

# Deployment & Market Transformation



## NREL helps deploy and transform markets for renewable energy and energy efficiency technologies by:

- Providing comprehensive implementation expertise to deliver sustainable energy solutions and accelerate market adoption.
- Leading the transition from early adoption to common acceptance of energy efficiency and renewable energy.

Early Demos

Replicable Implementation

Research & Development

Deployment & Market Transformation

Broad Marketplace Adoption



# Integrated Applications

NREL's integrated applications capabilities include technology-neutral policy, financial, and technical advice to federal, state, and local agencies; international agencies and organizations; tribes; and corporations who strive to create sustainable, net zero-energy facilities, campuses, bases, and communities.

Campuses

Military Installations

States

Islands

Corporate Facilities

- **“In-the-Field” Stakeholder Engagement**  
We have staff located at the Department of Energy (DOE), the Department of Defense (DOD), and in Alaska and Hawaii. We also partner with the U.S. Virgin Islands and General Services Administration to develop and implement solutions for renewable energy and energy efficiency technologies for specific locations.
- **Strategic Guidance for Large-Scale Integrated Deployment**  
We lead vision development, road mapping, and future task-planning efforts for projects involving technical assessment of multiple energy efficiency and renewable energy technologies and offer services in project development, finance, and execution.
- **Technology-Neutral Screening and Opportunity Assessment**  
We use a combination of commercially developed and NREL-developed tools to provide efficiency and renewable energy assessments of existing buildings, facilities, military installations, and communities. We developed and offer a week-long commercial buildings energy assessment training, and develop new assessment tools.
- **Project Development, Finance, and Execution**  
We employ commercial practices in project development and provide reviews, proformas, and checklists; assess project risk; and advise on financing mechanisms for federal, state, and local projects.
- **Project Engineering and Analysis Support**  
Working with the Science and Technology centers, we provide detailed engineering for specific systems, design reviews of labs and data centers, and review of technical specifications; and we test, measure, and commission hardware.

# Market Transformation

NREL's market transformation capabilities include technology-specific tools, information, partnerships, and innovation that address market barriers for sustainable energy technologies. We also provide deep technical expertise to guide sustainable energy projects and solve implementation problems for federal and private clients.

Wind & Water

Solar & Buildings

Fuels, Vehicles, Transportation

Grid & Biopower

Technology Deployment Tools

- **Industry and Market Stakeholder Engagement**  
Implementing new technologies often requires new business relationships among equipment manufacturers, suppliers, and customers. We help build stakeholder relationships to accelerate the market and unite stakeholders to implement sustainable technologies.
- **Deployment Program Management and Evaluation**  
As a DOE laboratory, we work hand-in-hand with the department to help shape, execute, and evaluate several large DOE Office of Energy Efficiency and Renewable Energy deployment programs designed to solve a particular set of market barriers for implementing technologies. These programs include Clean Cities, Wind Powering America, the Solar Decathlon, Solar Market Transformation, the Federal Fleets Program, and others.
- **Technical Assistance and Innovation**  
We use our expertise on individual technologies to measure resources, analyze designs, guide project implementation, and troubleshoot problems. This approach helps clients implement technology or energy concepts that may not be fully commercial. In new areas such as microgrid design, we provide innovative approaches to integrating renewables and increasing energy security at locations interested in using these technologies in new or existing electrical networks.
- **Policy and Regulatory Analysis**  
We provide policy and regulatory analysis on topics related to federal fleet mandates, local electric vehicle incentives, and solar permitting standards. Our database of federal and state incentives for alternative fuels and advanced vehicles is recognized nationwide.
- **Web-Based Tools and Data Management**  
We create tools to analyze the energy savings and economics of energy efficiency, advanced transportation, and renewable energy projects; and prioritize opportunities. Mobile applications, interactive calculators, market and metrics databases, and geographic tools are all in the tool bag for helping inform sustainable energy projects.
- **Workforce Development**  
We work with specific technical areas to identify workforce needs and develop appropriate curricula, workshops, guidelines, and online training tools.

**Here's how we apply the technologies:** NREL's deployment and market transformation (D&MT) activities encompass the laboratory's full range of technologies, which span the energy efficiency and renewable energy spectrum. NREL staff educates partners on how they can advance sustainable energy applications and also provides clients with best practices for reducing barriers to innovation and market transformation.

Some examples:

### **Buildings and Energy Systems**

Beginning with the Miramar Naval Air Station, our staff is working with more than 10 DOD installations to develop and implement net zero-energy concepts. We start by inventorying energy consumption, which helps identify an integrated portfolio of technologies that can significantly reduce energy use. We can then provide detailed recommendations on appropriate energy options, analysis of electrical system integration, and agency-wide energy investment strategies. For more information, access [www.nrel.gov/innovation/pdfs/48937.pdf](http://www.nrel.gov/innovation/pdfs/48937.pdf)

### **Solar and Buildings**

We manage DOE's Solar Decathlon, a biennial competition among collegiate teams. The award-winning program challenges students to design, build, and operate solar-powered houses that are cost-effective, energy-efficient, and attractive. The winner of the competition is the team that best blends affordability, consumer appeal, and design excellence with optimal energy production and maximum efficiency. For more information, access [www.solardecathlon.gov](http://www.solardecathlon.gov)

### **Wind**

Our workforce development efforts have led to a successful Wind for Schools project. This program operates in 11 states to train university students on wind technologies, install small wind turbines at K-12 schools, and help the school's teachers use the wind turbine to educate children and the community. For more information, access [www.windpoweringamerica.gov/schools\\_wfs\\_project.asp](http://www.windpoweringamerica.gov/schools_wfs_project.asp)

### **Fuels, Vehicles, and Transportation**

Private and government fleets are often the first to adopt alternative fuels and advanced vehicles because of their focus on fuel costs and corporate sustainability mandates. We have worked with industry to ease the way for natural gas, biofuels, hybrids, and electric vehicles into fleet application by providing online tools such as the Alternative Fuels and Advanced Vehicles Data Center. We also offer technical assistance, as well as develop and test new vehicle engines and fuel dispensers. For more information, access [www.eere.energy.gov/afdc](http://www.eere.energy.gov/afdc)



## Partnering with NREL

NREL supports the real-world applications of renewable energy and energy efficiency technologies through resources designed to assist with technology deployment. The laboratory can partner with you to put decades of energy innovation into action through comprehensive energy solutions that will help you achieve your goals.

If you'd like to access our capabilities for applying sustainable and clean energy technologies, we offer flexible partnership agreements. Several business arrangements for partnering with NREL are also in place. We can also customize our agreements for small and large businesses, institutions, and communities worldwide.

### Contacts

For more information about working with NREL's Deployment and Market Transformation (D&MT) team, email us at [nrel.deployment@nrel.gov](mailto:nrel.deployment@nrel.gov).

You can also access the Applying Technologies website at [www.nrel.gov/applying\\_technologies](http://www.nrel.gov/applying_technologies) or the EERE Deployment site at [www.eere.energy.gov/deployment](http://www.eere.energy.gov/deployment).



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