



# DOE Wind Energy Technologies Office Selects 15 Projects Totaling \$27 Million to Address Key Deployment Challenges for Offshore, Land-Based, and Distributed Wind

WETO has selected 15 projects for negotiation for award to lower costs and address barriers to deployment of wind energy, ranging between \$500,000 and \$4,500,000.

[Wind Energy Technologies Office](#)

September 21, 2023

 10 min



In December 2022, the U.S. Department of Energy's (DOE) Wind Energy Technologies Office (WETO) [released a funding opportunity](#) to lower costs and address barriers to deployment of wind energy in all its applications—offshore, land-based, and distributed.

This opportunity, funded through President Biden's Bipartisan Infrastructure Law, will support research to improve offshore wind transmission technologies, reduce barriers for distributed wind deployment by communities, better understand the impacts of offshore wind development on affected communities and reduce impacts to wildlife.

Wind energy accounts for more than 10% of total domestic electricity generation and will play a significant role in achieving President Biden's goals to reach 100% clean electricity by 2035 and a net-zero-emissions economy by 2050.

In September 2023, WETO [selected 15 projects](#) for negotiation for award under this funding opportunity, ranging between \$500,000 and \$4,500,000.

*Selection for award negotiations is not a commitment by DOE to issue an award or provide funding. Before funding is issued, DOE and the applicants will undergo a negotiation process, and DOE may cancel negotiations and rescind the selection for any reason during that time. DOE award amounts are subject to change pending negotiations.*

The projects selected for each topic area are listed below.

## **Topic Area 1: High-Voltage Direct Current (HVDC) for Offshore Wind Transmission – \$8.5 million total for 4 projects**

Projects in this topic area will advance technologies needed to transmit large amounts of electricity from offshore wind over long distances and provide the education and training to equip the workforce.

# Subtopic 1a: HVDC Standards and Benchmark System Development for Offshore Wind

Funding in this subtopic area will address gaps in U.S. HVDC standards by developing benchmark systems and revising standards to incorporate transmission for offshore wind.

**DNV Energy USA Inc.**

**Project Title:** Enabling HVDC Transmission and Offshore Wind via the Creation of HVDC Standards and Benchmark System Models

**Location:** Dallas, Texas

**DOE Award Amount:** \$2 million

**Project Description:** While the U.S. bulk power system was designed primarily for alternating current-based systems, HVDC systems are needed to transmit electricity from offshore wind over long distances. This project will analyze and develop a plan to address gaps in U.S. HVDC standards and develop models for researchers, equipment manufacturers, and grid engineers. DNV and its project partners will also provide internship and academic opportunities for a diverse and inclusive electric power engineering workforce.

# Subtopic 1b: Multi-Terminal HVDC Controls and Functional Requirements

Funding in this subtopic area will support development of HVDC controls and identify functional requirements to address multi-terminal HVDC deployment barriers.

**General Electricity Company, GE Research**

**Project Title:** DC Multi-Terminal Simulation (HVDC MultiSim)

**Location:** Niskayuna, New York

**DOE Award Amount:** \$3 million

**Project Description:** This project will develop innovative controls and protection strategies for a multi-terminal HVDC network and implement and validate them on a new software-in-the-loop environment at the National Renewable Energy Laboratory (NREL) called MultiSim. Other HVDC manufacturers will then be able to use the new MultiSim capability at NREL to test products for scalability, safety, and cybersecurity.

### **Oak Ridge National Laboratory**

**Project Title:** Operation of Vendor-Agnostic Multi-Terminal DC-Based Offshore Wind Integration

**Location:** Oak Ridge, Tennessee

**DOE Award Amount:** \$2.8 million

**Project Description:** This project will develop HVDC technical specifications for wind integration using multi-terminal systems connecting multiple offshore platforms that may use multiple vendors. It will enable connections between multiple U.S. system operators and utilities. The project will also develop functional requirements for normal and emergency operating conditions in a hierarchical control system. Oak Ridge National Laboratory and project partners will engage with minority communities in different regions of the United States to enhance diversity in STEM education.

## **Subtopic 1c: Curriculum Development for Education and Workforce Training**

Funding in this subtopic area will identify and address gaps in education and workforce training to support HVDC transmission deployment for U.S. offshore wind.

### **Iowa State University**

**Project Title:** HVDC-Learn: Modular Education & Workforce Training in High Voltage Direct Current Electric Transmission

**Location:** Ames, Iowa

**DOE Award Amount:** \$700,000

**Project Description:** This project will engage multiple educators and industry representatives to collaboratively develop interactive educational modules, strengthening the foundational skills needed to design and deploy HVDC for the transmission of electricity from land-based and offshore wind. The project will develop online and in-person courses targeting multiple technician and engineering sectors and will build strong connections between certificate and degree programs and industry applied work.

## **Topic Area 2: Advancing Deployment of Distributed Wind – \$4.5 million for 1 project**

This topic areas will improve permitting processes to make distributed wind more accessible to communities where distributed wind can be cost-effectively and equitably deployed. [Distributed wind energy](#)—wind turbines installed on-site to provide power for nearby homes, farms, schools, and businesses—can help communities transition to low-carbon energy. However, established zoning and permitting processes for distributed wind are not present in all municipalities, and others have burdensome requirements that discourage development. To reduce costs and accelerate the equitable deployment of community-based clean energy, funding in this topic area will support innovative zoning and permitting approaches for distributed wind projects that leverage successes that have been achieved in permit reform for distributed solar photovoltaics and that work for communities and industry alike.

### **International City County Management Association**

**Project Title:** WindWise: Reducing Distributed Wind Soft Costs Through Designation and Technical Assistance

**Location:** Washington, D.C.

**DOE Award Amount:** \$4.5 million

**Project Description:** Leveraging the success of the SolSmart program which addresses solar energy permitting barriers, this project will develop a national

outreach, training, and technical assistance program that will help local governments improve permitting processes for distributed wind, thereby reducing the “soft costs.” Local governments will be able to achieve a designation for successfully implementing best practices in permitting, zoning, planning, inspection, community engagement, financing, and incentives.

## **Topic Area 3: Offshore Wind Energy Social Science Research – \$6.5 million total for 5 projects**

Projects in this topic area will support social science research and community engagement that helps communities benefit from offshore wind development.

### **Subtopic 3a: Community Impacts of Offshore Wind Development**

Funding in this subtopic area will help characterize economic and other impacts of offshore wind development on local communities.

#### **Oregon State University**

**Project Title:** Community Benefits from Offshore Wind Development

**Location:** Corvallis, Oregon

**DOE Award Amount:** \$2.5 million

**Project Description:** This project will collect systematic, comparative, and longitudinal data on 1) mechanisms for providing community benefits from offshore energy development and how community benefit agreements impact local economies; 2) the needs, interests, perceptions, and preferences of West Coast communities affected by offshore wind development, with a particular focus on rural and disadvantaged groups; and 3) the impact community perceptions have on views and actions related to offshore wind development. The project will provide actionable information to decision makers, developers, and community members for developing and negotiating community benefits.

## **University of Rhode Island**

**Project Title:** Energy Justice Indicators: Measuring Community Effects of Offshore Wind Energy Development

**Location:** Kingston, Rhode Island

**DOE Award Amount:** \$2.5 million

**Project Description:** This project will: 1) work with East Coast communities impacted by offshore wind energy development to collaboratively create measurable indicators for energy justice; 2) qualitatively and quantitatively assess these indicators for port communities including New Bedford, Massachusetts, and New London, Connecticut, over three years; and 3) share results with government, community engagement practitioners, industry professionals, and frontline communities.

## **Subtopic 3b: Capacity Building for Community Participation in Offshore Wind**

Funding in this subtopic area will support projects that build capacity for communities to better participate in, and benefit from, offshore wind development.

### **Gulf of Maine Research Institute**

**Project Title:** Fostering Capacity for Fishing Communities to Engage Effectively and Constructively in Offshore Wind Development in the Gulf of Maine

**Location:** Portland, Maine

**DOE Award Amount:** \$500,000

**Project Description:** This project will build capacity for fishing communities to engage in the offshore wind development process in the Gulf of Maine by building relationships between the various sectors of fishing communities, wind developers, and federal and state agencies.

### **Sandia National Laboratories**

**Project Title:** Offshore Wind Energy Co-Design Toolkit for Frontline Communities

**Location:** Albuquerque, New Mexico

**DOE Award Amount:** \$500,000

**Project Description:** This project will work with communities in New York, Virginia, the Gulf and the West Coast to develop a toolkit with comprehensive resources to equip frontline communities to engage in capacity building and site planning for offshore wind development. The goal is to enable communities to be highly informed advocates in decision making with strategies that can provide long-term societal benefits.

### **Yurok Tribe**

**Project Title:** Yurok Tribe Community Outreach for Offshore Wind

**Location:** Klamath, California

**DOE Award Amount:** \$500,000

**Project Description:** This project will build the capacity of the Yurok Tribe to foster and engage community participation in floating offshore wind development off the coast of California. The tribe will conduct research and leverage Traditional Ecological Knowledge to understand the impacts of offshore wind planning, development, construction, and operations on the local community.

## **Topic Area 4: Bat Deterrent Technology Development – ~\$7.5 million total for 5 projects**

Projects in this topic area will advance deterrents, which are technologies that help bats avoid wind turbines. Funding in this topic area will support bat behavioral research, technology development, and field testing to advance bat deterrent technologies.

**Bat Conservation International**



**Project Title:** Reducing Bat Fatalities at Wind Turbines Using Aircraft Detection Lighting Systems as a Passive Deterrent

**Location:** Austin, Texas

**DOE Award Amount:** \$2.5 million

**Project Description:** Wind farms have nighttime lighting that alerts aircraft to obstructions, either by flashing continuously or by turning on when an aircraft is detected nearby (referred to as aircraft detection lighting system (ADLS)). This project will test whether the use of an ADLS can minimize bat fatalities at wind energy facilities by illuminating aviation lighting only when necessary to reduce attraction to wind facilities when bats are migrating.

### **Boise State University**

**Project Title:** Designing an Effective Acoustic Deterrent to Protect Bats

**Location:** Boise, Idaho

**DOE Award Amount:** \$1 million

**Project Description:** This project will use what is known about bat hearing, echolocation, and ultrasonic sound propagation to develop and test better playback sounds to improve the efficacy of acoustic bat deterrents. This project leverages the benefits of controlled laboratory studies in Boise State University's custom-built flight room to target the most effective acoustic deterrent for bats.

### **Electric Power Research Institute, Inc.**

**Project Title:** Evaluating Deterrent Efficacy Through 3D Bat Behavior Monitoring at Wind Energy Facilities

**Location:** Palo Alto, California

**DOE Award Amount:** \$2.3 million

**Project Description:** This project will evaluate whether ultraviolet light can be used to deter bats from flying near operating wind turbines by altering bats' perception of turbines and thus preventing them from associating turbines with desired resources. This project will use sophisticated three-dimensional flight tracking along with established means of detecting fatalities to test the effect of UV deterrent stimuli on bat activity.

## Iowa State University

**Project Title:** Advancing Aerodynamic Whistle-Based Ultrasonic Bat Deterrence Technology to Enable Ultra-Large Wind Turbines

**Location:** Ames, Iowa

**DOE Award Amount:** \$750,000

**Project Description:** In order for ultrasonic bat deterrents to be effective the sound must cover (i.e., “esonify”) the entire rotor swept area. This has been challenging because high frequency sound reduces quickly, most deterrents are installed on the nacelle, and the rotor swept area for many wind turbine designs is getting larger. This project seeks to address this challenge by advancing a blade mounted deterrent that can esonify the rotor swept area effectively while minimizing the adverse impact on turbine performance.

## National Renewable Energy Laboratory

**Project Title:** Using Sensory Modalities and Behavioral Context to Design Deterrent Systems for Bats

**Location:** Golden, Colorado

**DOE Award Amount:** \$1 million

**Project Description:** This project will evaluate whether visual stimuli including bright aviation lights, silhouettes, and turbine surface ambient light reflectance elicits attraction responses from bat species. The project will assess the strength and scale of potential attraction effects and evaluate several attraction disrupting deterrents including changes in lighting characteristics and changes in turbine surface reflectance.

# Additional Information

---

- Learn more about WETO’s portfolio of funded projects on the [WETO Projects Map](#).
- Read the [funding notice](#) or download the full funding opportunity on the [EERE Exchange website](#).

- Sign up for the [Office of Energy Efficiency and Renewable Energy \(EERE\) email list](#) to get notified of new EERE funding opportunities.
- Receive the latest information on WETO funding opportunities, events, and other news by subscribing to the monthly [Catch the Wind](#) newsletter, as well as the comprehensive, biannual [Research and Development \(R&D\) Newsletter](#).

### Tags:

WIND ENERGY

CLEAN ENERGY

DEPLOYMENT

ENERGY JUSTICE

GRID DEPLOYMENT AND TRANSMISSION



**Building the energy economy. Reducing environmental risks. Expanding the frontiers of knowledge with science.**

### Quick Links

[Leadership & Offices](#)

[Mission](#)

[Contact Us](#)

[Careers](#)

### Resources

[Budget & Performance](#)

[Directives, Delegations, & Requirements](#)

[Freedom of Information Act \(FOIA\)](#)

[Inspector General](#)

[Privacy Program](#)

### Federal Government

[USA.gov](#)

[The White House](#)

[Vote.gov](#)

**Subscribe To Our Newsletter**

Email

Subscribe

## Follow Us



[Notice of EEO Findings of Discrimination](#)

[Open Gov](#)

[Accessibility](#)

[Privacy](#)

[Information Quality](#)

[No Fear Act](#)

[Web Policies](#)

[Vulnerability Disclosure Program](#)

[Whistleblower Protection](#)