

2013 Renewable Energy Data Book



Acknowledgments

This report was produced by Sean Esterly and Rachel Gelman, edited by Karin Haas, and designed by Stacy Buchanan and Alfred Hicks of the U.S. Department of Energy's National Renewable Energy Laboratory (NREL). We greatly appreciate the input, review, and support of Ookie Ma, Steve Capanna, Fred Joseck, Hoyt Battey, Douglas Hollett, Minh Le, Jay Nathwani, Tien Nguyen, Christopher Richard, Valerie Reed, and Logan Putnam of DOE, as well as Doug Arent, Austin Brown, Jacquelin Cochran, Paul Denholm, David Feldman, Bryan Hannegan, Jeff Logan, Maggie Mann, David Mooney, Robin Newmark, Michael Pacheco, Gian Porro, Paul Schwabe, and Keith Wipke of NREL.

The primary data represented and synthesized in the *2013 Renewable Energy Data Book* come from the publicly available data sources identified on page 124.

Front page background photo from iStock/10400515

Front page inset photos (left to right): iStock/754519, iStock/4393369, iStock/354309, iStock/2101722, iStock/2574180, iStock/5080552, Leslie Eudy, NREL 17854, iStock/11265066

Page 2: iStock/721000, page 6: iStock/5751076, page 16: photo from Invenergy LLC, NREL 14369, page 40: iStock/750178, page 52: iStock/754519, page 62: iStock/4393369, page 68: iStock/354309, page 74: iStock/2101722, page 80: iStock/2574180, page 84: iStock/5080552, Page 88: photo by Leslie Eudy, NREL 17854, page 96: iStock/11265066, page 108: iStock/330791, page 118: iStock/3459287

Key Findings

- **United States overall energy consumption** grew to 97.3 quadrillion Btu in 2013, a **2.4% increase** from 2012. Energy consumption from coal and renewables grew slightly, while consumption from petroleum and natural gas fell slightly.
- United States **electric power sector energy consumption** grew to 38.4 quadrillion Btu in 2013, a **0.6% increase** from 2012.*
- **Renewable electricity** grew to nearly 15% of total installed capacity and 13% of total electricity generation in the United States** in 2013. Installed renewable electricity capacity exceeded 171 gigawatts (GW) in 2013, generating 534 TWh.
- In 2013 in the United States, solar electricity was the fastest growing electricity generation technology, with **cumulative installed capacity increasing by nearly 66% from the previous year.**
- In the United States, **wind electricity generation increased 20% in 2013,** while wind electricity capacity grew 1.8%.

*Source: Energy Information Administration (EIA); full references are provided beginning on page 125.

**Unless noted, renewable electricity includes hydropower and biopower

Key Findings (continued)

- In the United States, renewable electricity has been capturing a growing percentage of new capacity additions during the past few years. **In 2013, renewable electricity accounted for more than 61% of all new electricity capacity installations** in the United States. By comparison, renewable electricity captured 4% of new capacity additions in 2004 and 57% in 2008.*
- The installed **global renewable electricity* capacity more than doubled between 2000 and 2013**, and comprises 27% of the total electricity capacity globally, representing a significant and growing portion of the total energy supply.
- Worldwide, solar photovoltaics (PV) and concentrated solar power (CSP) are among the fastest growing renewable electricity technologies—**between 2000 and 2013, solar electricity generation worldwide increased by a factor of nearly 68.**
- Biodiesel was the fastest growing biofuel type, with production increasing by 64% in the United States and 17% globally, from a relatively small base.

Table of Contents

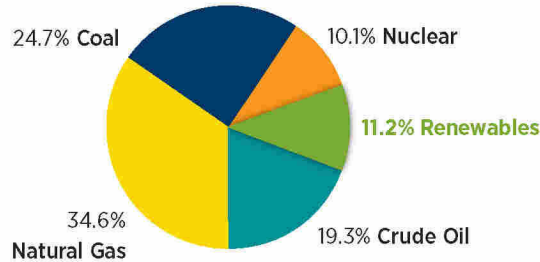
U.S. Energy Background Information	I
Renewable Electricity in the United States	II
Global Renewable Energy Development	III
Wind	IV
Solar	V
Geothermal	VI
Biopower	VII
Hydropower	VIII
Advanced Water Power	IX
Hydrogen	X
Renewable and Alternative Fuels	XI
Clean Energy Investments	XII
Glossary	XIII
References	XIV

I. U.S. Energy Background Information



U.S. Energy Production and Consumption (2013)

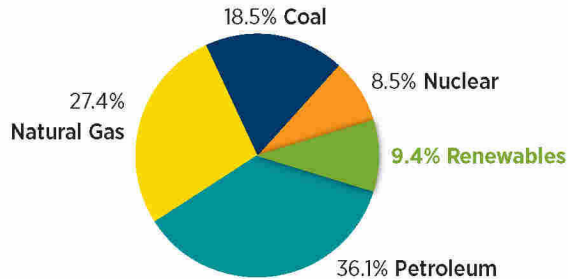
U.S. Energy Production (2013): 81.8 Quadrillion Btu



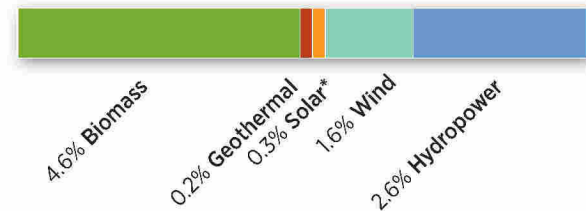
U.S. Renewable Energy Production: 9.2 Quadrillion Btu



U.S. Energy Consumption (2013): 97.3 Quadrillion Btu



U.S. Renewable Energy Consumption: 9.2 Quadrillion Btu



Source: EIA

The difference in the amount of energy consumed and produced is made up by net imports. All data are reported as primary energy.

*Solar PV data provided includes only on-grid systems of 1MW or higher in capacity. Grid-connected distributed capacity and associated generation of 1MW or less, a rapidly growing market segment, is included in subsequent figures in later sections.