

# Defense & Disaster Deployable Turbine



*Partnering to identify opportunities for rapidly deployable wind energy systems to power national defense and disaster recovery missions world-wide.*

*Illustrations courtesy of Mike Bergey, Bergey Windpower Co.*

When conflicts and natural disasters unfold around the world and military or civil humanitarian response is needed, quick access to energy on location is critical to ensuring a successful mission or crisis response. The U.S. Department of Energy's (DOE's) Defense and Disaster Deployable Turbine (D3T) project is evaluating the market potential for rapidly deployable wind energy technologies, developing wind turbine design requirements for operational applications, and assessing commercially available wind technologies against operational design requirements to help identify technology gaps and research and development opportunities.

## Powering Mission Success

The U.S. military conducts a wide range of missions throughout the world, including humanitarian crisis response. These missions currently depend on reliable access to liquid fuel sourced through a complex global logistics system.

Generating power on location with wind technology, whether at a contingency base or disaster response coordination point, can reduce the risk of disruption or attack during fuel transport and enhance mission reach by diversifying energy sources.

The U.S. military has identified the need for energy diversity in their strategic planning and investments. Much of the

focus on renewable energy thus far has been on solar photovoltaics.

The D3T project collaborates directly with military and industry stakeholders to inform the development of deployable wind energy technologies.

## Developing High-Value Wind Technology

Commercially available wind turbines have been optimized to provide cost-effective, reliable energy over multiple decades in civilian applications at locations assessed for quality wind resources.

However, natural disasters and human conflicts can occur anywhere in the world

and do not always transpire in well-studied locations that possess good-quality wind resources. Moreover, the operations responding to these events typically last only a few weeks to a few years.

Because it is unlikely that existing wind turbine products are optimized for these types of applications, the D3T project seeks to identify key design drivers to develop a more optimal deployable turbine concept that meets these specific needs.

Working with both wind industry and military stakeholders, the D3T project will use information gathered from prior studies, direct interviews, and results



*Quick access to energy on location is critical when human conflicts and natural disasters arise, and deployable turbine concepts can help meet these specific needs.*

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from modeling and simulation tools to define general design specifications for one or more deployable wind applications.

These design specifications can then be used to guide investments in research, development, and testing of new wind technology solutions that provide maximal value to meeting mission objectives.

### **Collaborate with the D3T Project**

The D3T project facilitates technical discussions between the wind industry, the U.S. Department of Defense, and other federal agency stakeholders to define energy needs and identify purpose-driven technology solutions.

Contact us to provide input or collaborate on the following topics:

- Technical specifications for deployable wind concepts, prototypes, and commercial products, along with any data on fielded systems in defense or disaster response applications.
- Performance specifications for energy systems to support defense operational energy needs, especially soldier and basing energy needs.
- Collaborative opportunities to develop optimal deployable wind turbine systems from research and development through testing and evaluation, as well as fielding systems in an operational environment.

### **DOE National Laboratory D3T Project Leads**

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D3T is led by the DOE's Sandia National Laboratories, with funding from the DOE Office of Energy Efficiency and Renewable Energy's Wind Energy Technologies Office.

Sandia National Laboratories is a multimission laboratory managed and operated by National Technology & Engineering Solutions of Sandia, LLC, a wholly owned subsidiary of Honeywell International Inc., for the U.S. Department of Energy's National Nuclear Security Administration under contract DE-NA0003525.