's annual CLEANPOWER 2024 conference in Minneapolis this May alongside the World KidWind Challenge. The impressive quantity and quality of submissions prompted the judges to award several "honorable mentions" which each received a $100 prize.

Winning artwork may also be displayed at the U.S. Department of Energy headquarters in Washington D.C., where it can be viewed by thousands of energy officials.

KidWind Simulation Challenge

2024 was the third year of the National KidWind Simulation Challenge. This challenge ran from January 8th to March 15th, 2024.

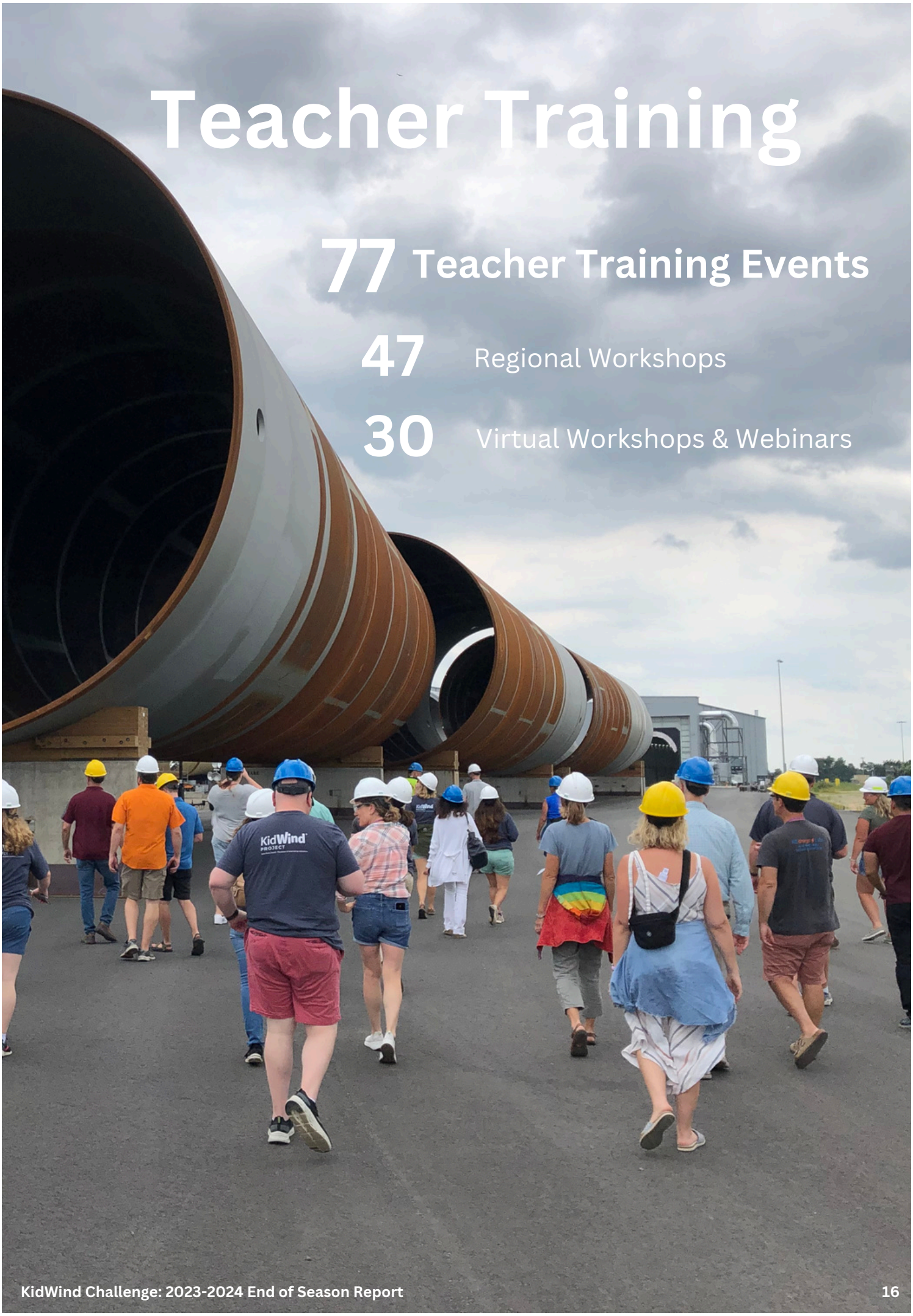
In this challenge, students use the WhiteBox Learning simulation software to construct and test virtual turbines and wind farms. This software allows students to quickly test different design options and learn how small adjustments to different parts of their virtual structures will affect the power produced.

This year, we added a new, physical component where teams used the knowledge gained from the Simulation Challenge to test real small turbine blades, using a kit we sent them.

84 teams participated in this year's Simulation Challenge, 64 more than last year. Three top performers from each grade level (elementary, middle, and high school) were recognized at the end of the Challenge and received a prize.

Thank you to our sponsors at NREL and WhiteBox Learning who made the Simulation Challenge possible!

Teacher Training



77 Teacher Training Events

47 Regional Workshops

30 Virtual Workshops & Webinars

Teacher Training Overview

This season, over 1000 educators attended our in-person and virtual workshops and webinars. “Tinker Time sessions” dove into the technical components of designing a wind turbine or solar structure of the KidWind Challenge. “Spark Sessions” offered educators the chance to learn about more specific topics related to renewable energy, such as energy justice. We offered our virtual 101 workshop series again this season, which educated teachers on the fundamentals of wind energy, solar energy, hydropower, and the power grid. This season, we were even able to offer these 101 workshops at the substantially discounted rate of $10 per person with a grant from our partners at CREATE Energy Center.

This season we also offered training sessions aimed at supporting KidWind Challenge organizers and coaches, such as how to host a KidWind challenge and how to prepare students to participate. We also piloted a successful, monthly Office Hour session, giving educators the chance to clarify any questions with Mike directly.

Looking ahead, we are currently developing an asynchronous, self-paced workshop model, based on our 101 workshop series, called “Gale Force Academy.” These mini courses will include all the regular workshop content and materials and are designed to offer more flexibility to teachers and school districts.

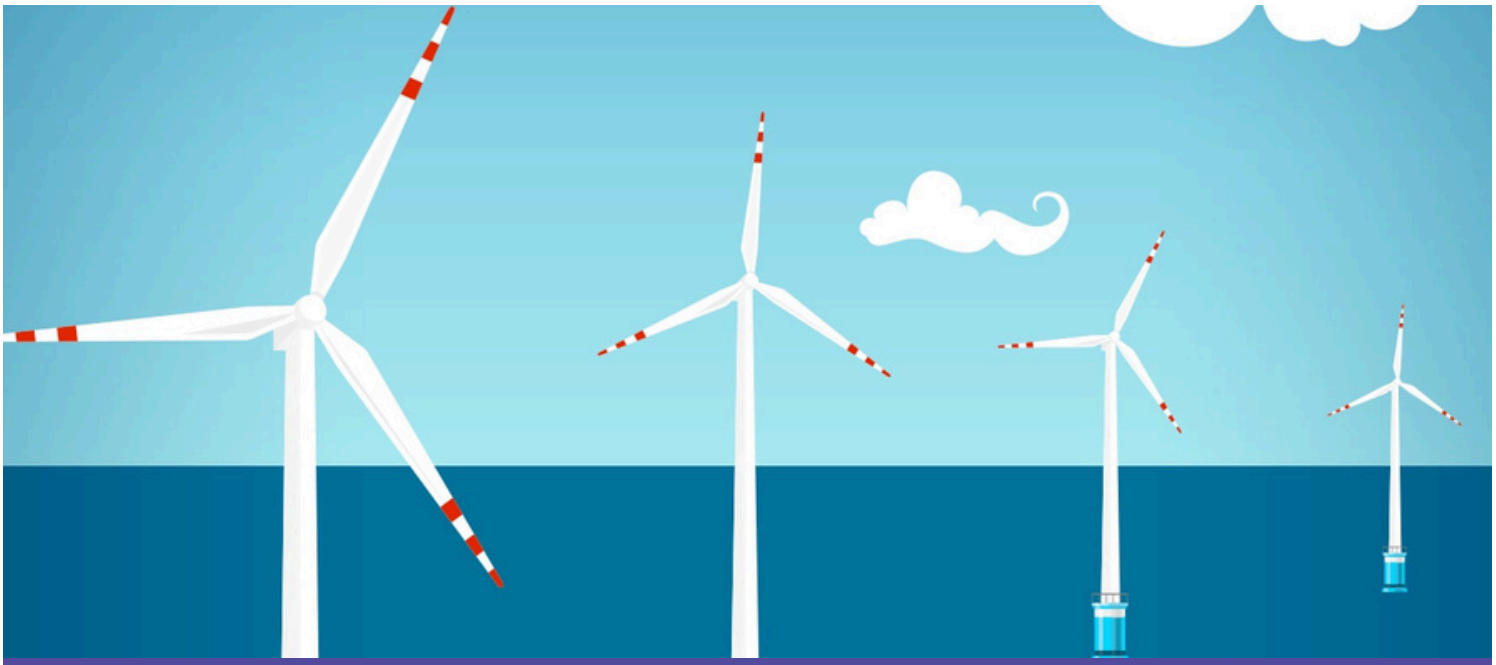
REcharge Academy

KidWind hosted the 17th REcharge Academy in Fairbanks, Alaska from June 9th-14th with our partners at the Renewable Energy Alaska Project (REAP) on the University of Alaska Fairbanks Troth Yeddha' campus. This year 34 teachers from 21 states, including 6 from Alaska attended the REcharge Academy, a more close-knit training compared to the 2023 academy in Atlantic City, NJ.

KidWind received support from Orsted, Pattern, Vernier, RWE, NREL, EDP Renewables, Invenergy, and Toyota for this year's REcharge Academy.

During the week-long workshop attendees learned about the unique energy landscape of Alaska, with a focus on renewable microgrids. Attendees toured the Cold Climate Housing Research Center on NREL's Alaska Campus, the microgrid testing lab at Alaska Center for Energy and Power, and the geothermal power plant at Chena Hot Springs. Attendees also explored resources and curriculum for teaching about microgrids in the classroom, including efficiency, storage, wind, solar, and transmission.

See us in Minnesota next year!



Curriculum Development Projects

In the 2023-2024 season, KidWind's curriculum writing work has focused on two main parts: revitalizing the WindWise Education booklet and developing activity guides for our New Jersey Offshore Wind Education project. This season, we revitalized and developed over thirty activity guides and lessons.

Since the beginning of 2023, our team has been updating the WindWise booklet, a widely used educational tool that we disseminate to our network of educators. Our team has worked to gather current statistics, increase user readability, and redesign the graphics of the booklet to be more engaging. The Introduction offers a much more robust ease into the global and U.S. national clean energy landscape, which is designed to better situate educators in this work. We have also worked to update thirteen of the lessons, and are continuing to overhaul a few of the activities to bolster folks' educational goals.

Over the last year, KidWind has worked in partnership with the New Jersey Economic Development Authority's Wind Institute to develop activity guides that address New Jersey's offshore wind development. Our team has completed two activity guides, each with five lessons for Elementary School and Middle School students, woodworking modules for high school students, coding activities, and a professional virtual reality guide. Our combined goal is to help advance career and technical education and professional advancement, and increase offshore wind awareness in New Jersey. We are grateful for this collaboration with NJEDA and all of the folks in our network who have helped us throughout this iterative process.

Our new curricular materials are free, open-access, and available beginning November 1st on our website.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