

Wind Vision:

A New Era for Wind Power
in the United States

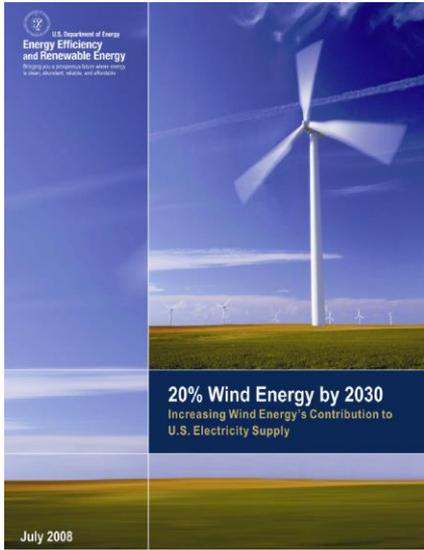
**Wind Vision:
Impacts**

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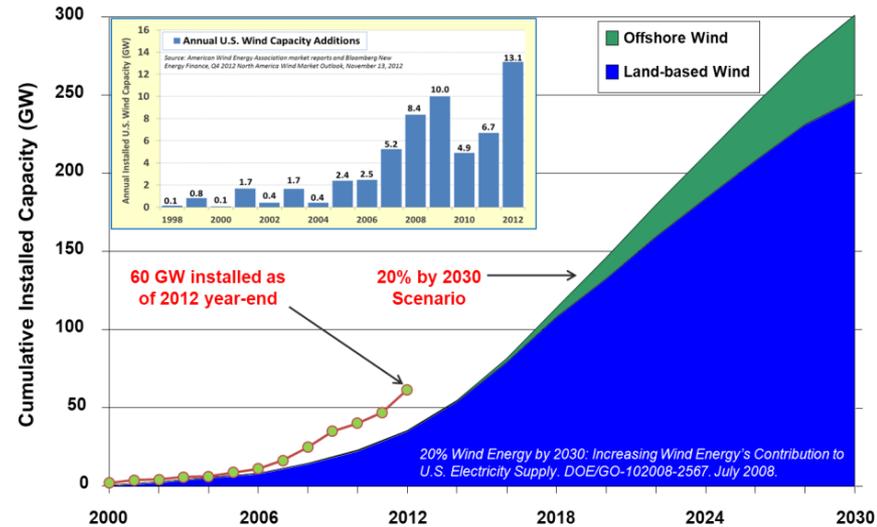


DOE EERE - 20% Wind by 2030 report analyzed and projected:

- What is a vision for U.S. wind?
- What, where and how much U.S. wind resources are available?
- Can the U.S. scale domestic manufacturing and installation?
- Can wind technology improve to achieve competitive cost performance with fossil fuels?
- Can wind be reliably integrated with the U.S. transmission grid?

DOE Wind Vision 2015 answers these questions clearly, with unbiased data and also explores new questions:

- What are capacity modeling scenarios based on current EIA AEO and literature based sources?
- What are the quantified costs and benefits of 10%, 20% & 35% vision of U.S. wind?
- What steps are needed to achieve these visionary levels?



DOE's 20% Wind Energy by 2030 report analyzed is 20% wind possible and can wind scale? New DOE Wind Vision confirms with data and asks what are the quantified impacts of the Wind Vision and how do we get there?

- Analyze the **economic competitiveness of wind energy** across multiple sensitivities: near-(2020), mid-(2030), long-term(2050)
- Analyze a credible wind energy scenario to quantify: **effects on CO₂ as well as other costs, benefits, and impacts** (e.g., water savings, land use, wildlife, transmission, and workforce)
- **Inform priorities** for DOE Wind and Water Power Technologies Office and other key stakeholders
 - Continued investment in wind technology and LCOE reductions
 - Reducing environmental, social and wildlife impacts

Accomplishments Since 2008

In several aspects, the wind industry has made progress since 2008 exceeding expectations from the DOE Report, *20% Wind Energy by 2030*

	2008 Actuals	2013 Projections from the 2008 Report, <i>20% Wind Energy by 2030</i>	2013 Actuals
Cumulative installed wind capacity (GW)	 25	 48	 61
States with utility-scale wind deployment	 29	 35	 39
Costs (2013\$/MWh)	 71	 66	 45

Wind Energy Today

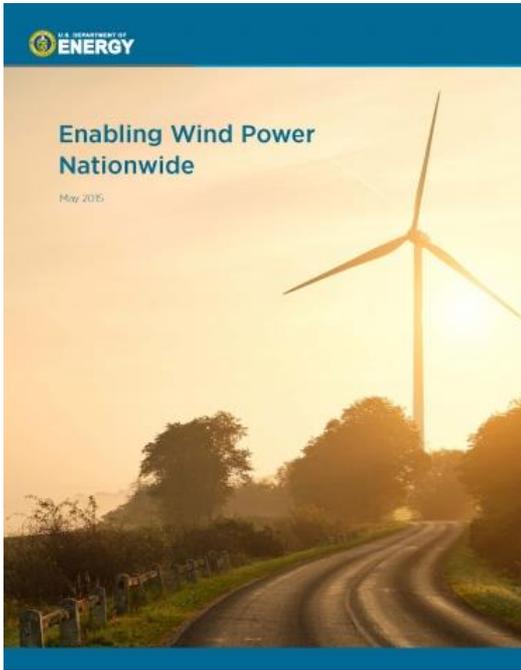
- Wind energy today is **already an important part of America's clean energy mix** with utility scale wind turbines installed in 39 states
- With continued investments in innovation and forward-thinking policies, wind can provide meaningful value to **every state**

Wind Vision Report Basics

- The Wind Vision analysis modeled the expansion of wind energy based on the economic competition of all energy generating sources
 - Under this *Study Scenario* it was found that as the **economically sensible option based on a state-by-state analysis**, wind energy could supply 10% of the nations electricity in 2020, 20% in 2030, and 35% in 2050
 - The Wind Vision *Study Scenario* takes into account the projected growth of other renewables such as solar, as well as the scheduled decommissioning of existing generation (fossil, nuclear and renewables)
- **Did not** model policies that would favor wind energy expansion. Policies used to model wind growth were held as defined as of January 1, 2014
- Based on the *Study Scenario*, wind energy could achieve approximately 50% of the mandates outlined in the EPA's 111D scenario **by 2030**.

- **Wind research and innovation, beyond central industry expectations, remains critical to the continued viability of wind technology** and reduces the long-term need for policy;
- **Increased electricity sector expenditures** (to 2030) for the *Study Scenario* **are exceeded by the value of the quantified** benefits (up to 5X or potentially more) in the form of reduced GHG emissions, improved air quality, and reduced water consumption, among others. **But through 2050, electricity cost savings exceed 2%;**
- **Experience tells us that high wind penetration and a reliable electric grid are both achievable** (currently 11 states > 10% wind and 2 states > 25%);
- **A comprehensive roadmap** consistent with the study findings **informs future program activities** and industry priorities and requires engagement with the broad wind and environmental community to refine and pursue these activities.

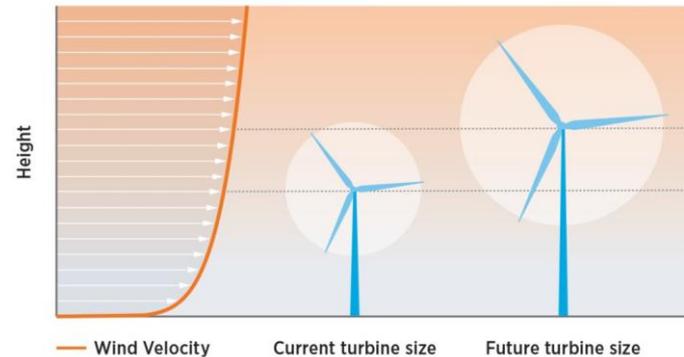
The Wind Program is committed to the needs of the industry, and will continue to contribute in activities that lower LCOE and address key market barriers



New DOE Report: Issued 5/2015

Objective:

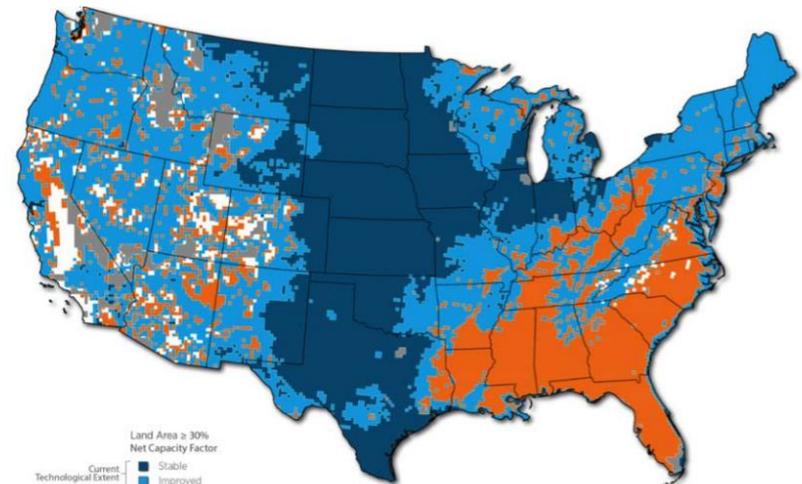
- Continuing Analysis building upon Wind Vision modeling
- Analyzing insights into how to further expand U.S. wind deployment



Wind Program Investments:

Pursue higher heights to access faster, more consistent wind

- Taller Towers FOA - FY2014
- Larger Blades FOA - FY2015



This map illustrates general wind resource potential only and is not suitable as a siting tool. More detailed site and wind speed data, as well as coordination with relevant authorities, are needed to