

U.S. Department of Energy Collegiate Wind Competition

October 18, 2016

U.S. Department of Energy with the
National Renewable Energy Laboratory

Welcome

This purpose of this webinar is to share information on the upcoming **Request for Proposals** for participation in the **2018 Collegiate Wind Competition**.

Agenda

About the Collegiate Wind Competition

Impacts to teams

Why is this a priority for the Department of Energy?

Partnership between teams and organizers

History of the Collegiate Wind Competition

Schedule for selection

Competition Tunnels

2018 event timeline

Question & Answer Period

Type your question in the Q&A box in your “Control Bar” at any time during the webinar.

Click “Send” to send question.

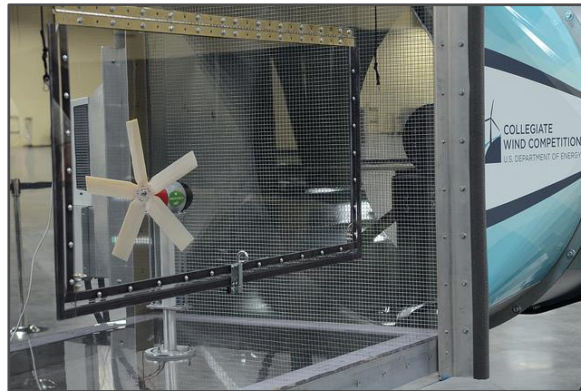
Questions will be addressed during the Q&A period at the end.

Webinar recording and transcripts will be posted on wind.energy.gov/windcompetition/.

About the Collegiate Wind Competition

The U.S. Department of Energy (DOE) Collegiate Wind Competition challenges teams of undergraduate students to design and build a model wind turbine based on market research and siting considerations, develop a business plan to market their products, and test their turbines against a set of rigorous performance criteria.

- Multidisciplinary;
- Intertwines academic coursework with hands-on learning;
- Provides real-world experience as students prepare to enter the workforce;
- Introduces next generation workforce to industry;
- Partners with K-12 programs to encourage entrance into higher academia.



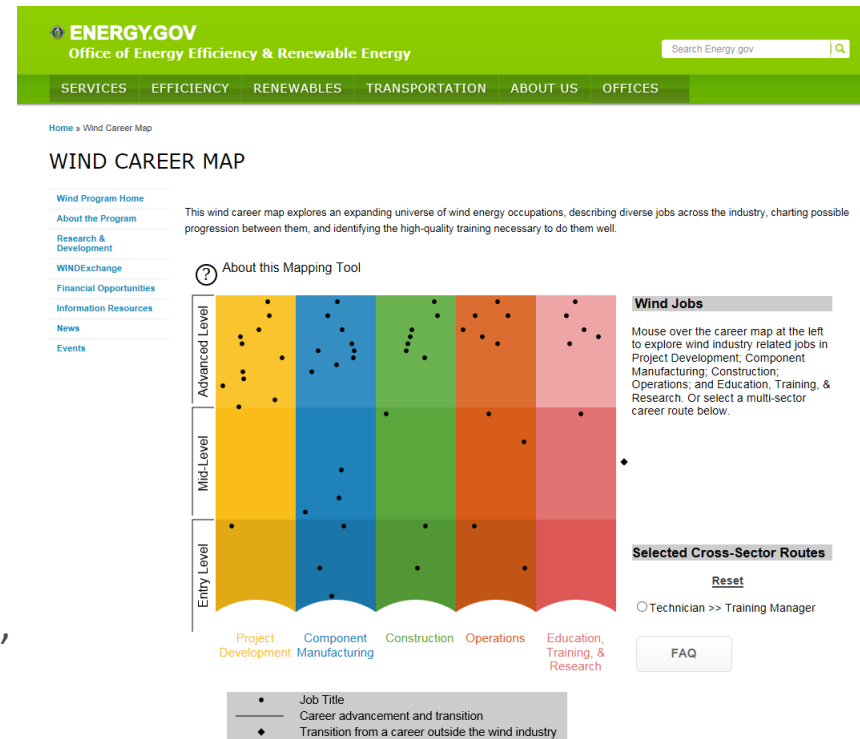
Why CWC? Expanded Need for Workers in Wind Energy

AWEA and DOE research demonstrates the need for trained workers to support expanded industry growth with great career potential:

- Scientists, educators
- Design and research engineers
- Technical workers: technicians, trade workers
- Project managers, marketing and business professionals

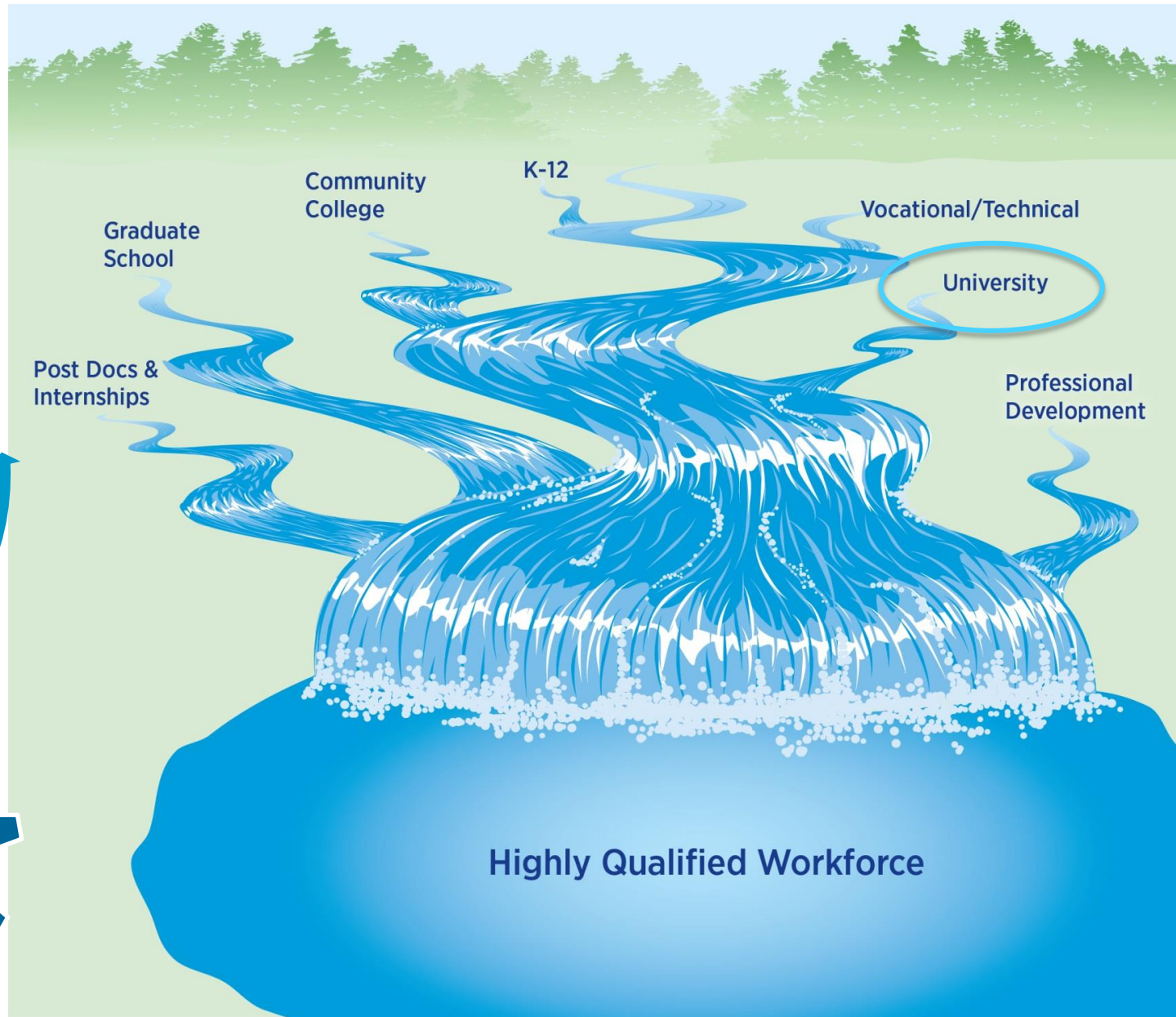
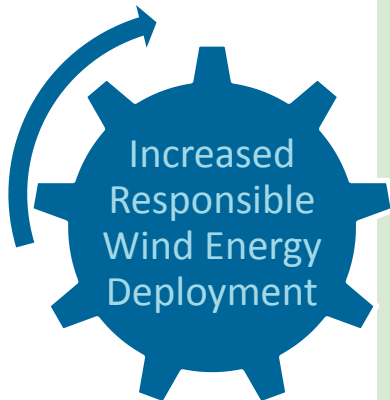
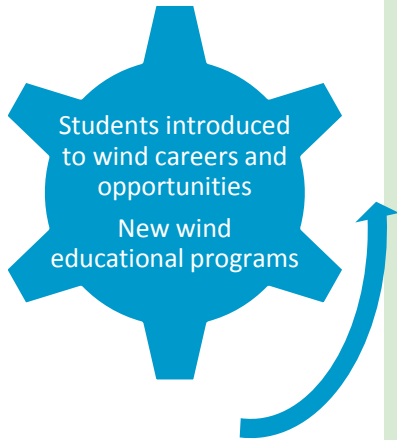
Industry Findings:

- Wind industry workers can earn high-paying salaries while working to change the world.
- Many of these key sectors require advanced degrees, but the U.S. has limited programs in wind energy engineering, science, education.
- In many cases, wind experience is of high importance to hiring employers.
- Research shows the need to focus on advanced degrees: both formal wind focused programs and activities that expand cross sector wind experience.

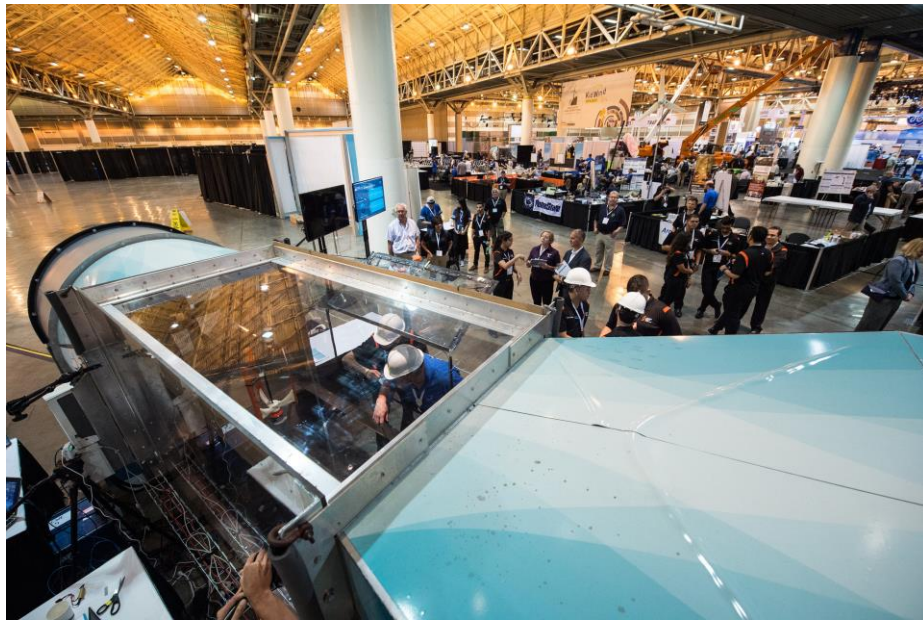


The [Wind Career Map](http://energy.gov/eere/wind/wind-career-map) explores wind energy occupations, describing diverse jobs across the industry, charting possible progression between them, and identifying training necessary to perform them well. <http://energy.gov/eere/wind/wind-career-map>

CWC Helps Achieve a Highly Qualified Wind Workforce



Co-Located with AWEA WINDPOWER



Collegiate Wind Competition History

Inaugural 2014 Competition	2015 Engineering Contest	2016 Competition	2017 Technical Challenge
10 universities, over 150 students.	2014 teams invited to re-compete.	12 universities; 5 new, 7 returning.	2016 teams invited to re-compete.
Location: AWEA WINDPOWER in Las Vegas.	Location: National Wind Technology Center in Colorado.	Location: AWEA WINDPOWER in New Orleans.	Location: National Wind Technology Center in Colorado.
Elements: <ul style="list-style-type: none"> •Turbine Testing •Technical Design •Business Plan •Market Issues 	Elements: <ul style="list-style-type: none"> •Turbine Testing •Technical Design •Bonus: Siting Challenge 	Elements: <ul style="list-style-type: none"> •Turbine Testing •Technical Design •Business Plan •Deployment Plan •People's Choice •Bonus: Visually Appealing Load 	Elements: <ul style="list-style-type: none"> •Turbine Testing •Technical Design •Bonus: Siting Challenge
Design and build a lightweight, transportable wind turbine to power small electronic devices.	Emphasized analytical modeling and validation together with electronics and turbine control skills.	Design and build wind turbine to power for off-grid applications with a load system that visually indicates the power being generated.	Introducing yaw to the turbine testing contest.



CWC Contests, Bonus Challenges and Activities

Challenge: Design a full-scale wind turbine for a high contribution renewable scenario with the opportunity to operate in an islanded mode, (off-grid or on-grid power system) to provide reliable and continuous service to an undefined load, and build a scaled version for testing in a CWC wind tunnel. Determine market opportunity of team's turbine design.

- *Business Plan*
 - Submit a formal business plan
 - Public facing presentations with questions and direct feedback from an expert panel of judges.
- *Technical Design*
 - Submit a formal design report
 - Private presentations with questions and direct feedback from an expert panel of judges.
- *Turbine Testing*
 - Test the power generation of the scaled version of your turbine in an official CWC tunnel.
- *Other*
 - People's Choice
 - Bonus Challenge
 - Educational Opportunities

CWC16 Event Schedule

Day 1 (Monday)

8 a.m.—8:30 a.m.	Lottery sign up and tunnel safety session
8:30 a.m.—4 p.m.	Turbine/load safety inspections and wind tunnel practice
4 p.m.—5 p.m.	Rules and logistics meeting with teams and principle investigators
5 p.m.—6 p.m.	Welcome reception

Day 2 (Tuesday)

8 a.m.— 8:20 a.m.	Day one overview
8:30 a.m.—3:00 p.m.	Turbine performance testing
9:30 a.m.—3:50 p.m.	Engineering design/ business plan judging
3:00 p.m.—6 p.m.	As needed: turbine testing make-up

Day 3 (Wednesday)

8:30 a.m.—8:50 a.m.	Day two overview
9 a.m.—12 p.m.	Project pitches
9:30 a.m.—12 p.m.	Engineering design/ business plan judging
12 p.m.—1 p.m.	Lunch
1 p.m.—2:15 p.m.	Project pitches
1 p.m.—2:10 p.m.	Engineering report/ business plan judging
2:15 p.m.—5 p.m.	Judges/organizers confer
5 p.m.—5:30 p.m.	Reception
5:30 p.m.—6:30 p.m.	Awards ceremony

Turbine performance testing activities
Engineering report/business plan (Private)
General activities with all participants
Project Pitches (Public)
Organizers-only activities

*Subject to change for CWC18

Competition Wind Tunnels

- Currently: Two purpose-built tunnels designed and fabricated by National Wind Technology Center engineers and technicians
- 19-ft long with 4 by 4-foot test chambers designed to test wind turbines with rotors less than 17.7 inches (45 cm) in diameter.
- The turbines are subjected to wind speeds that range from 5 to 13 m/s and tested for durability, safety, cut-in, power curve, and control.
- Wind tunnel specifications at wind.energy.gov/windcompetition/

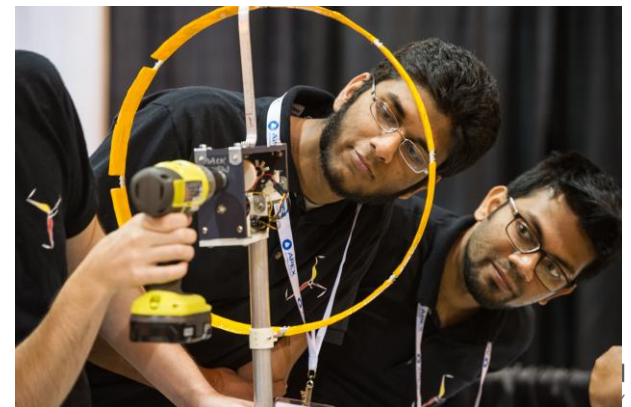
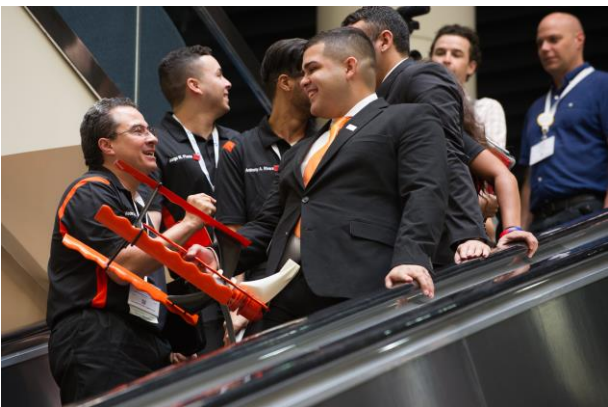
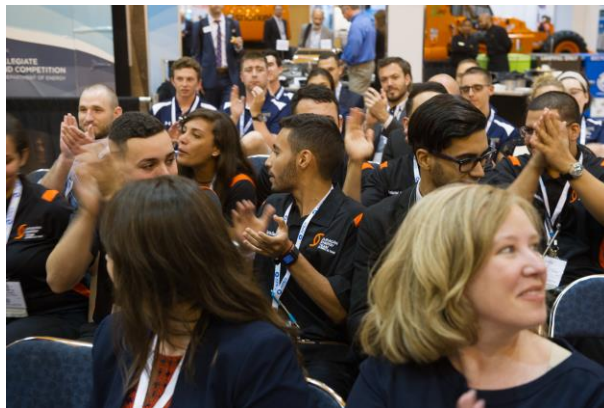


Psst... There's a more powerful tunnel in the works!



eta. 2018

Stories from CWC Alumni



Partnership between Teams and CWC Organizers



Commitment from Organizers

- Host full service collegiate competition at AWEA WINDPOWER in 2018
- Ensure fair and unbiased competition environment with industry expert judging
- \$20-\$25K seed funding
- On going wind energy educational opportunities/webinars
- Inclusion in alumni group
- Opportunities to engage with the wind industry professionals
- Opportunities to engage with K-12 STEM education efforts

Partnership between Teams and CWC Organizers

Expectations from Team

- Compete in 2018 CWC in a professional and collegial atmosphere
- Commitment to renewable energy education
- Commitment to leveraging seed funding through fundraising
- Commitment to spreading the CWC message through outreach and local impact
- Enjoy the educational opportunities that will be made available



High Level Solicitation and Execution Schedule

Issuance of Notice of Intent/Special Notice	October 4, 2016
Informational Webinar	October 18, 2016
Release of Request for Proposals	~October 31, 2016
Deadline for Technical Questions	3 weeks following RFP release
Deadline for Proposal Submittal	7 weeks following RFP release
Selection Made	18 weeks following RFP release
Contract Negotiations	~May 2017
Rules and Requirements Document	~July 2017

Page Count and Example of Past Criteria for Selection

Proposal is 10 pages (not including title page, table of contents, letters of support, resumes, or NREL required documentation)

Criteria for selection will be available in the RFP, however, for reference, criteria that has been used in the past include:

- **Educational Objective and Integration (25%)** - Demonstrate that students are supported in the three contest areas of the Competition and that contest area content is integrated into the students' educational experience.
- **Organization and Project Planning (25%)** - Demonstrate understanding of all the elements involved in the Competition and outline the planned approach to execution of elements and subcontract deliverables, including how unique obstacles, such as academic calendars, will be overcome.
- **Team Diversity (20%)** - Demonstrate team diversity is consistent with NREL/DOE efforts to cultivate a wind workforce with a diversity of backgrounds and educational training.
- **Institutional Support and Fundraising (20%)** - Demonstrate the collegiate institution's commitment to provide support or acquire necessary additional funds through grants or fundraising.
- **Communication and Outreach (10%)** - Demonstrate ability and willingness to participate in the Competition's outreach activities and to cultivate the spirit of the Competition in the broader community.

Event Timeline: May 2018 CWC at WINDPOWER

Month/Year	Competition Activity
Winter/Spring 2017	Select Teams/Negotiate contracts
April 20-22, 2017	Collegiate Wind Competition 2017 Technical Challenge at the National Wind Technology Center
August 2017	Kick-off meeting for Competition
Fall 2017	Concept development
Spring 2018	Product development and testing
May 2018	Competition takes place
June 2018	The winning wind turbine is put on display at the U.S. Department of Energy headquarters in Washington D.C.

Questions and Comments

Thank you for joining us today on this informational webinar!

Contacts

Amber Passmore, CWC Manager, DOE

amber.passmore@ee.doe.gov

Elise DeGeorge, CWC Operations Manager, NREL

elise.degeorge@nrel.gov

Important Links

Special Notice: <https://www.fbo.gov/spg/DOE/NREL/NR/NREL-CWC-2018/listing.html>

Request for Proposals to be made available on FedBizOpps: www.fbo.gov

(Note: Following release of RFP, informal questions cannot be asked on the content of the RFP)

For more information please visit wind.energy.gov/windcompetition/

Other ways to get involved include volunteering, speaking, judging, and more!