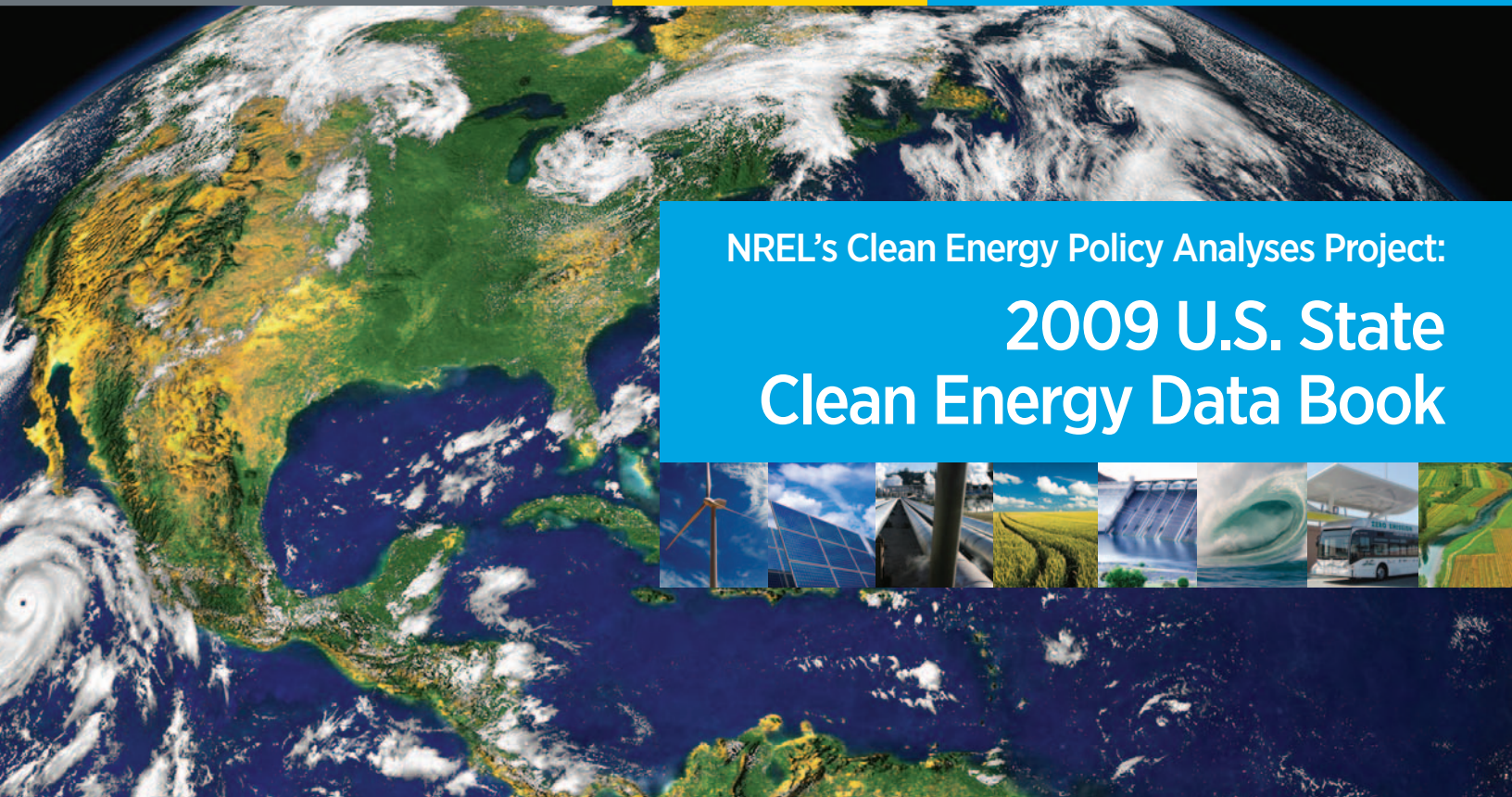
U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy

OCTOBER 2010



NREL's Clean Energy Policy Analyses Project:

2009 U.S. State Clean Energy Data Book

Acknowledgments

This report was produced by Rachel Gelman, Marissa Hummon, Joyce McLaren and Elizabeth Doris; designed by Stacy Buchanan; and edited by Michelle Kubik, all of the National Renewable Energy Laboratory (NREL). We greatly appreciate the input and reviews received from: Lynn Billman (NREL), Lori Bird (NREL), Sarah Busche (NREL), Greg Dierkers (National Governors Association), Rusty Haynes (North Carolina State University), Jim Newcomb (NREL), Robin Newmark (NREL), Eleni Pelican (Department of Energy), and Larry Sherwood (Interstate Renewable Energy Council).

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Page 24: PIX 14369
Page 146: PIX 15563

Purpose and Content

This data book provides a summary of the status of state-level energy efficiency and renewable energy (taken together as clean energy) developments and supporting policy implementation. It is intended as a reference book for those interested in the progress of the states and regions toward a clean energy economy. Although some national-scale data are given in the initial section, the data are mostly aggregated by states and region, and no data on federal- or utility-level policies are presented here.

For further national-scale data regarding clean energy—including pricing and market information—refer to the companion report "2009 Renewable Energy Data Book" at *www1.eere.energy.gov/maps_data/pdfs/eere_databook.pdf*

NREL's Clean Energy Policy Analyses (CEPA)

This data book is part of the Clean Energy Policy Analyses (CEPA) series, which is sponsored by the Weatherization and Intergovernmental Program in the Office of Energy Efficiency and Renewable Energy at the U.S. Department of Energy and implemented by the National Renewable Energy Laboratory. The CEPA suite of analyses and activities explore clean energy development and policy implementation at the regional, state, and local levels and disseminate that information to interested stakeholders. These activities gauge the effectiveness of and interactions among clean energy policies, provide insight into regional activities, investigate the interactions between local- and state-level policies, and convene thought leaders to develop innovative regional, state, and local clean energy policies. The goal is to provide decision makers, researchers, and other stakeholders information regarding the status of, barriers to, and possibilities for increased energy efficiency and renewable energy development at various levels of governance.

Key Findings: National

- Although renewable energy (excluding hydropower) is a relatively small portion of total energy supply in the United States, the installed **renewable energy capacity in the United States more than tripled between 2000 and 2009.**

- Including hydropower, **renewable energy represented nearly 12% of total installed capacity and more than 10% of total generation in the United States in 2009.** Installed renewable energy capacity (including hydropower) is more than 130 gigawatts (GW). Not including hydropower, 2009 renewable electricity installed capacity reached about 53 GW in the United States.

- In the United States, growth in sectors such as wind and solar photovoltaics (PV) signify an ongoing shift in the composition of our electricity supply. **In 2009, cumulative wind capacity increased by 39% and cumulative solar PV capacity grew nearly 52% from the previous year.**

Key Findings: National

- The United States experienced dramatic growth in wind power, as **installed wind energy capacity increased by a factor of 14** between 2000 and 2009.
- In the United States, renewable energy has been capturing a growing percent of new capacity additions during the past few years. **In 2009, renewable energy accounted for more than 55% of all new electrical capacity installations in the United States**—a large contrast from 2004 when all renewable energy captured only 2% of new capacity additions.
- Since 2006, the United States has been the world's leading ethanol producer. **Between 2000 and 2009, production of corn ethanol increased by a factor of 6, and biodiesel production increased by a factor of more than 100**. Use of ethanol in the United States has also grown substantially, and it accounts for 7.8% of the total U.S. gasoline pool, up from 1% in 2000.

Key Findings: States

- In 2009, **Maine** had the **largest percentage of non-hydro renewable GENERATION** of any state, producing 23% of the state's total generation using non-hydro renewable energy technologies, mostly from bioenergy. The state aims to reach 40% by 2017.
- **Iowa** produces 14.5% of its state generation from renewables. The state implemented the nation's **first renewable portfolio standard (RPS) target** in 1983 (105 MW of renewable generation), which has long-since been reached. With low population and electricity demand, policymakers in Iowa now focus on implementing policies that develop renewable resources for export. Iowa ranks second only to Texas in wind capacity.
- **Texas leads the country in total (non-hydro) installed renewable energy CAPACITY**, almost all of which comes from the state's 9,410 MW of wind capacity. This is three times more than Iowa (3,670 MW). Despite a slower start, **Indiana has increased installed wind capacity significantly in recent years**, jumping from zero to 1,036 MW in two years, with most of this capacity added in 2009.
- **California is the leader in solar energy installed capacity**, both for photovoltaic technology (738 MW) and concentrating solar power (364 MW). New Jersey installed 57 MW in 2009 to bring its cumulative capacity to 128 MW.

Key Findings: States

- **Geothermal** capacity is concentrated in the West, mostly in **California** (2,566 MW)* and **Nevada** (426 MW), as a result of resource availability. **Bioenergy** capacity is spread across the nation—leading states include **California** (1,271 MW), **Louisiana** (768 MW), **Vermont** (759 MW) and **Florida** (711 MW).

- Although installed **hydropower** capacity within the states has remained relatively unchanged during the past decade, actual generation from this resource has fluctuated greatly, both across the country and over time. Some increase in future hydroelectric capacity could be achieved from the addition or upgrade of turbines at existing facilities; however, **increasing competition for water resources across the United States** could lead to reduced hydropower generation in coming years.

- The **most common state-level energy efficiency policies are rebates, loans, and grants.** Most states also have some degree of efficiency standard for public buildings. Vermont, Oregon, New York, and New Jersey have the most energy efficiency policies. Oregon, California, Illinois, Iowa, Maine, Montana, New Hampshire, and Pennsylvania have the strictest building codes, which require high efficiency in commercial and residential construction.

* Numbers in parentheses indicate cumulative installed capacity as of 2009.

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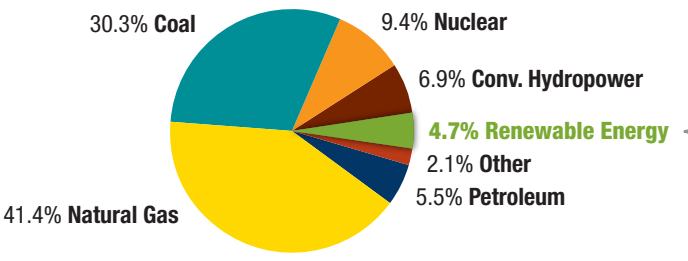
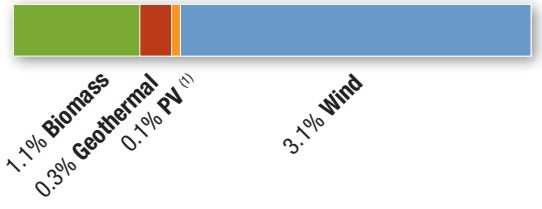
I. U.S. Energy Overview

U.S. Electricity Nameplate Capacity and Generation (2009)

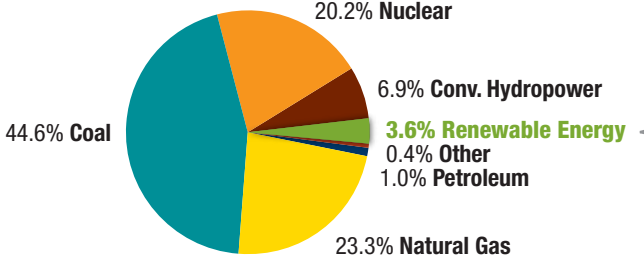
U.S. Electric Nameplate Capacity (2009): 1,121 GW



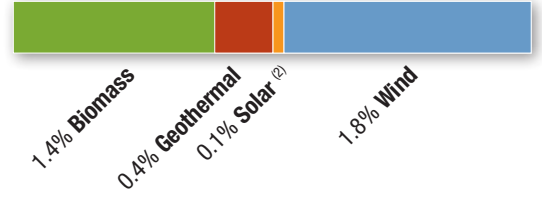
U.S. Renewable Capacity: 53 GW



U.S. Electric Net Generation (2009): 3,954 billion kWh



U.S. Renewable Generation: 144 billion kWh



Sources: EIA, SEIA, AWEA, GEA

Other includes: pumped storage, batteries, chemicals, hydrogen, pitch, purchased steam, sulfur, tire-derived fuels, and miscellaneous technologies.

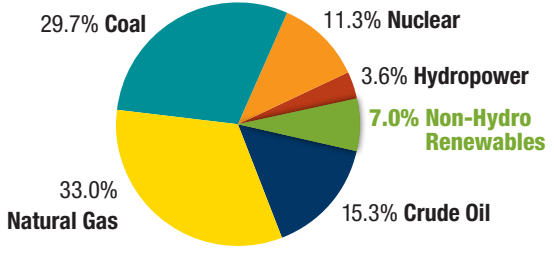
(1) Includes on- and off-grid capacity. Does not include solar hot water.

(2) Includes PV and CSP.

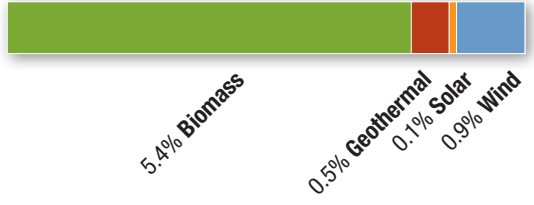
U.S. Total Energy Production and Consumption (2009)

I

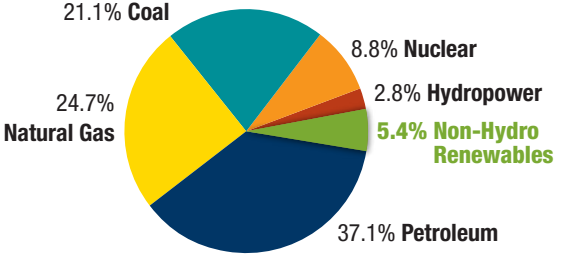
U.S. Energy Production (2009): 73.5 Quadrillion Btu



U.S. Non-Hydro Renewable Energy Production: 5.2 Quadrillion Btu



U.S. Energy Consumption (2009): 94.9 Quadrillion Btu



U.S. Non-Hydro Renewable Energy Consumption: 5.1 Quadrillion Btu

Source: EIA

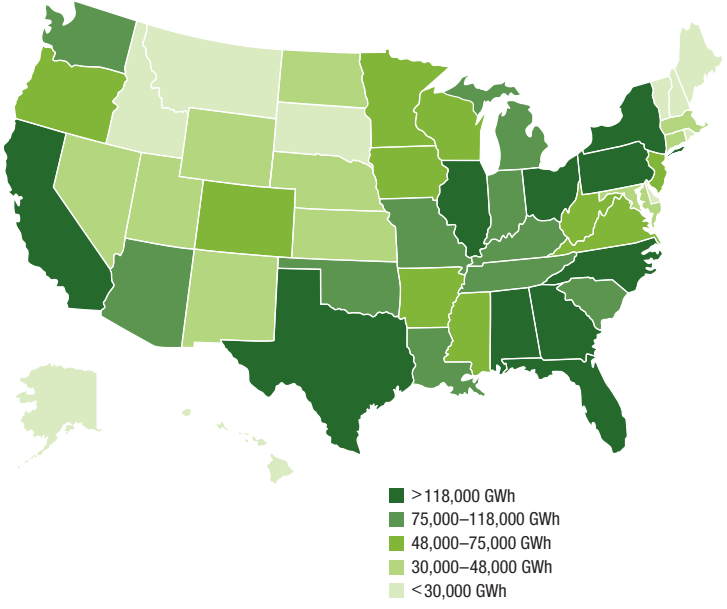
Note: Because hydropower is considered a conventional source of energy, it is accounted for separate from other new renewable sources of energy. Energy consumption is higher than energy production due to oil imports.

* Includes PV and CSP.

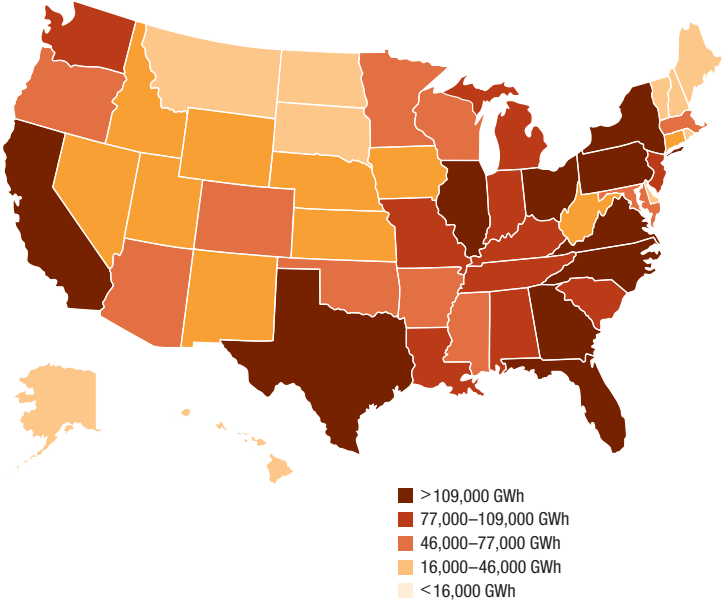
U.S. Electricity Production and Consumption

I

Total 2009 State Electricity Production (GWh)



Total 2008[1] State Electricity Consumption (GWh)

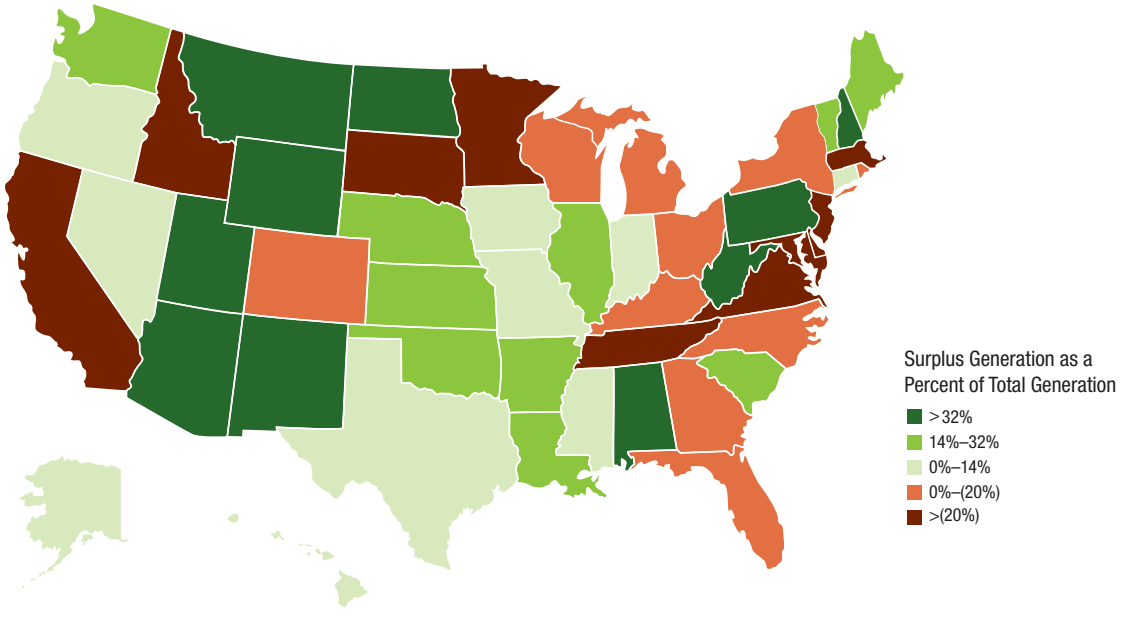


Source: EIA

* Includes transportation sector.

[1] As of the publication date, the latest data available from EIA are from 2008.

Import/Export of Electricity by State (2009)

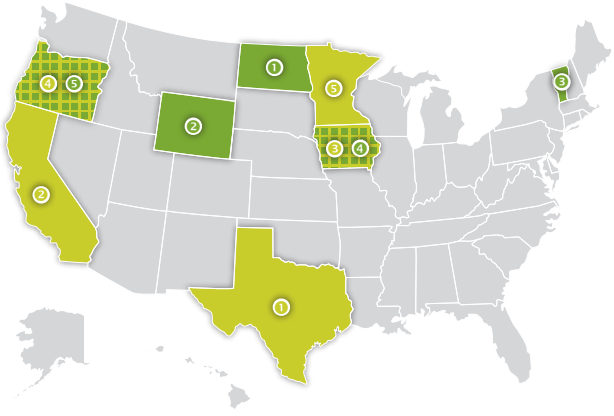


Source: EIA

Note: Green shades indicate a surplus of electricity produced.
Red shades indicate a deficit.

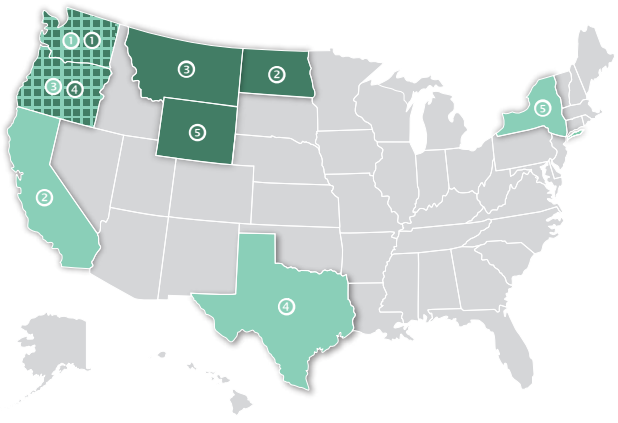
States Leading Renewable Energy Capacity (2009)

Excluding Hydropower



Total Renewables *(excluding hydropower)*	Per Capita Renewables *(excluding hydropower)*
1 Texas	1 North Dakota
2 California	2 Wyoming
3 Iowa	3 Vermont
4 Oregon	4 Iowa
5 Minnesota	5 Oregon

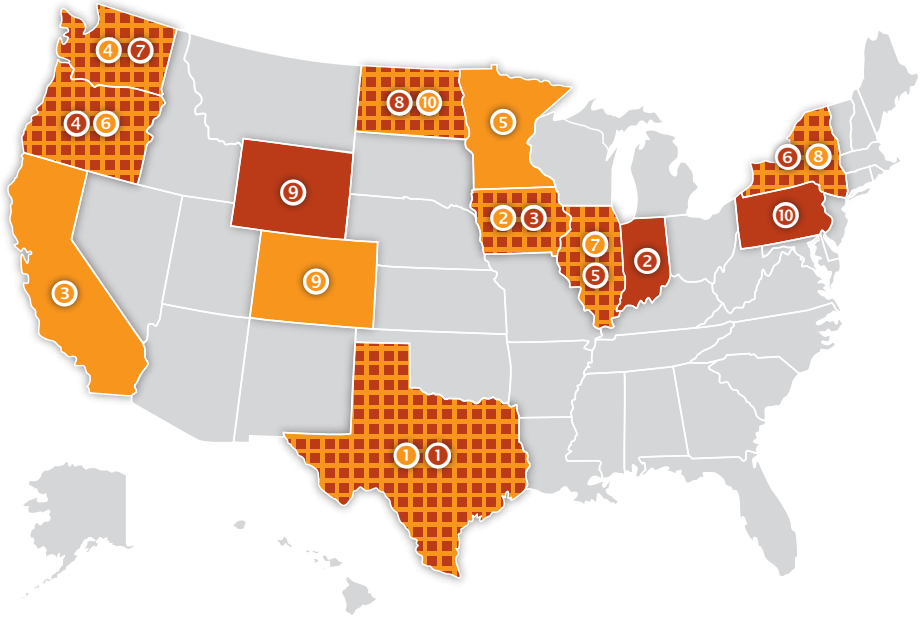
Including Hydropower



Total Renewables *(including hydropower)*	Per Capita Renewables *(including hydropower)*
1 Washington	1 Washington
2 California	2 North Dakota
3 Oregon	3 Montana
4 Texas	4 Oregon
5 New York	5 Wyoming

Sources: EIA, AWEA, GEA, Larry Sherwood/IREC, SEIA, USDA

States Leading Wind Power Development (2009)

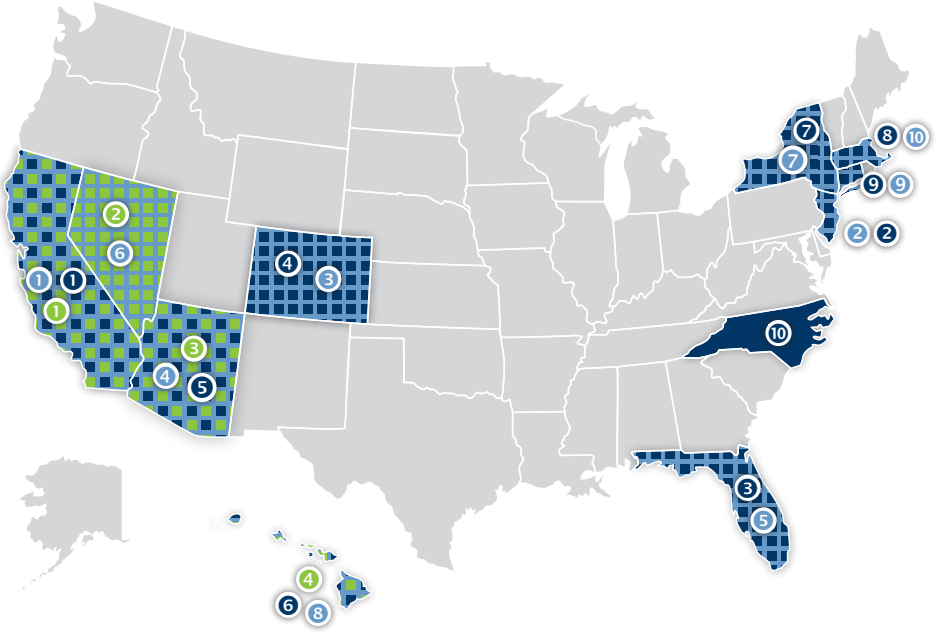


Cumulative Capacity (2009, MW)	
1 Texas	9,410
2 Iowa	3,670
3 California	2,794
4 Washington	1,980
5 Minnesota	1,809
6 Oregon	1,758
7 Illinois	1,547
8 New York	1,274
9 Colorado	1,246
10 North Dakota	1,203

Annual Capacity (2009, MW)	
1 Texas	2,292
2 Indiana	905
3 Iowa	879
4 Oregon	691
5 Illinois	632
6 New York	568
7 Washington	542
8 North Dakota	488
9 Wyoming	425
10 Pennsylvania	388

Source: AWEA

States Leading Solar Energy Development (2009)



PV Cumulative Capacity (2009, MW)	
1 California	768
2 New Jersey	127.5
3 Colorado	59.1
4 Arizona	46.2
5 Florida	38.9
6 Nevada	36.4
7 New York	33.9
8 Hawaii	26.2
9 Connecticut	19.7
10 Massachusetts	17.7

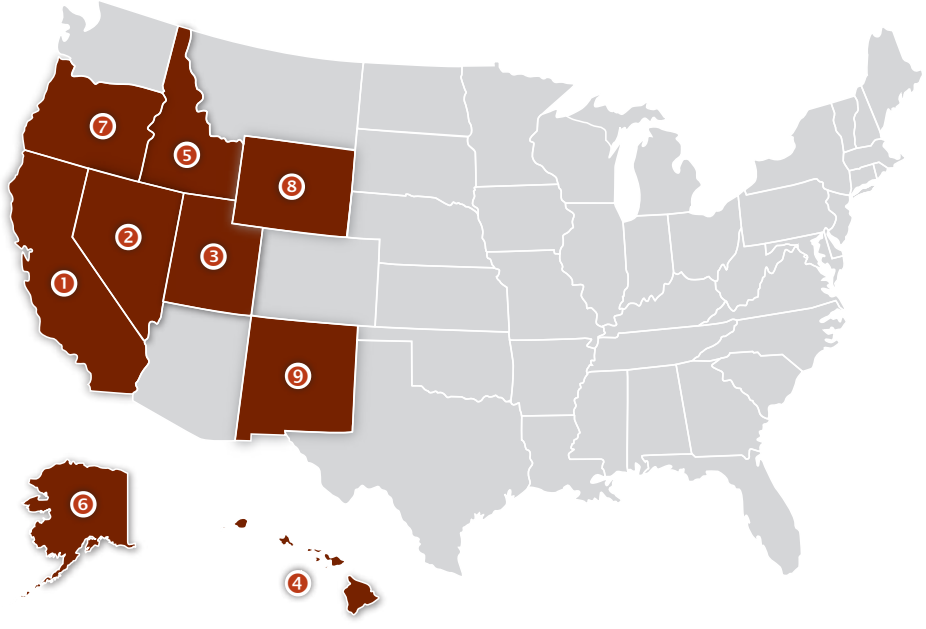
PV Annual Capacity Additions (2009, MW)	
1 California	212.1
2 New Jersey	57.3
3 Florida	35.9
4 Colorado	23.4
5 Arizona	21.1
6 Hawaii	12.7
7 New York	12.1
8 Massachusetts	9.5
9 Connecticut	8.7
10 North Carolina	7.8

CSP Cumulative Capacity (2009, MW)	
1 California	364
2 Nevada	64
3 Arizona	1
4 Hawaii	2

Source: SEIA, Larry Sherwood/IREC

Note: Grid-tied capacity only.

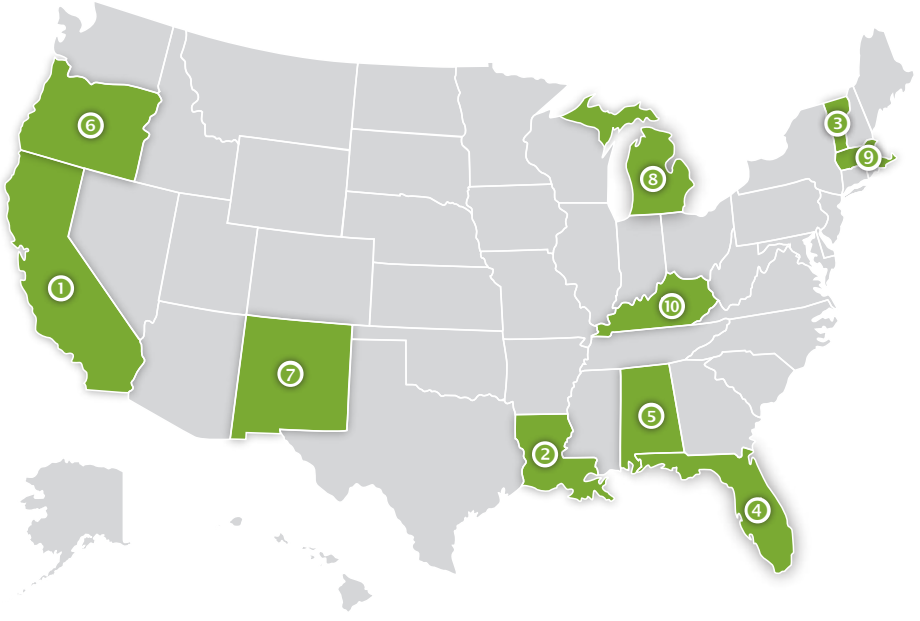
States Leading Geothermal Energy Development (2009)



Total Installed Capacity (2009, MW)	
1 California	2,565.5
2 Nevada	426.8
3 Utah	42.0
4 Hawaii	35.0
5 Idaho	15.8
6 Alaska	0.7
7 Oregon	0.3
8 Wyoming	0.3
9 New Mexico	0.2

Source: GEA

States Leading Biopower Energy Development (2009)



Total Installed Capacity (2009, MW)	
1 California	1,271
2 Louisiana	768
3 Vermont	759
4 Florida	711
5 Alabama	622
6 Oregon	564
7 New Mexico	449
8 Michigan	445
9 Massachusetts	430
10 Kentucky	426

Source: EIA

II. State Energy Efficiency

Summary of State Energy Efficiency Rules and Incentives

Commercial Buildings Codes:

- ■■■■ Most efficient: Meets or exceeds American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) Standard 90.1 – 2007 or equivalent
- ■■■ Meets or exceeds ASHRAE Standard 90.1– 2004 or equivalent
- ■■ Meets or exceeds ASHRAE Standard 90.1 – 1999
- ■ No statewide code or precedes ASHRAE Standard 90.1-1999
- ^ State has adopted a new code to be effective at a later date

Residential Building Codes:

- ✦✦✦✦ More efficient: Meets or exceeds 2009 IECC or equivalent
- ✦✦✦ Meets or exceeds 2006 IECC or equivalent
- ✦✦ Meets or exceeds 1998–2003 IECC or equivalent
- ✦ Least efficient: no statewide code or precedes 1998 IECC

As of July 20, 2010.
Numbers in the table indicate the number of policies in each category.
* Combined EERS/RES
Sources: DSIRE, OCEAN, ACEEE

		Incentives									Rules & Regulations						
		Personal Tax Incentives	Corporate Tax Incentives	Sales Tax Incentives	Property Tax Incentives	Rebates	Grants	Loans	Bonds	Green Building	Appliance/Equipment Standards	Energy Standards Public Buildings	Commercial Building Codes	Residential Building Codes	Public Benefits Funds	Energy Efficient Resource Standard (EERS)	Number of Policies
Alaska & Hawaii	Alaska					2		4					■	✦✦✦			6
	Hawaii					3		1		1		1	■■■	✦✦✦	1	X	7
California	California					1	1	1			1	1	■■■■	✦✦✦✦	1	X	6
Heartland & Texas	Kansas							1					■	✦			1
	Oklahoma	1	1					4				1	■■	✦✦			7
	Texas			1				2				2	■■^	✦✦^		X	5
Southeast & Florida	Alabama							1				1	■	✦			2
	Arkansas	1				1		1				1	■■	✦✦			4
	Florida							1				1	■■■■	✦✦✦		X	2
	Georgia		1			1		1				1	■■■	✦✦✦			4
	Kentucky	1	1	1		1		1				2	■■■	✦✦✦			7
	Louisiana					1		2				1	■■■	✦✦✦			4
	Mississippi							1					■	✦			1
	Missouri	1		1		1		2				1	■	✦		X*	6
	North Carolina			1		2	1	3		1		1	■■■	✦✦✦			9
	South Carolina	1		1				1				1	■■■	✦✦✦			4
	Tennessee						1	3				1	■	✦✦			5

Summary of State Energy Efficiency Rules and Incentives

II

Commercial Buildings Codes:

- ■■■■ Most efficient: Meets or exceeds ASHRAE Standard 90.1 – 2007 or equivalent
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		Personal Tax Incentives	Corporate Tax Incentives	Sales Tax Incentives	Property Tax Incentives	Rebates	Grants	Loans	Bonds	Green Building	Appliance/Equipment Standards	Energy Standards Public Buildings	Commercial Building Codes	Residential Building Codes	Public Benefits Funds	Energy Efficient Resource Standard (EERS)	Number of Policies
West	Arizona				1	1					1	2	■	✦		X	5
	Colorado					1	1	1				1	■	✦		X	4
	Idaho	1				1		1				1	■■■	✦✦✦			4
	Montana	1	1			1		1	1			1	■■■■	✦✦✦✦	1		7
	Nevada				1	1		1			1	1	■■■	✦✦✦		X*	5
	New Mexico	1	1			1			1			1	■■■	✦✦✦	1	X	6
	Oregon	1	1			9		3			1	1	■■■■	✦✦✦	1		17
	Utah					1		2				1	■■■	✦✦✦			4
	Washington					1	1			1	1	1	■■■▲	✦✦✦▲		X	5
	Wyoming					1	1	1					■	✦	1		4
Midwest	Iowa							1				1	■■■■	✦✦✦✦		X	2
	Michigan	1				2	1					1	■■	✦✦✦	1	X	6
	Minnesota						1	6				1	■■■	✦✦✦		X	8
	Nebraska							1					■■	✦✦			1
	North Dakota					1	1						■	✦			2
	South Dakota											1	■	✦			1
	Wisconsin					7		2				1	■■■	✦✦✦			10

As of July 20, 2010.
* Combined EERS/RES
Sources: DSIRE, OCEAN, ACEEE

Summary of State Energy Efficiency Rules and Incentives

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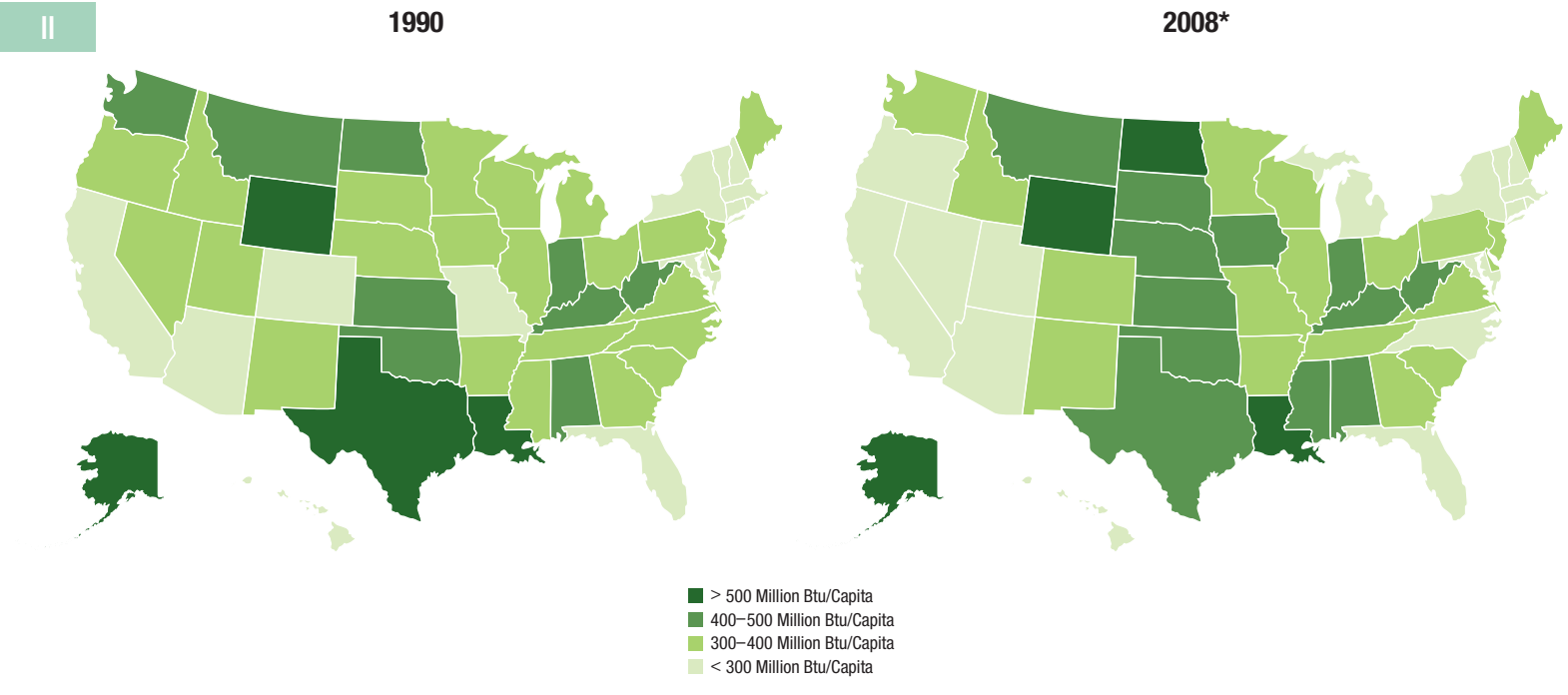
Mid-Atlantic	Delaware					4	2					1	■■	✦✦	1	X	8
	DC					1		1			1	2	■■■■	✦✦✦✦	1		6
	Illinois					2	3	2	2			1	■■■■	✦✦✦✦	1	X	11
	Indiana	1	1									1	■■■■	✦		X	3
	Maryland	1	1		2	2		5			1	1	■■■■	✦✦✦✦		X	13
	New Jersey					10	1	2			1	2	■■■▲	✦✦✦▲	1		17
	Ohio					1	1	2				2	■■■	✦✦	1	X	7
	Pennsylvania					1	5	4				1	■■■■	✦✦✦✦	1	X	12
	Virginia			1	1	1		2				1	■■■	✦✦✦			6
	West Virginia			1		1							■■	✦✦			2
New England & New York	Connecticut			1		2		2			1	1	■■■	✦✦✦	1	X	8
	Maine					4		2				1	■■■■	✦✦✦✦	1		8
	Massachusetts					2	1				1	1	■■■■	✦✦✦✦	1	X	6
	New Hampshire					2		5				1	■■■■	✦✦✦✦	1		9
	New York	1	1		1	7	2	3			1	1	■■▲	✦✦▲	1	X	18
	Rhode Island					1					1	1	■■■	✦✦✦	1		4
	Vermont					13		3			1		■■■	✦✦	2	X	19

As of July 20, 2010.
Sources: DSIRE, OCEAN, ACEEE

Energy Consumption per Capita Over Time

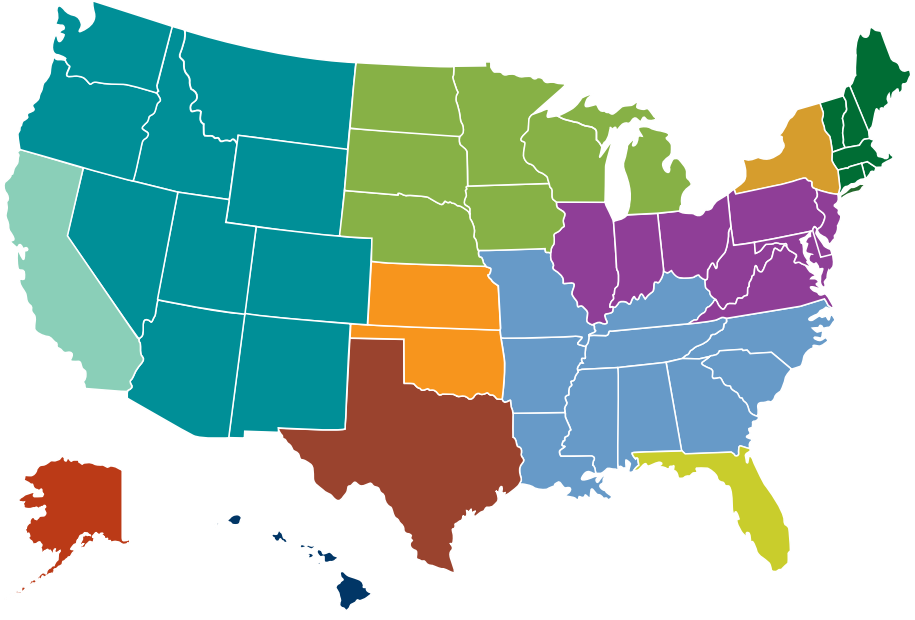
II



Source: EIA
*As of the publication date, the latest data available from EIA are from 2008.

III. Regional Renewable Energy Development

Map of Modified North American Electric Reliability Corporation (NERC) Regions



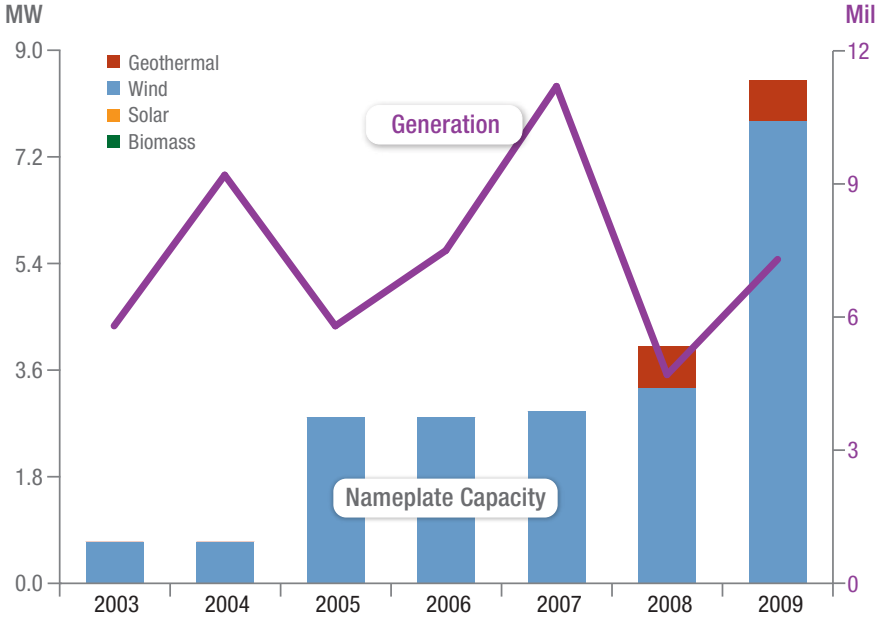
	III
Alaska	26
Hawaii	35
California	46
West	57
Midwest	68
Heartland	78
Texas	87
New England	97
New York	107
Mid-Atlantic	117
Southeast	127
Florida	137

The North American Electric Reliability Corporation (NERC) is an independent, self-regulated, not-for-profit organization that oversees the reliability of the electric power system in North America. NERC develops and maintains reliability standards, which are then enforced by eight regional entities. Actual NERC regional boundaries do not follow state lines. To suit the purpose of this document, the boundaries have been modified such that each state is in only one modified-NERC region.

Alaska

Capacity and Generation: Renewables *(excluding hydropower)*

Alaska

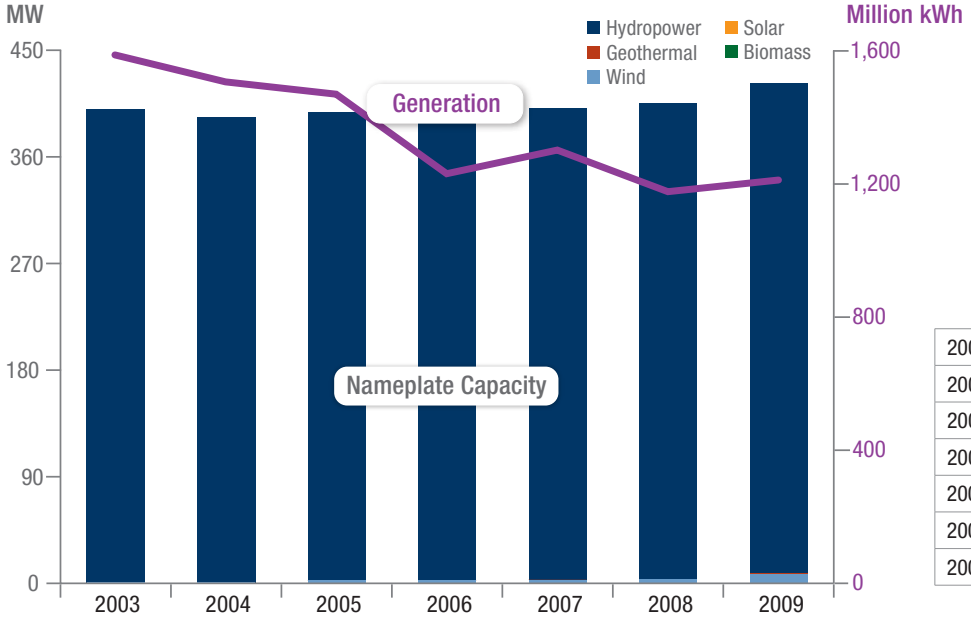


	Total Nameplate Capacity (MW)				Total Generation (Million kWh)
	Biomass	Geothermal	Wind	Solar	
2003	0	0	0.7	0	5.8
2004	0	0	0.7	0	9.2
2005	0	0	2.8	0	5.8
2006	0	0	2.8	0	7.5
2007	0	0	2.9	0	11.2
2008	0	0.7	3.3	0	4.7
2009	0	0.7	7.8	0	7.3

Sources: EIA, AWEA, SEIA, GEA, Larry Sherwood/IREC

Capacity and Generation: Renewables *(including hydropower)*

Alaska



	Total Nameplate Capacity (MW)					Total Generation (Million kWh)
	Biomass	Geothermal	Wind	Solar	Hydro	
2003	0	0	0.7	0	400	1,588
2004	0	0	0.7	0	393	1,507
2005	0	0	2.8	0	395	1,470
2006	0	0	2.8	0	398	1,231
2007	0	0	2.9	0	398	1,302
2008	0	0.7	3.3	0	401	1,177
2009	0	0.7	7.8	0	414	1,212

Source: EIA

Renewable Electricity Nameplate Capacity (MW) and Percent Cumulative Increase from Previous Year

Alaska

	Hydro	Solar	Wind	Geothermal	Biomass	Total (without Hydropower)	Total
2003	**400**	**0**	**0.7**	**0**	**0**	**0.7**	**401**
2004	**393** -1.7%	**0** 0%	**0.7** 0%	**0** 0%	**0** 0%	**0.7** 0%	**394** -1.7%
2005	**395** 0.5%	**0** 0%	**2.8** 300%	**0** 0%	**0** 0%	**2.8** 300%	**398** 1.0%
2006	**398** 0.6%	**0** 0%	**2.8** 0%	**0** 0%	**0** 0%	**2.8** 0%	**400** 0.6%
2007	**398** -0%	**0** 0%	**2.9** 3.6%	**0** 0%	**0** 0%	**2.9** 3.6%	**400** 0%
2008	**401** 0.8%	**0** 0%	**3.3** 14.5%	**0.7** NA	**0** 0%	**4.0** 37.9%	**405** 1.0%
2009	**414** 3.4%	**0** 0%	**7.8** 135.5%	**0.7** 7.4%	**0** 0%	**8.6** 113.8%	**423** 4.5%

Sources: EIA, AWEA, SEIA, GEA, Larry Sherwood/IREC

Renewable Electricity Generation (MWh) and Percent Cumulative Increase from Previous Year

Alaska

	Hydro	Solar	Wind	Geothermal	Biomass	Total (without Hydropower)	All Renewables
2003	**1,583**	**0**	**0**	**0**	**5.8**	**5.8**	**1,588**
2004	**1,498** -5.3%	**0** 0.0%	**0** 0.0%	**0** 0.0%	**9.2** 59.6%	**9.2** 59.6%	**1,507** -5.1%
2005	**1,464** -2.3%	**0** 0.0%	**0.6** N/A	**0** 0.0%	**5.3** -43.0%	**5.8** -36.6%	**1,470** -2.5%
2006	**1,224** -16.4%	**0** 0.0%	**0.8** 33.8%	**0** 0.0%	**6.7** 26.8%	**7.5** 27.5%	**1,231** -16.2%
2007	**1,291** 5.5%	**0** 0.0%	**1.0** 28.4%	**0** 0.0%	**10.2** 53.3%	**11.2** 50.7%	**1,302** 5.8%
2008	**1,172** -9.2%	**0** 0.0%	**0.1** -93.3%	**0** 0.0%	**4.7** -54.2%	**4.7** -57.7%	**1,177** -9.7%
2009	**1,205** 2.8%	**0** 0.0%	**3.1** 4403.6%	**0** 0.0%	**4.3** -9.1%	**7.3** 54.1%	**1,212** 3.0%

Source: EIA

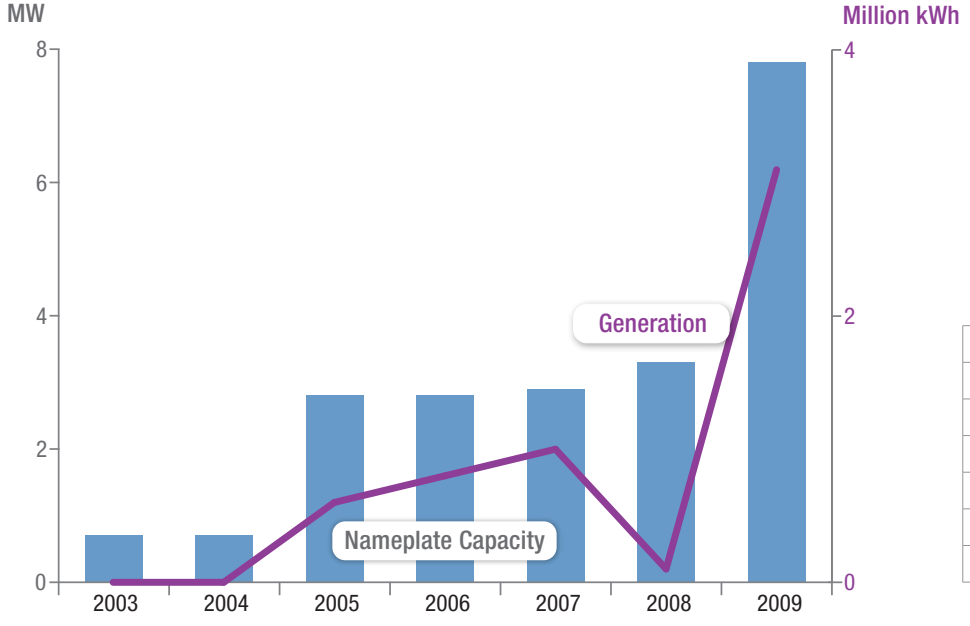
Renewable Generation by Technology *(excluding hydropower)*

Alaska

Source: EIA

Total Installed Wind Energy Nameplate Capacity and Generation

Alaska

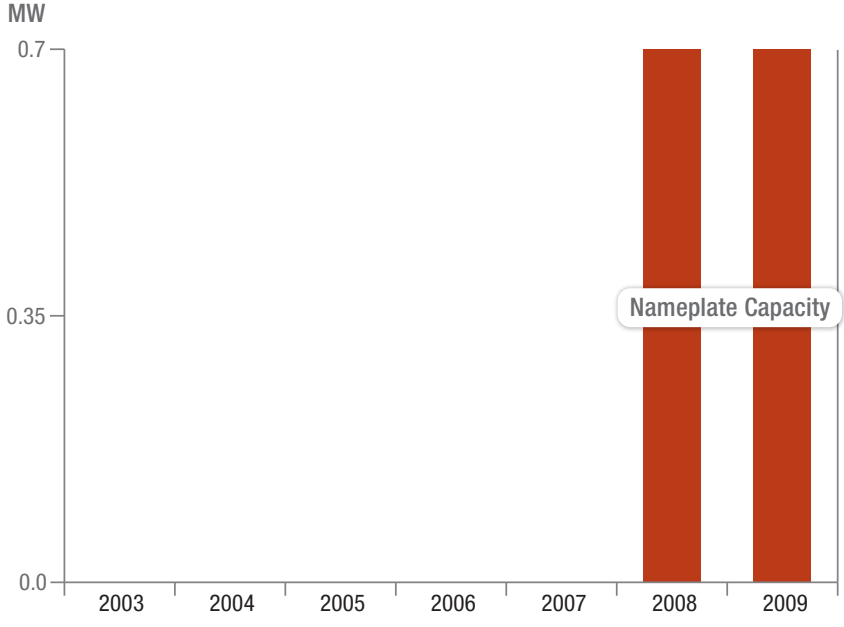


	Wind Energy Capacity (MW)	Regional Wind Energy Generation (Million kWh)
	Alaska	
2003	0.7	0
2004	0.7	0
2005	2.8	0.6
2006	2.8	0.8
2007	2.9	1.0
2008	3.3	0.1
2009	7.8	3.1

Sources: EIA, AWEA

Total Installed Geothermal Energy Nameplate Capacity and Generation

Alaska

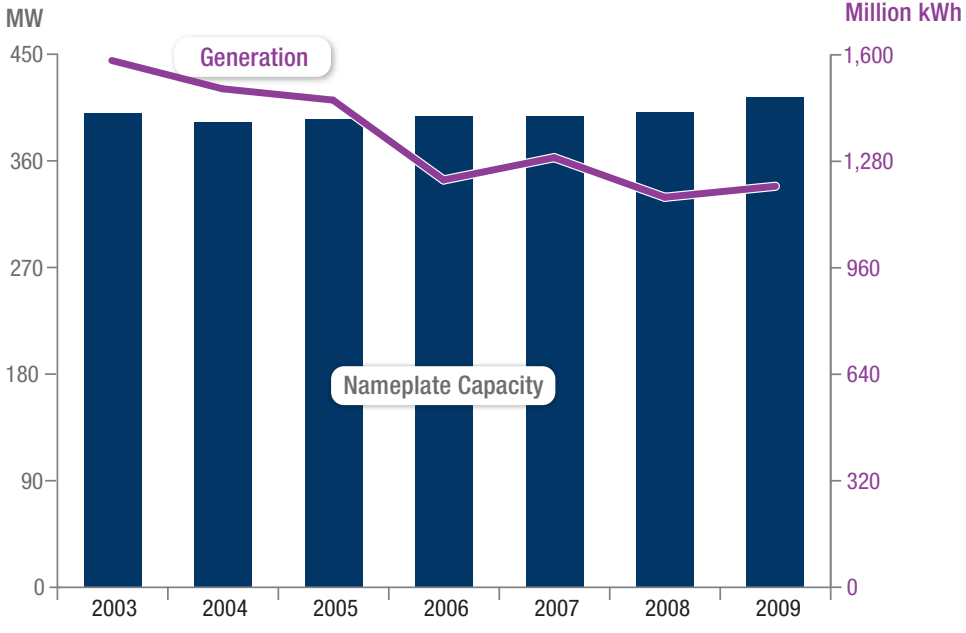


	Geothermal Energy Capacity (MW)	Regional Geothermal Energy Generation (Million kWh)
	Alaska	
2003	0	0
2004	0	0
2005	0	0
2006	0	0
2007	0	0
2008	0.7	0
2009	0.7	0

Sources: EIA, GEA

Total Installed Hydropower Energy Nameplate Capacity and Generation

Alaska



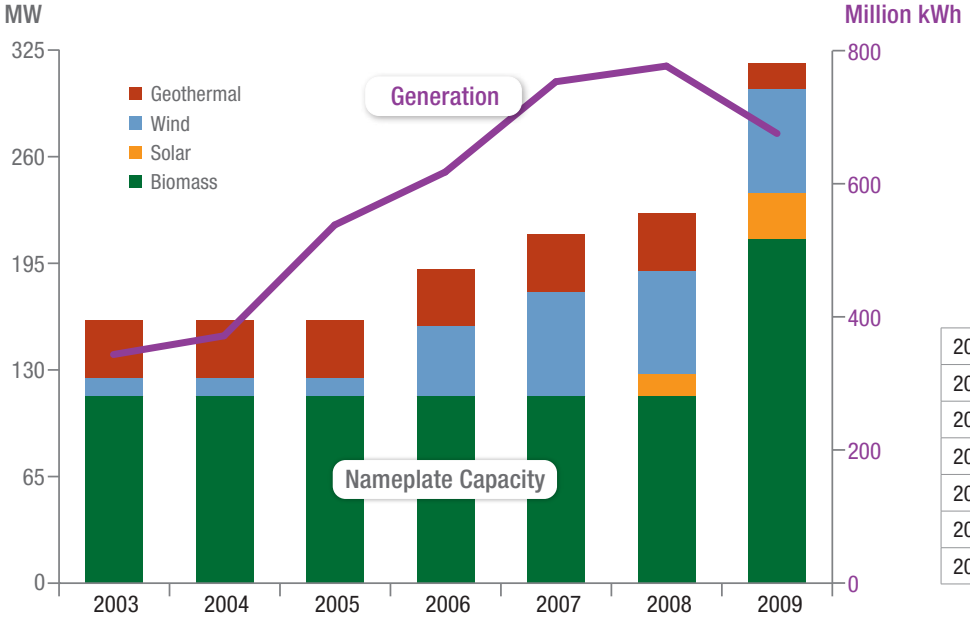
	Hydro Energy Capacity (MW)	Regional Hydro Energy Generation (Million kWh)
	Alaska	
2003	400	1,583
2004	393	1,498
2005	395	1,464
2006	398	1,224
2007	398	1,291
2008	401	1,172
2009	414	1,205

Source: EIA

Hawaii

Capacity and Generation: Renewables *(excluding hydropower)*

Hawaii

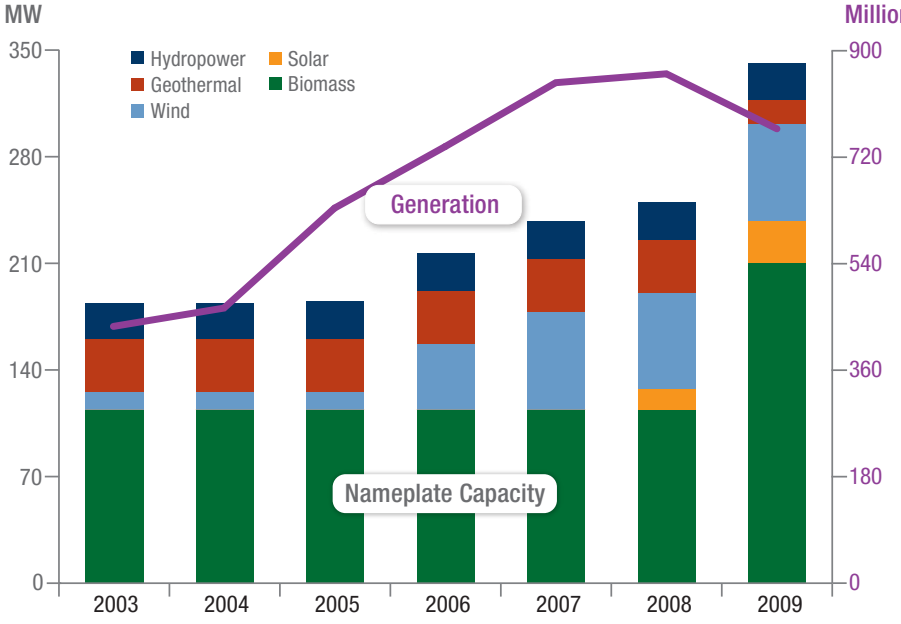


	Total Nameplate Capacity (MW)				Total Generation (Million kWh)
	Biomass	Geothermal	Wind	Solar	
2003	114	35	11.4	0	343
2004	114	35	11.4	0	371
2005	114	35	11.4	0	538
2006	114	35	43	0	618
2007	114	35	64	0	753
2008	114	35	63	13.5	777
2009	210	15.8	63	28	676

Sources: EIA, AWEA, SEIA, GEA, Larry Sherwood/IREC

Capacity and Generation: Renewables *(including hydropower)*

Hawaii



	Total Nameplate Capacity (MW)					Total Generation (Million kWh)
	Biomass	Geothermal	Wind	Solar	Hydro	
2003	114	35	11.4	0	23	434
2004	114	35	11.4	0	23	465
2005	114	35	11.4	0	25	634
2006	114	35	43	0	25	738
2007	114	35	64	0	25	846
2008	114	35	63	13.5	25	861
2009	210	15.8	63	28	25	768

Sources: EIA, AWEA, SEIA, GEA, Larry Sherwood/IREC

Renewable Electricity Nameplate Capacity (MW) and Percent Cumulative Increase from Previous Year

Hawaii

	Hydro	Solar	Wind	Geothermal	Biomass	Total (without Hydropower)	Total
2003	**23**	**0**	**11**	**35**	**114**	**160**	**184**
2004	**23** 0%	**0** 0%	**11** 0%	**35** 0%	**114** 0%	**160** 0%	**184** 0%
2005	**25** 6.4%	**0** 0%	**11** 0%	**35** 0%	**114** 0%	**160** 0%	**185** 0.8%
2006	**25** 0%	**0** 0%	**43** 275.4%	**35** 0%	**114** 0%	**192** 19.6%	**217** 17.0%
2007	**25** 0%	**0** 0%	**64** 49.1%	**35** 0%	**114** 0%	**213** 11.0%	**238** 9.7%
2008	**25** 0%	**14** NA	**63** -1.1%	**35** 0%	**114** 0%	**225** 6.0%	**250** 5.4%
2009	**25** 0%	**28** 108.5%	**63** 0%	**16** -54.9%	**210** 84.4%	**289** 28.1%	**314** 25.3%

Sources: EIA, AWEA, SEIA, GEA, Larry Sherwood/IREC

Renewable Electricity Generation (MWh) and Percent Cumulative Increase from Previous Year

Hawaii

	Hydro	Solar	Wind	Geothermal	Biomass	Total (without Hydropower)	All Renewables
2003	**91**	**0**	**1.6**	**178**	**164**	**343**	**434**
2004	**94** 3.8%	**0** 0.0%	**7.5** 376.8%	**213** 19.6%	**151** -7.9%	**371** 8.2%	**465** 7.2%
2005	**96** 2.4%	**0** 0.0%	**6.6** -11.5%	**222** 3.9%	**310** 105.6%	**538** 44.8%	**634** 36.3%
2006	**120** 24.8%	**0** 0.0%	**80** 1101.4%	**212** -4.2%	**326** 5.2%	**618** 14.8%	**738** 16.3%
2007	**92** -23.1%	**0** 0.0%	**238** 198.9%	**230** 8.3%	**285** -12.4%	**753** 22.0%	**846** 14.6%
2008	**84** -8.7%	**0.018** 0.0%	**240** 0.8%	**234** 1.9%	**302** 6.0%	**777** 3.1%	**861** 1.8%
2009	**93** 10.1%	**0.025** 36.8%	**213** -11.2%	**168** -28.5%	**295** -2.6%	**676** -13.0%	**768** -10.8%

- annual decrease | annual increase **+**

Source: EIA

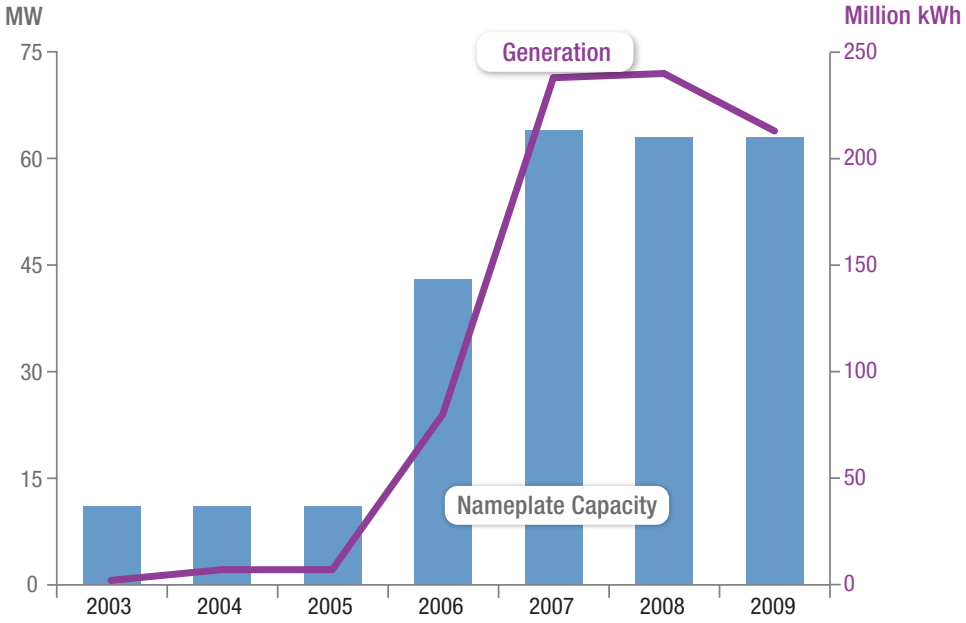
Renewable Generation by Technology *(excluding hydropower)*

Hawaii

Source: EIA

Total Installed Wind Energy Nameplate Capacity and Generation

Hawaii

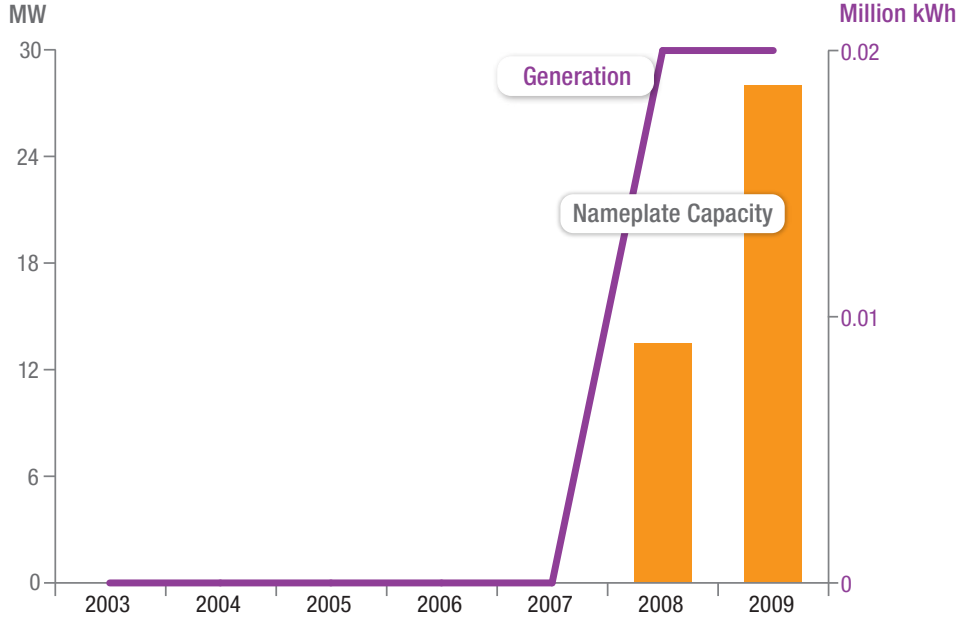


	Wind Energy Capacity (MW)	Regional Wind Energy Generation (Million kWh)
	Hawaii	
2003	11.4	1.6
2004	11.4	7.5
2005	11.4	6.6
2006	43	80
2007	64	238
2008	63	240
2009	63	213

Sources: EIA, AWEA

Total Installed Solar Energy Nameplate Capacity and Generation

Hawaii

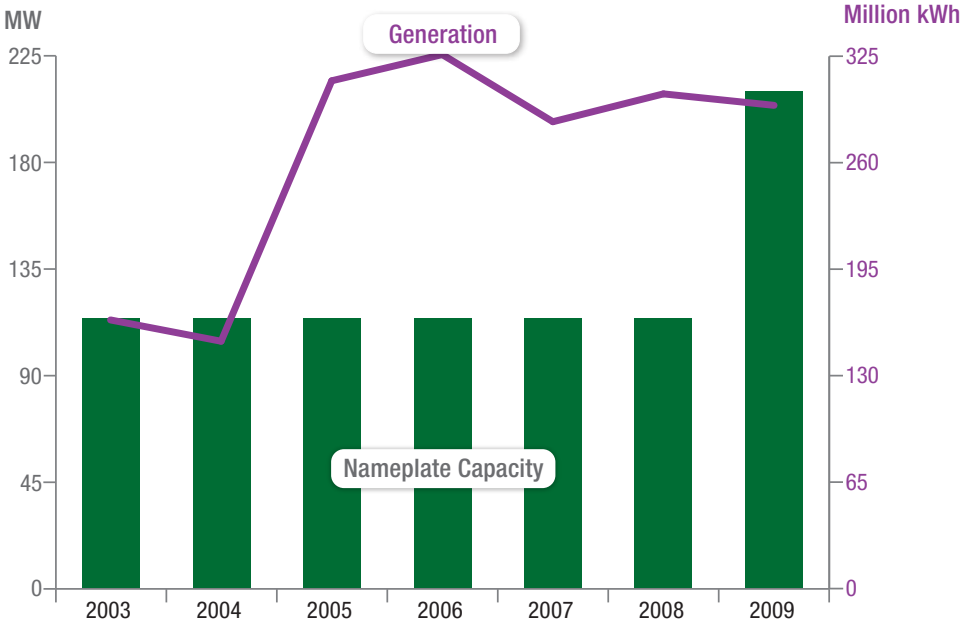


	Solar Energy Capacity (MW)	Regional Solar Energy Generation (Million kWh)
	Hawaii	
2003	0	0
2004	0	0
2005	0	0
2006	0	0
2007	0	0
2008	13.5	0.02
2009	28	0.02

Sources: EIA, SEIA, Larry Sherwood/IREC

Total Installed Biomass Energy Nameplate Capacity and Generation

Hawaii

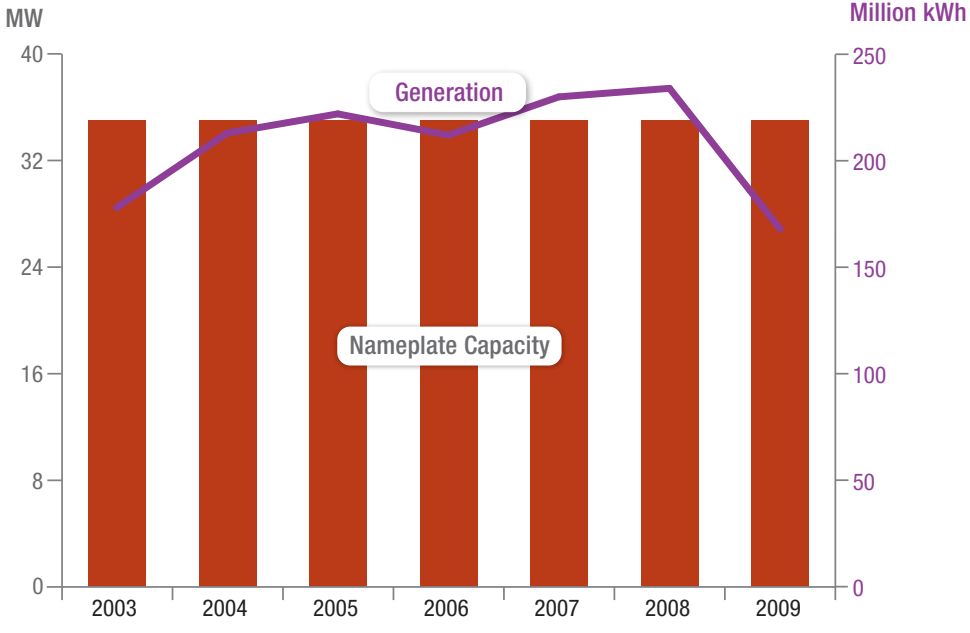


	Biomass Energy Capacity (MW)	Regional Biomass Energy Generation (Million kWh)
	Hawaii	
2003	114	164
2004	114	151
2005	114	310
2006	114	326
2007	114	285
2008	114	302
2009	210	295

Source: EIA

Total Installed Geothermal Energy Nameplate Capacity and Generation

Hawaii

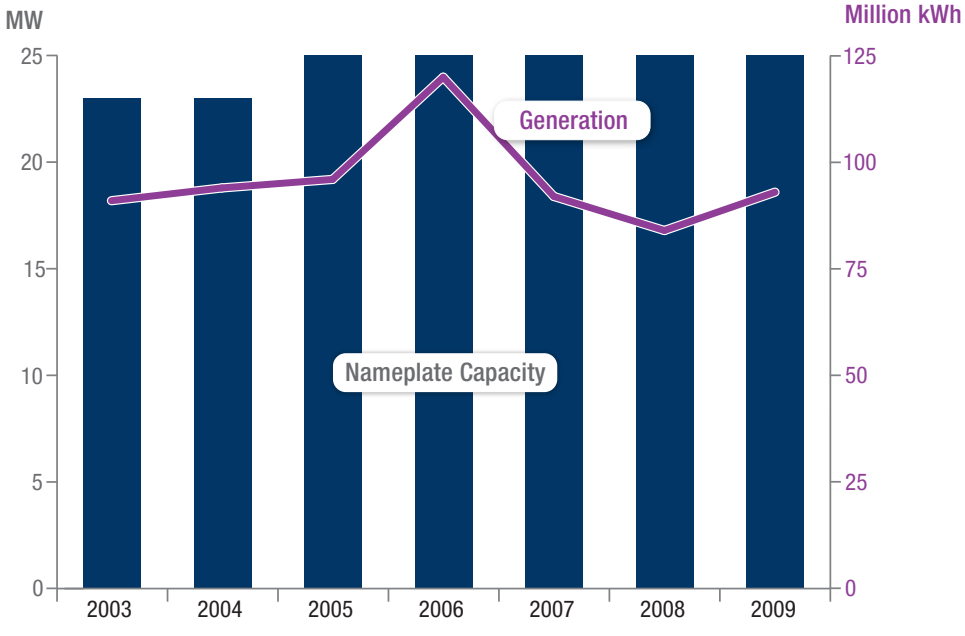


	Geothermal Energy Capacity (MW)	Regional Geothermal Energy Generation (Million kWh)
	Hawaii	
2003	35	178
2004	35	213
2005	35	222
2006	35	212
2007	35	230
2008	35	234
2009	35	168

Sources: EIA, GEA

Total Installed Hydropower Energy Nameplate Capacity and Generation

Hawaii



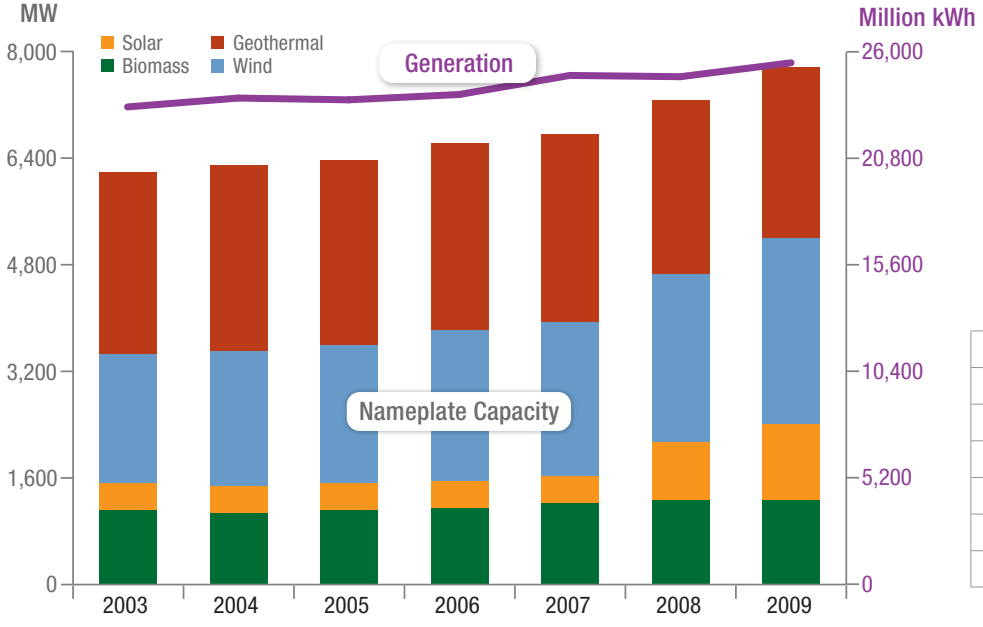
	Hydro Energy Capacity (MW)	Regional Hydro Energy Generation (Million kWh)
	Hawaii	
2003	23	91
2004	23	94
2005	25	96
2006	25	120
2007	25	92
2008	25	84
2009	25	93

Source: EIA

California

Capacity and Generation: Renewables *(excluding hydropower)*

California

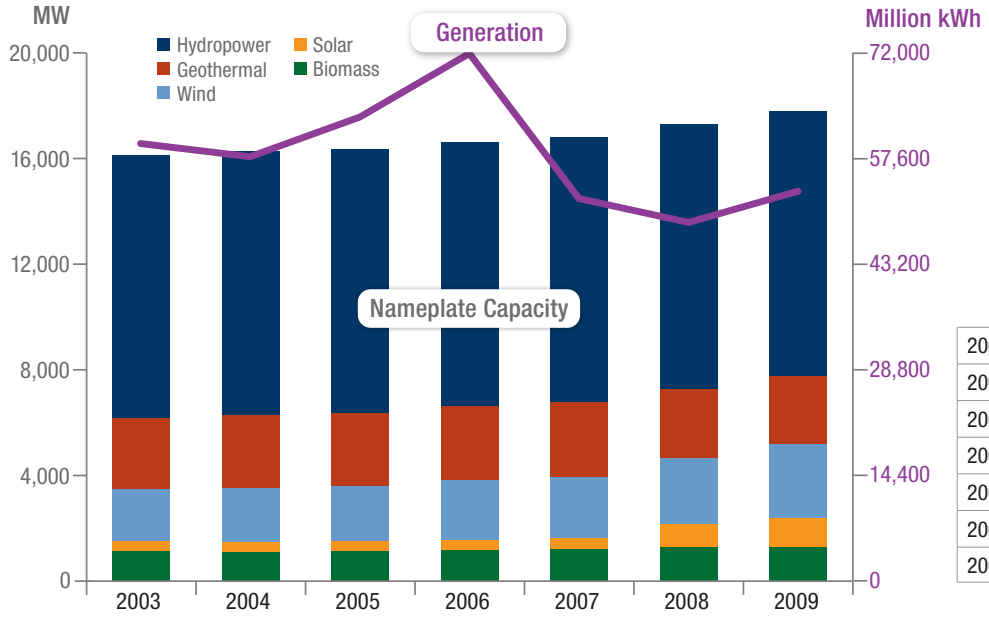


	Total Nameplate Capacity (MW)				Total Generation (Million kWh)
	Biomass	Geothermal	Wind	Solar	
2003	1,121	2,717	1,943	396	23,308
2004	1,072	2,787	2,037	396	23,740
2005	1,118	2,787	2,066	402	23,654
2006	1,150	2,814	2,257	402	23,915
2007	1,217	2,821	2,318	404	24,845
2008	1,263	2,605	2,517	882	24,784
2009	1,271	2,566	2,794	1132	25,462

Sources: EIA, AWEA, SEIA, GEA, Larry Sherwood/IREC

Capacity and Generation: Renewables *(including hydropower)*

California



	Total Nameplate Capacity (MW)					Total Generation (Million kWh)
	Biomass	Geothermal	Wind	Solar	Hydro	
2003	1,121	2,717	1,943	396	9,953	59,678
2004	1,072	2,787	2,037	396	9,970	57,881
2005	1,118	2,787	2,066	402	9,987	63,286
2006	1,150	2,814	2,257	402	9,987	71,963
2007	1,217	2,821	2,318	404	10,032	52,173
2008	1,263	2,605	2,517	882	10,032	48,912
2009	1,271	2,566	2,794	1,132	10,032	53,169

Sources: EIA, AWEA, SEIA, GEA, Larry Sherwood/IREC

Renewable Electricity Nameplate Capacity (MW) and Percent Cumulative Increase from Previous Year

California

	Hydro	Solar	Wind	Geothermal	Biomass	Total (without Hydropower)	Total
2003	**9,953**	**396**	**1,943**	**2,717**	**1,121**	**6,177**	**16,130**
2004	**9,970** 0.2%	**396** 0%	**2,037** 4.8%	**2,787** 2.6%	**1,072** -4.4%	**6,293** 1.9%	**16,263** 0.8%
2005	**9,987** 0.2%	**402** 1.6%	**2,066** 1.4%	**2,787** 0%	**1,118** 4.3%	**6,374** 1.3%	**16,361** 0.6%
2006	**9,987** 0%	**402** -0%	**2,257** 9.2%	**2,814** 1.0%	**1,150** 2.8%	**6,623** 3.9%	**16,610** 1.5%
2007	**10,032** 0.5%	**404** 0.5%	**2,318** 2.7%	**2,821** 0.2%	**1,217** 5.9%	**6,760** 2.1%	**16,793** 1.1%
2008	**10,032** 0%	**882** 118.2%	**2,517** 8.6%	**2,605** -7.6%	**1,263** 3.7%	**7,267** 7.5%	**17,299** 3.0%
2009	**10,032** 0%	**1,132** 28.3%	**2,794** 11.0%	**2,566** -1.5%	**1,271** 0.6%	**6,630** -8.8%	**16,662** -3.7%

Sources: EIA, AWEA, SEIA, GEA, Larry Sherwood/IREC

Renewable Electricity Generation (MWh) and Percent Cumulative Increase from Previous Year

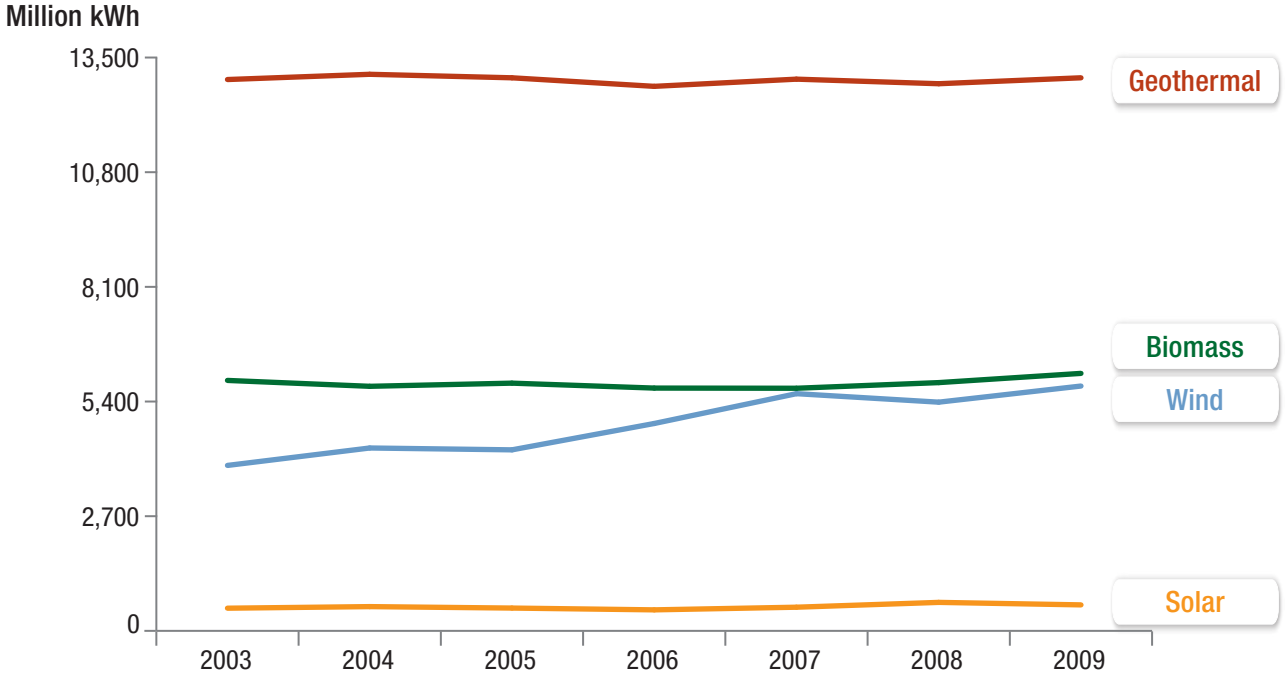
California

	Hydro	Solar	Wind	Geothermal	Biomass	Total (without Hydropower)	All Renewables
2003	**36,371**	**534**	**3,895**	**12,982**	**5,897**	**23,308**	**59,678**
2004	**34,141** -6.1%	**571** 7.0%	**4,306** 10.5%	**13,105** 1.0%	**5,758** -2.4%	**23,740** 1.9%	**57,881** -3.0%
2005	**39,632** 16.1%	**537** -6.0%	**4,262** -1.0%	**13,023** -0.6%	**5,833** 1.3%	**23,654** -0.4%	**63,286** 9.3%
2006	**48,047** 21.2%	**495** -7.9%	**4,883** 14.6%	**12,821** -1.5%	**5,717** -2.0%	**23,915** 1.1%	**71,963** 13.7%
2007	**27,328** -43.1%	**557** 12.6%	**5,585** 14.4%	**12,991** 1.3%	**5,713** -0.1%	**24,845** 3.9%	**52,173** -27.5%
2008	**24,128** -11.7%	**670** 20.4%	**5,385** -3.6%	**12,883** -0.8%	**5,846** 2.3%	**24,784** -0.2%	**48,912** -6.3%
2009	**27,708** 14.8%	**612** -8.8%	**5,765** 7.1%	**13,023** 1.1%	**6,063** 3.7%	**25,462** 2.7%	**53,169** 8.7%

Source: EIA

Renewable Generation by Technology *(excluding hydropower)*

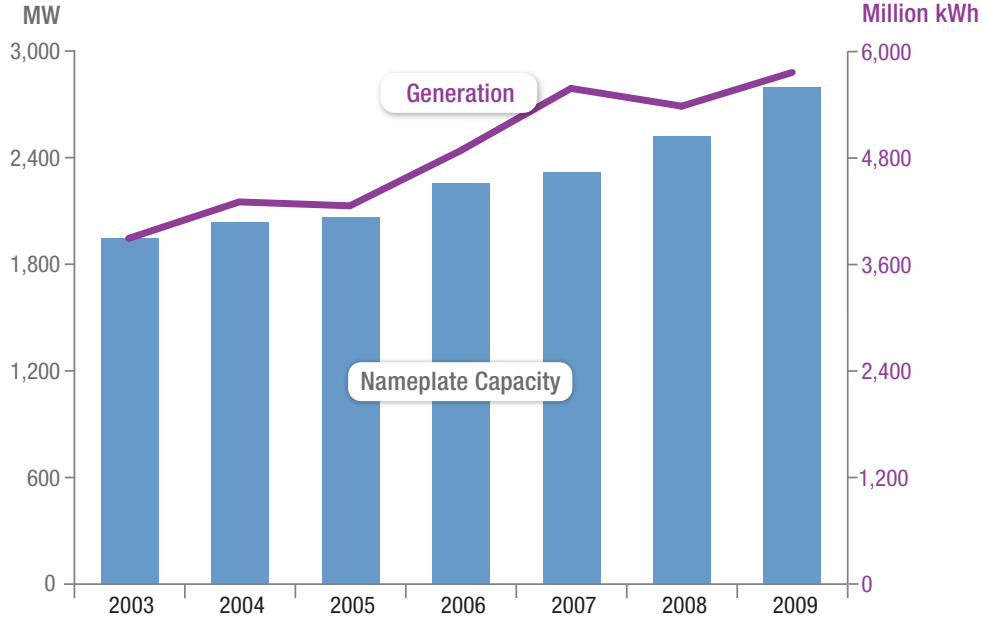
California



Source: EIA

Total Installed Wind Energy Nameplate Capacity and Generation

California

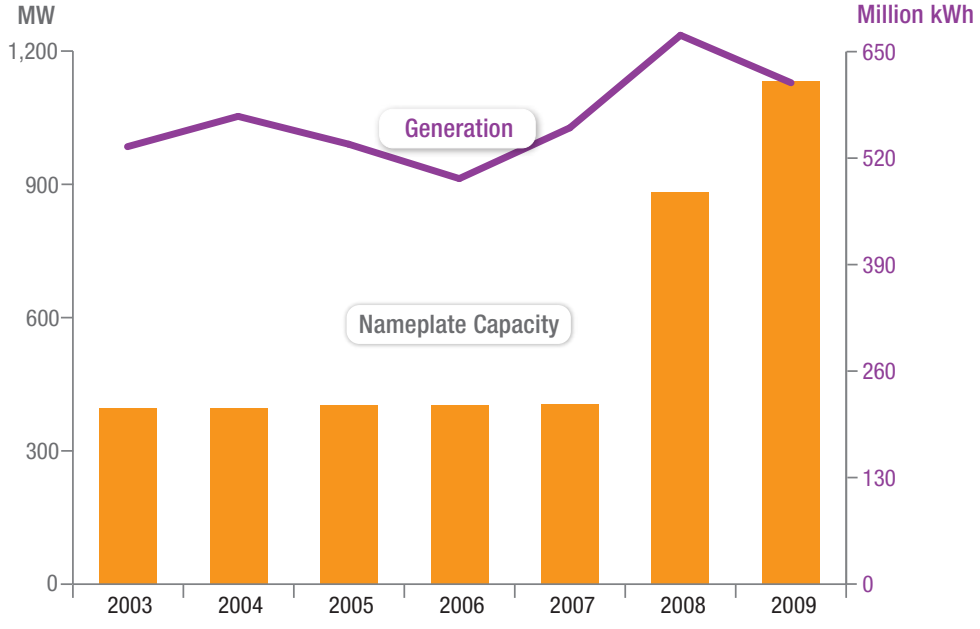


	Wind Energy Capacity (MW)	Regional Wind Energy Generation (Million kWh)
	California	
2003	1,943	3,895
2004	2,037	4,306
2005	2,066	4,262
2006	2,257	4,883
2007	2,318	5,585
2008	2,517	5,385
2009	2,794	5,765

Sources: EIA, AWEA

Total Installed Solar Energy Nameplate Capacity and Generation

California

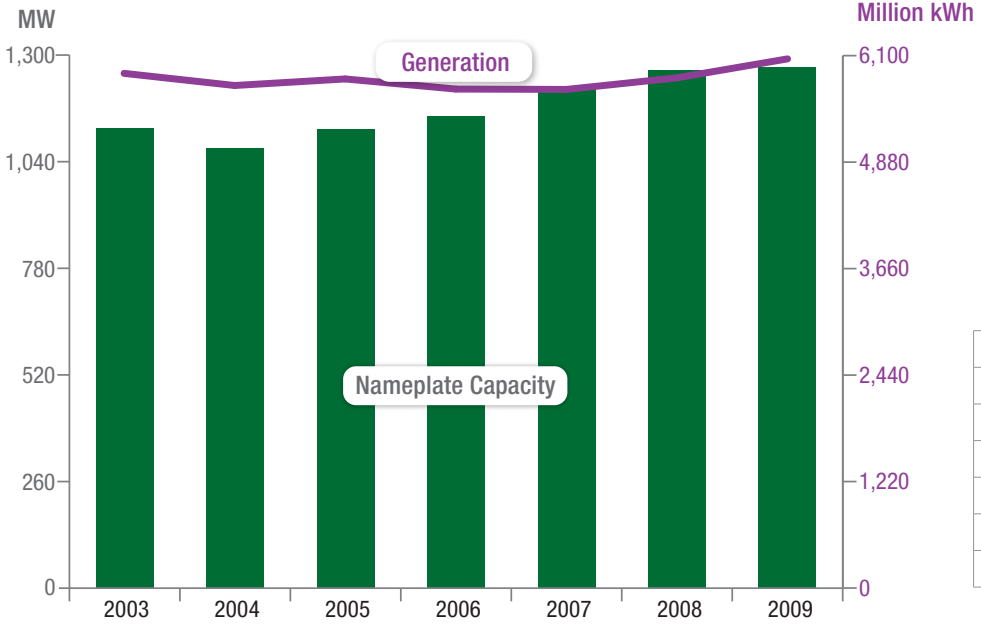


	Solar Energy Capacity (MW)	Regional Solar Energy Generation (Million kWh)
	California	
2003	396	534
2004	396	571
2005	402	537
2006	402	495
2007	404	557
2008	882	670
2009	1,132	612

Sources: EIA, SEIA, Larry Sherwood/IREC

Total Installed Biomass Energy Nameplate Capacity and Generation

California

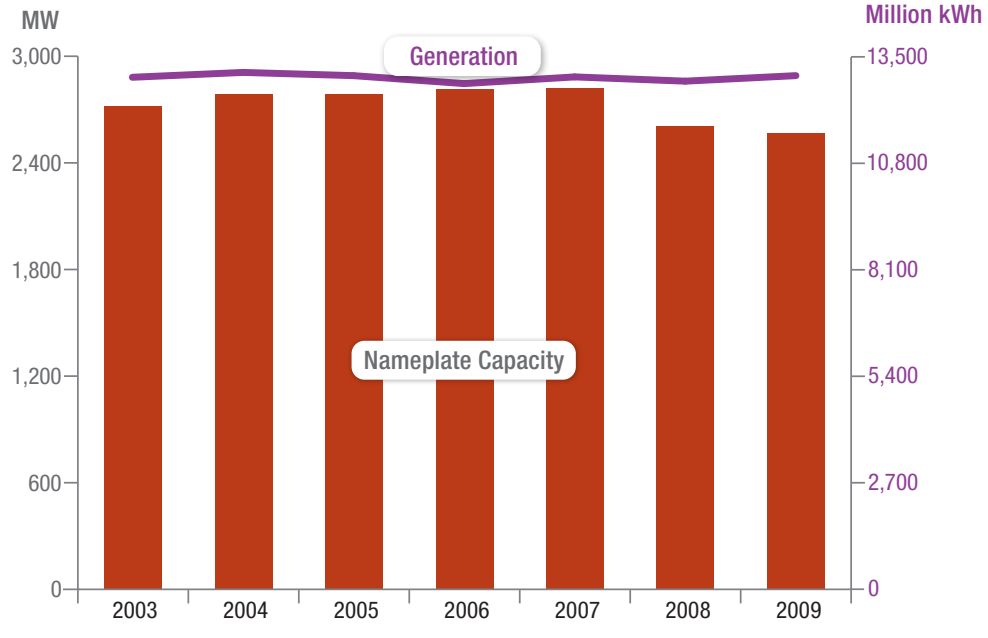


	Biomass Energy Capacity (MW)	Regional Biomass Energy Generation (Million kWh)
	California	
2003	1,121	5,897
2004	1,072	5,758
2005	1,118	5,833
2006	1,150	5,717
2007	1,217	5,713
2008	1,263	5,846
2009	1,271	6,063

Source: EIA

Total Installed Geothermal Energy Nameplate Capacity and Generation

California

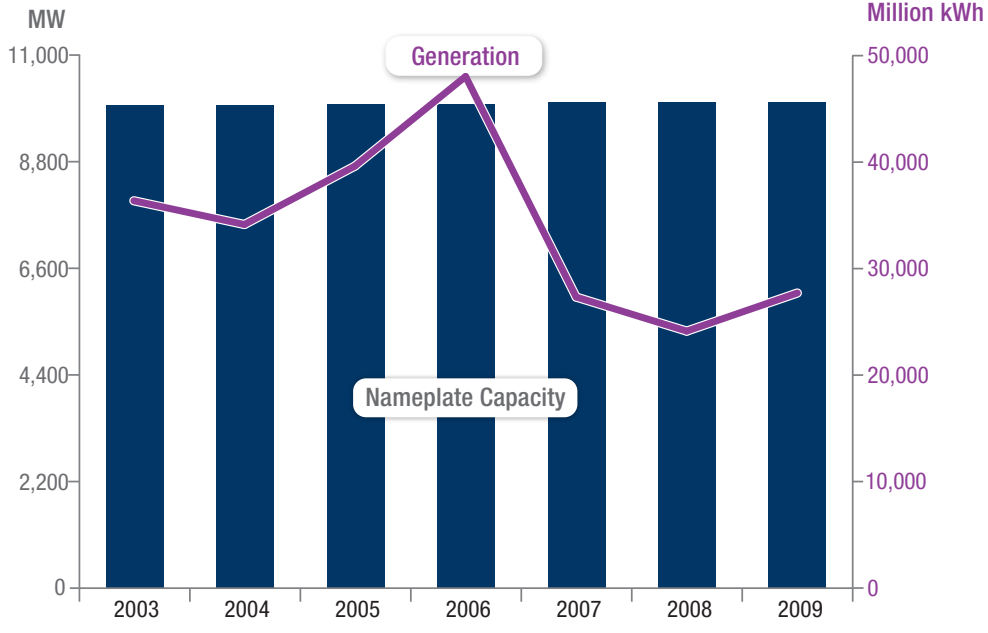


	Geothermal Energy Capacity (MW)	Regional Geothermal Energy Generation (Million kWh)
	California	
2003	2,717	12,982
2004	2,787	13,105
2005	2,787	13,023
2006	2,814	12,821
2007	2,821	12,991
2008	2,605	12,883
2009	2,566	13,023

Sources: EIA, GEA

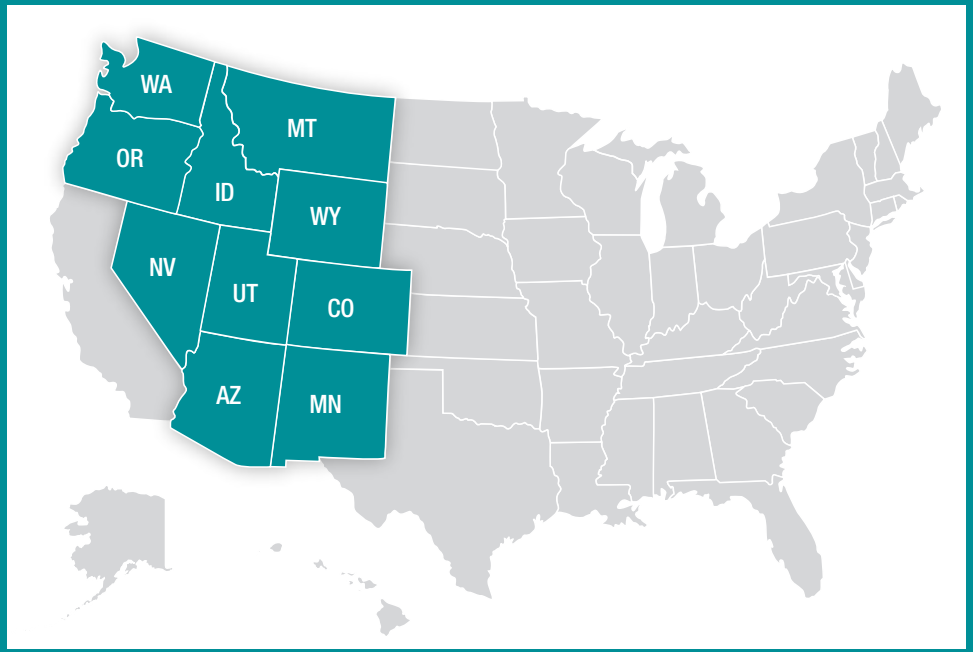
Total Installed Hydropower Energy Nameplate Capacity and Generation

California



	Hydro Energy Capacity (MW)	Regional Hydro Energy Generation (Million kWh)
	California	
2003	9,953	36,371
2004	9,970	34,141
2005	9,987	39,632
2006	9,987	48,047
2007	10,032	27,328
2008	10,032	24,128
2009	10,032	27,708

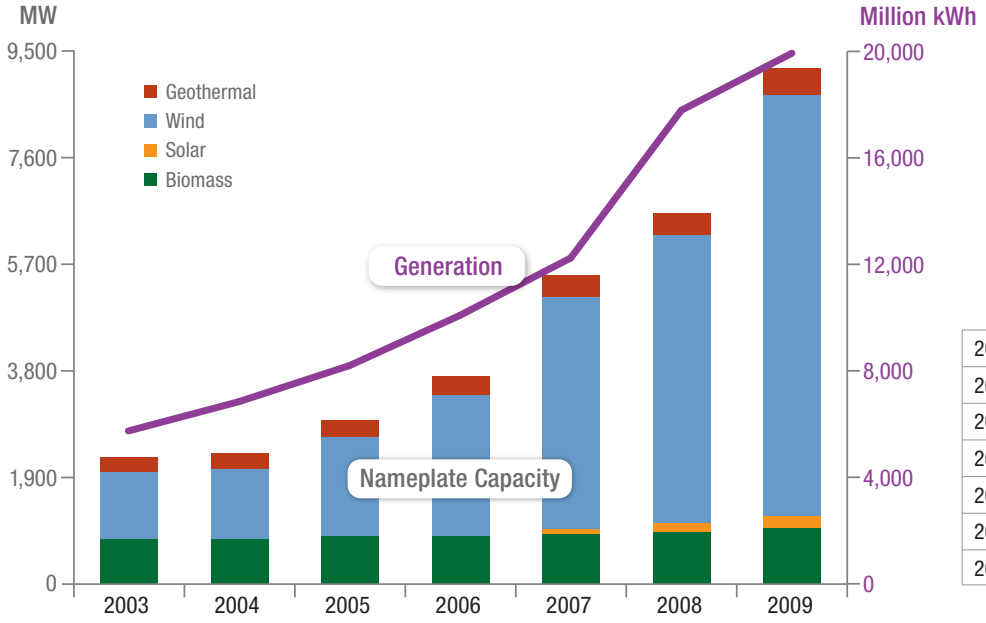
Source: EIA



West

Capacity and Generation: Renewables *(excluding hydropower)*

West

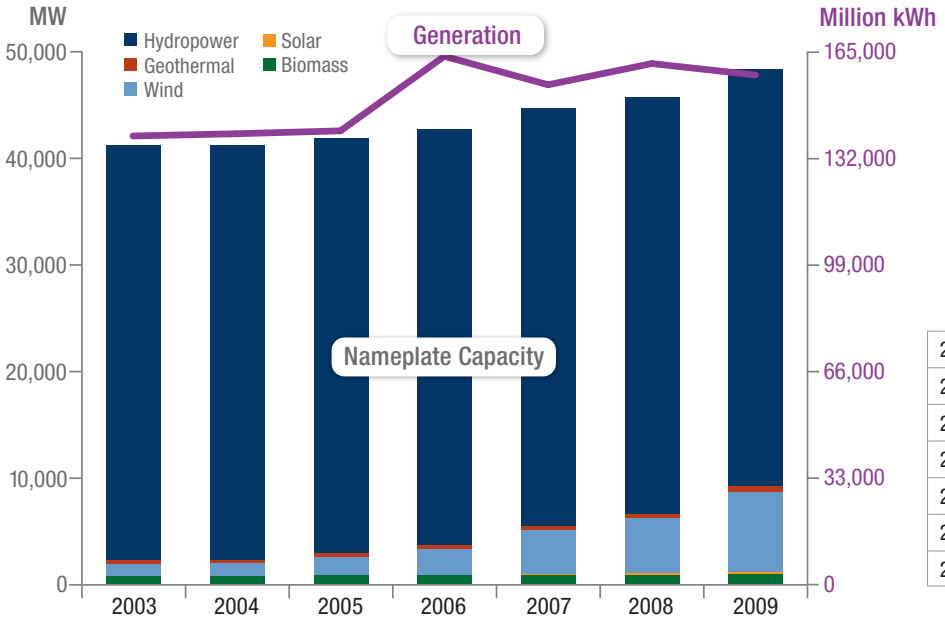


	Total Nameplate Capacity (MW)				Total Generation (Million kWh)
	Biomass	Geothermal	Wind	Solar	
2003	798	283	1,178	8	5,742
2004	799	272	1,244	8	6,842
2005	847	307	1,759	9	8,198
2006	850	322	2,511	9	10,088
2007	885	378	4,135	97	12,241
2008	920	399	5,122	174	17,788
2009	991	485	7,491	230	19,931

Sources: EIA, AWEA, SEIA, GEA, Larry Sherwood/IREC

Capacity and Generation: Renewables *(including hydropower)*

West



	Total Nameplate Capacity (MW)					Total Generation (Million kWh)
	Biomass	Geothermal	Wind	Solar	Hydro	
2003	798	283	1,178	8	38,987	139,042
2004	799	272	1,244	8	38,918	139,736
2005	847	307	1,759	9	38,967	140,636
2006	850	322	2,511	9	39,034	163,748
2007	885	378	4,135	97	39,185	154,910
2008	920	399	5,122	174	39,164	161,484
2009	991	485	7,491	230	39,165	157,936

Sources: EIA, AWEA, SEIA, GEA, Larry Sherwood/IREC

Renewable Electricity Nameplate Capacity (MW) and Percent Cumulative Increase from Previous Year

West

	Hydro	Solar	Wind	Geothermal	Biomass	Total (without Hydropower)	Total
2003	**38,987**	**8**	**1,178**	**283**	**798**	**2,267**	**41,254**
2004	**38,918** -0.2%	**8** 0%	**1,244** 5.6%	**272** -4.0%	**799** 0.1%	**2,323** 2.5%	**41,241** -0%
2005	**38,967** 0.1%	**9** 12.5%	**1,759** 41.4%	**307** 12.9%	**847** 6.0%	**2,922** 25.8%	**41,889** 1.6%
2006	**39,034** 0.2%	**9** 0%	**2,511** 42.8%	**322** 4.9%	**850** 0.4%	**3,693** 26.4%	**42,727** 2.0%
2007	**39,185** 0.4%	**97** 974.4%	**4,135** 64.6%	**378** 17.3%	**885** 4.1%	**5,494** 48.8%	**44,678** 4.6%
2008	**39,164** -0.1%	**174** 79.5%	**5,122** 23.9%	**399** 5.7%	**920** 4.0%	**6,615** 20.4%	**45,779** 2.5%
2009	**39,165** 0%	**230** 32.4%	**7,491** 46.3%	**485** 21.6%	**991** 7.7%	**8,967** 35.6%	**48,132** 5.1%

Sources: EIA, AWEA, SEIA, GEA, Larry Sherwood/IREC

Renewable Electricity Generation (MWh) and Percent Cumulative Increase from Previous Year

West

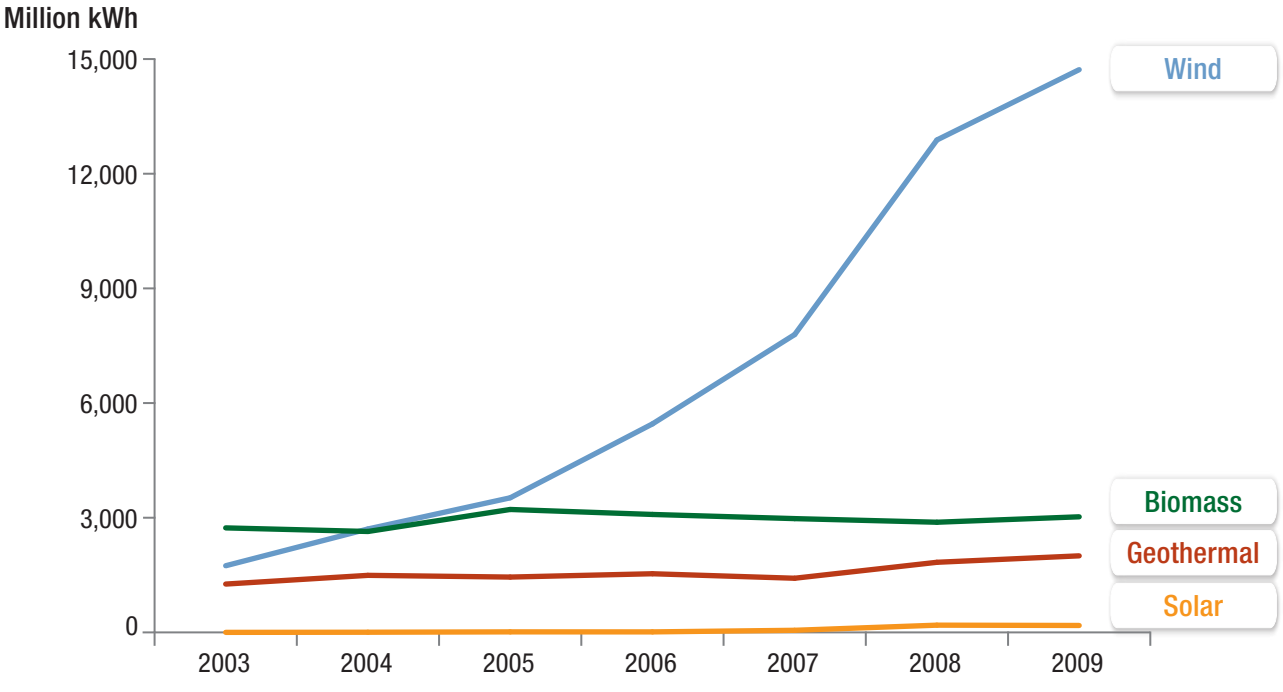
	Hydro	Solar	Wind	Geothermal	Biomass	Total (without Hydropower)	All Renewables
2003	**133,299**	**0.4**	**1,744**	**1,264**	**2,734**	**5,742**	**139,042**
2004	**132,893** -0.3%	**4** 979.7%	**2,706** 55.2%	**1,492** 18.1%	**2,640** -3.4%	**6,842** 19.2%	**139,736** 0.5%
2005	**132,438** -0.3%	**14** 218.4%	**3,521** 30.1%	**1,448** -3.0%	**3,216** 21.8%	**8,198** 19.8%	**140,636** 0.6%
2006	**153,661** 16.0%	**13** -3.3%	**5,454** 54.9%	**1,534** 6.0%	**3,086** -4.1%	**10,088** 23.0%	**163,748** 16.4%
2007	**142,669** -7.2%	**55** 317.4%	**7,792** 42.9%	**1,417** -7.7%	**2,977** -3.5%	**12,241** 21.3%	**154,910** -5.4%
2008	**143,695** 0.7%	**189** 244.9%	**12,883** 65.3%	**1,834** 29.5%	**2,882** -3.2%	**17,788** 45.3%	**161,484** 4.2%
2009	**138,005** -4.0%	**181** -4.2%	**14,723** 14.3%	**2,003** 9.2%	**3,024** 4.9%	**19,931** 12.0%	**157,936** -2.2%

- annual decrease | annual increase +

Source: EIA

Renewable Generation by Technology *(excluding hydropower)*

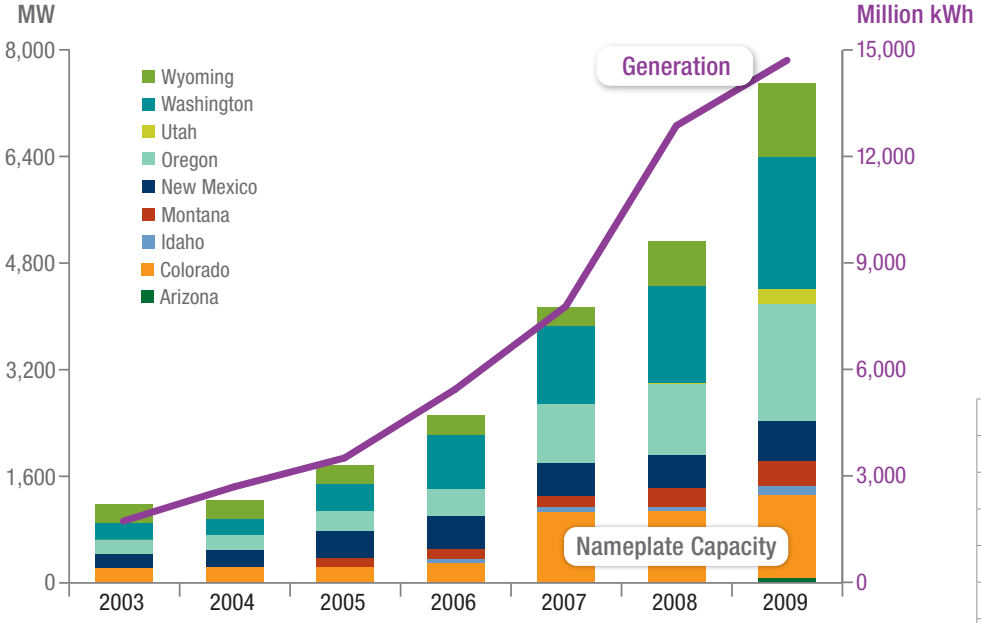
West



Sources: EIA, AWEA, SEIA, GEA, Larry Sherwood/IREC

Total Installed Wind Energy Nameplate Capacity and Generation

West



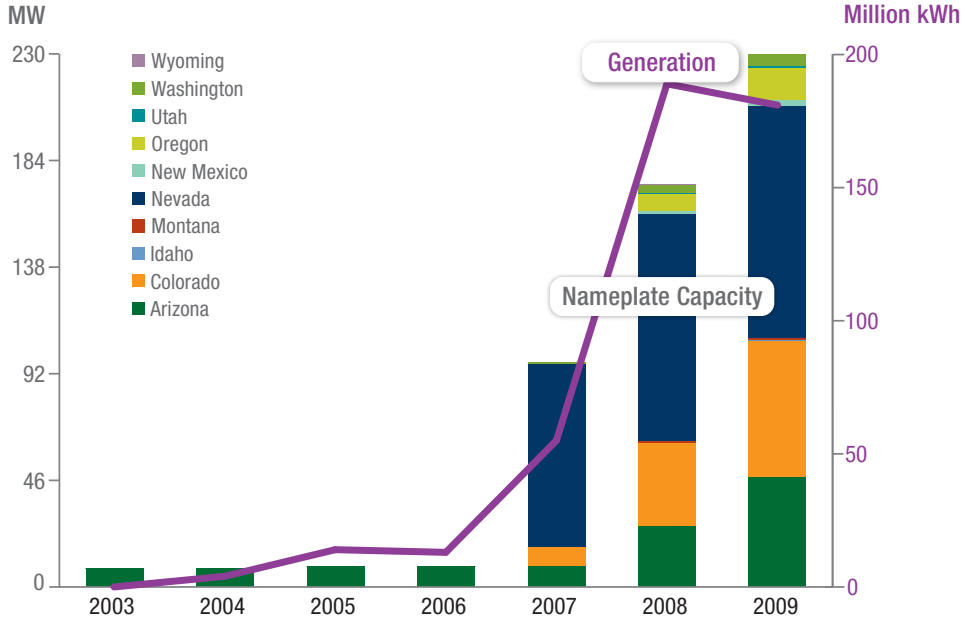
	Wind Energy Capacity (MW)				
	AZ	CO	ID	MT	NM
2003	0	221	0	0	204
2004	0	227	0	0	264
2005	0	229	10.5	135	404
2006	0	289	75	145	494
2007	0	1,065	75	165	494
2008	0	1,068	75	272	497
2009	63	1,246	147	375	597

	Wind Energy Capacity (MW)				Regional Wind Energy Generation (Million kWh)
	OR	UT	WA	WY	
2003	224	0	244	285	1,744
2004	224	0	244	285	2,706
2005	299	0	394	287	3,521
2006	399	0	822	287	5,454
2007	886	0	1,163	287	7,792
2008	1,067	19.8	1,447	676	12,883
2009	1,758	223	1,980	1,101	14,723

Sources: EIA, AWEA

Total Installed Solar Energy Nameplate Capacity and Generation

West



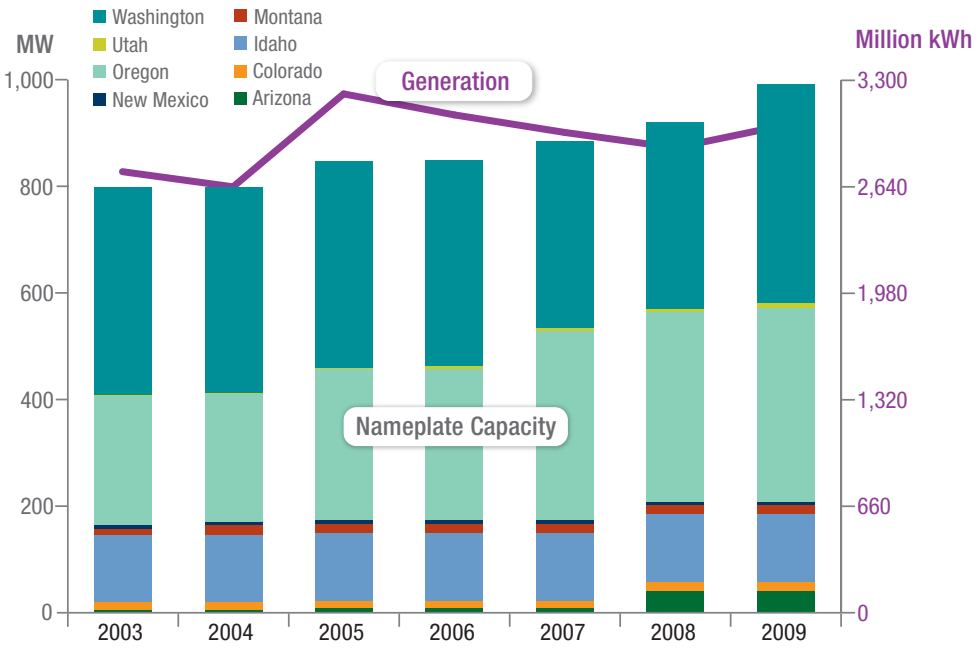
	Solar Energy Capacity (MW)					
	AZ	CO	ID	MT	NV	NM
2003	8	0	0	0	0	0
2004	8	0	0	0	0	0
2005	9	0	0	0	0	0
2006	9	0	0	0	0	0
2007	9	8.2	0	0	79	0
2008	26	36	0	0.7	98	1.0
2009	47	59	0.2	0.7	100	2.4

	Solar Energy Capacity (MW)				Regional Solar Energy Generation (Million kWh)
	OR	UT	WA	WY	
2003	0	0	0	0	0.4
2004	0	0	0	0	4.3
2005	0	0	0	0	14
2006	0	0	0	0	13
2007	0	0	0.5	0	55
2008	7.7	0.2	3.7	0.1	189
2009	14	0.6	5.2	0.1	181

Sources: EIA, SEIA, Larry Sherwood/IREC

Total Installed Biomass Energy Nameplate Capacity and Generation

West



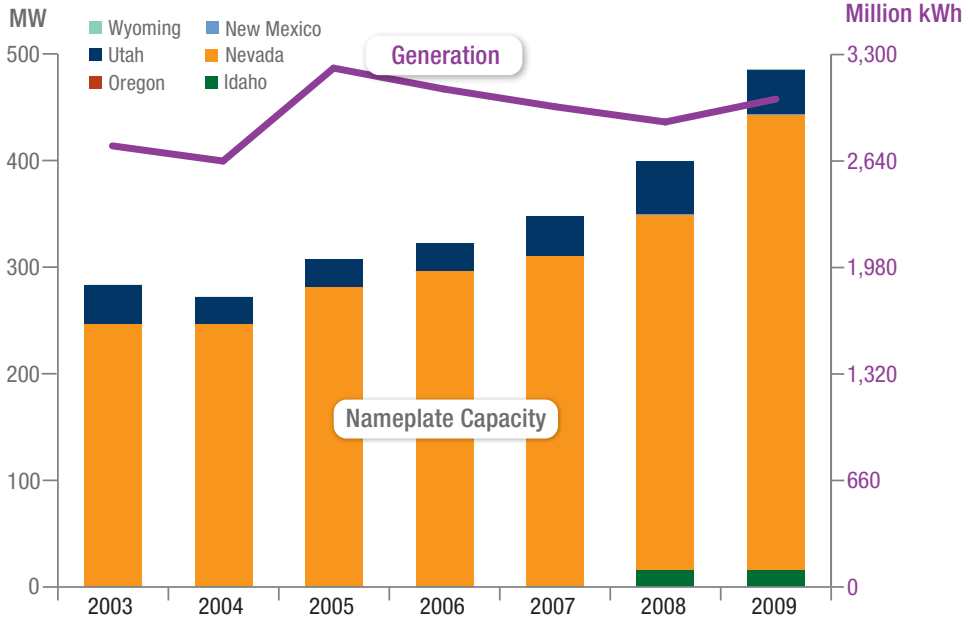
	Biomass Energy Capacity (MW)				
	AZ	CO	ID	MT	NM
2003	5	15	126	10.8	6.6
2004	5	15	126	17.3	6.6
2005	8	15	126	17.3	6.6
2006	8	15	126	17.3	6.6
2007	8	15	126	17.3	6.6
2008	40	18.2	126	17.3	6.6
2009	40	18.2	126	17.3	6.6

	Biomass Energy Capacity (MW)			Regional Biomass Energy Generation (Million kWh)
	OR	UT	WA	
2003	242	1.6	390	2,734
2004	239	1.6	388	2,640
2005	284	1.6	388	3,216
2006	284	4.8	388	3,086
2007	356	4.8	351	2,977
2008	356	4.8	351	2,882
2009	363	9.6	410	3,024

Source: EIA

Total Installed Geothermal Energy Nameplate Capacity and Generation

West

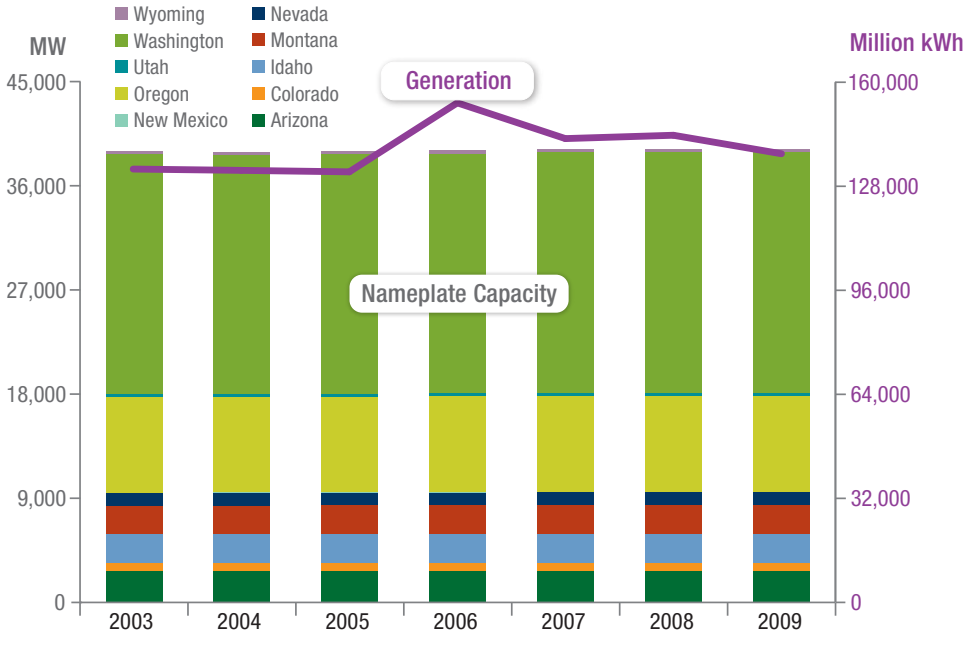


	Geothermal Energy Capacity (MW)			
	ID	NV	NM	OR
2003	0	246	0	0
2004	0	246	0	0
2005	0	281	0	0
2006	0	296	0	0
2007	0	310	0	0
2008	15.8	333	0.2	0
2009	15.8	427	0.2	0.3

	Geothermal Energy Capacity (MW)		Regional Geothermal Energy Generation (Million kWh)
	UT	WY	
2003	37	0	1,264
2004	26	0	1,492
2005	26	0	1,448
2006	26	0	1,534
2007	38	0	1,417
2008	50	0.3	1,834
2009	42	0.3	2,003

Sources: EIA, GEA

Total Installed Hydropower Energy Nameplate Capacity and Generation



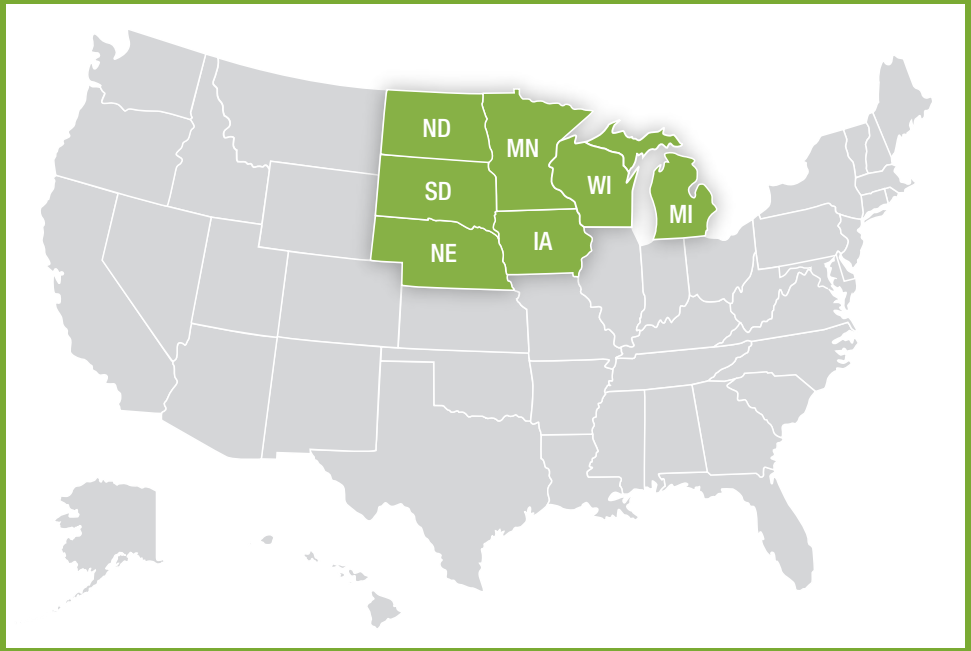
West

	Hydro Energy Capacity (MW)				
	AZ	CO	ID	MT	NV
2003	2,705	636	2,520	2,499	1,052
2004	2,709	640	2,521	2,499	1,047
2005	2,718	640	2,521	2,499	1,047
2006	2,718	640	2,523	2,529	1,047
2007	2,718	649	2,516	2,548	1,047
2008	2,718	649	2,516	2,548	1,047
2009	2,718	649	2,516	2,548	1,047

	Hydro Energy Capacity (MW)					Regional Hydro Energy Generation (Million kWh)
	NM	OR	UT	WA	WY	
2003	79	8,235	262	20,704	296	133,299
2004	79	8,236	262	20,627	299	132,893
2005	79	8,242	262	20,660	299	132,438
2006	79	8,261	262	20,677	299	153,661
2007	79	8,261	262	20,807	299	142,669
2008	79	8,240	262	20,807	299	143,695
2009	79	8,240	262	20,807	300	138,005

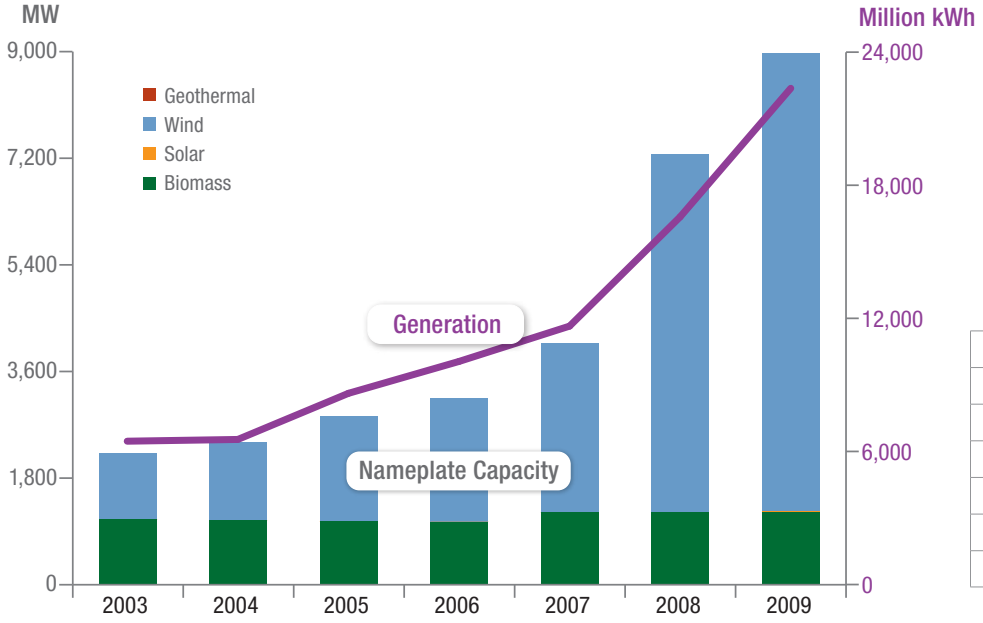
Source: EIA

Midwest



Capacity and Generation: Renewables *(excluding hydropower)*

Midwest

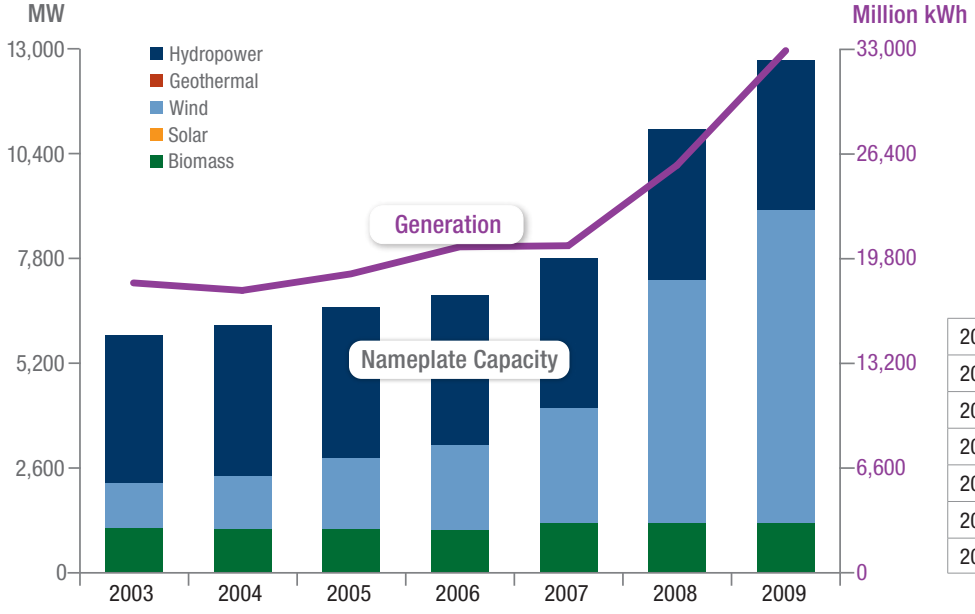


	Total Nameplate Capacity (MW)				Total Generation (Million kWh)
	Biomass	Geothermal	Wind	Solar	
2003	1,108	0	1,105	0	6,462
2004	1,085	0	1,316	0	6,541
2005	1,072	0	1,773	0	8,620
2006	1,063	0	2,084	0	10,057
2007	1,216	0	2,861	0	11,649
2008	1,222	0	6,043	4.1	16,575
2009	1,232	0	7,740	7.9	22,369

Sources: EIA, AWEA, SEIA, GEA, Larry Sherwood/IREC

Capacity and Generation: Renewables *(including hydropower)*

Midwest



	Total Nameplate Capacity (MW)					Total Generation (Million kWh)
	Biomass	Geothermal	Wind	Solar	Hydro	
2003	1,108	0	1,105	0	3,690	18,275
2004	1,085	0	1,316	0	3,731	17,802
2005	1,072	0	1,773	0	3,746	18,844
2006	1,063	0	2,084	0	3,745	20,548
2007	1,216	0	2,861	0	3,735	20,621
2008	1,222	0	6,043	4.1	3,735	25,694
2009	1,232	0	7,740	7.9	3,735	32,924

Sources: EIA, AWEA, SEIA, GEA, Larry Sherwood/IREC

Renewable Electricity Nameplate Capacity (MW) and Percent Cumulative Increase from Previous Year

Midwest

	Hydro	Solar	Wind	Geothermal	Biomass	Total (without Hydropower)	Total
2003	**3,690**	**0**	**1,105**	**0**	**1,108**	**2,213**	**5,903**
2004	**3,731** 1.1%	**0** 0%	**1,316** 19.0%	**0** 0%	**1,085** -2.1%	**2,401** 8.5%	**6,132** 3.9%
2005	**3,746** 0.4%	**0** 0%	**1,773** 34.8%	**0** 0%	**1,072** -1.3%	**2,845** 18.5%	**6,591** 7.5%
2006	**3,745** -0%	**0** 0%	**2,084** 17.5%	**0** 0%	**1,063** -0.8%	**3,147** 10.6%	**6,892** 4.6%
2007	**3,735** -0.3%	**0** 0%	**2,861** 37.3%	**0** 0%	**1,216** 14.4%	**4,077** 29.5%	**7,812** 13.3%
2008	**3,735** 0%	**4** NA	**6,043** 111.2%	**0** 0%	**1,222** 0.5%	**7,268** 78.3%	**11,003** 40.9%
2009	**3,735** 0%	**8** 91.6%	**7,740** 28.1%	**0** 0%	**1,232** 0.8%	**8,971** 23.4%	**12,706** 15.5%

- annual decrease | annual increase **+**

Sources: EIA, AWEA, SEIA, GEA, Larry Sherwood/IREC

Renewable Electricity Generation (MWh) and Percent Cumulative Increase from Previous Year

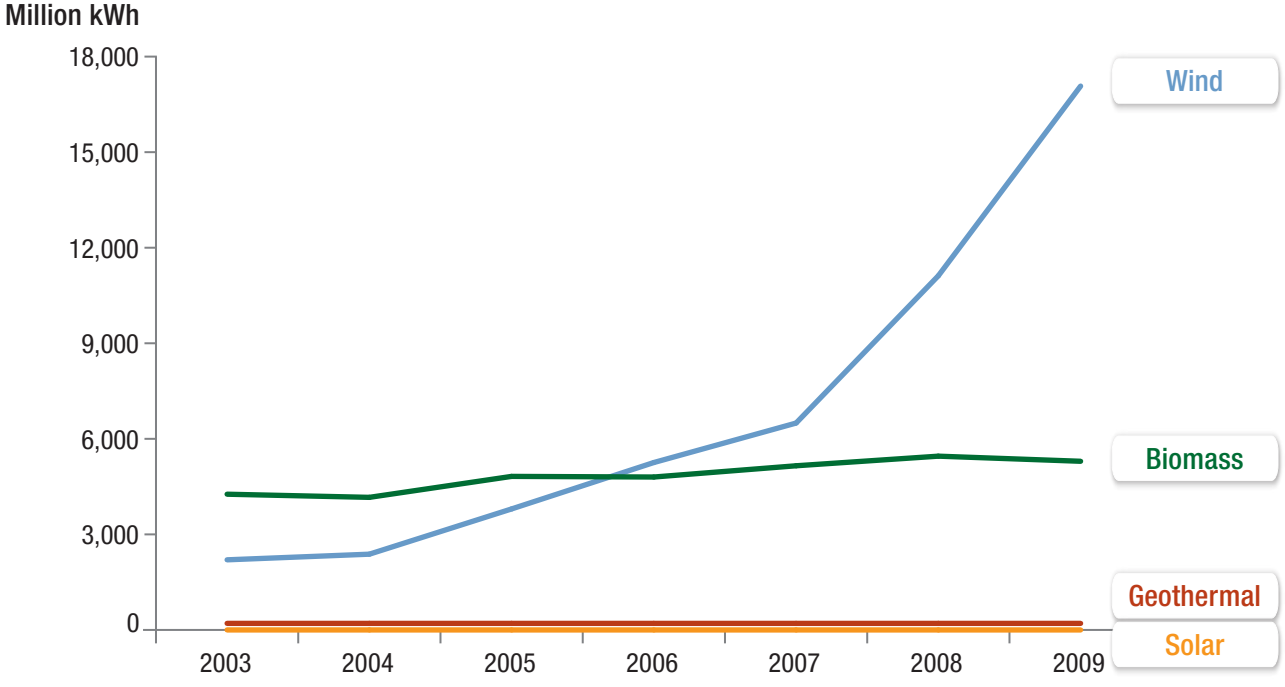
Midwest

	Hydro	Solar	Wind	Geothermal	Biomass	Total (without Hydropower)	All Renewables
2003	**11,813**	**0**	**2,201**	**0**	**4,261**	**6,462**	**18,275**
2004	**11,261** -4.7%	**0** 0.0%	**2,378** 8.0%	**0** 0.0%	**4,163** -2.3%	**6,541** 1.2%	**17,802** -2.6%
2005	**10,224** -9.2%	**0** 0.0%	**3,799** 59.7%	**0** 0.0%	**4,821** 15.8%	**8,620** 31.8%	**18,844** 5.9%
2006	**10,491** 2.6%	**0** 0.0%	**5,256** 38.4%	**0** 0.0%	**4,801** -0.4%	**10,057** 16.7%	**20,548** 9.0%
2007	**8,972** -14.5%	**0** 0.0%	**6,495** 23.6%	**0** 0.0%	**5,154** 7.4%	**11,649** 15.8%	**20,621** 0.4%
2008	**9,119** 1.6%	**0** 0.0%	**11,120** 71.2%	**0** 0.0%	**5,456** 5.9%	**16,575** 42.3%	**25,694** 24.6%
2009	**10,555** 15.7%	**0** 0.0%	**17,074** 53.5%	**0** 0.0%	**5,295** -2.9%	**22,369** 35.0%	**32,924** 28.1%

Source: EIA

Renewable Generation by Technology *(excluding hydropower)*

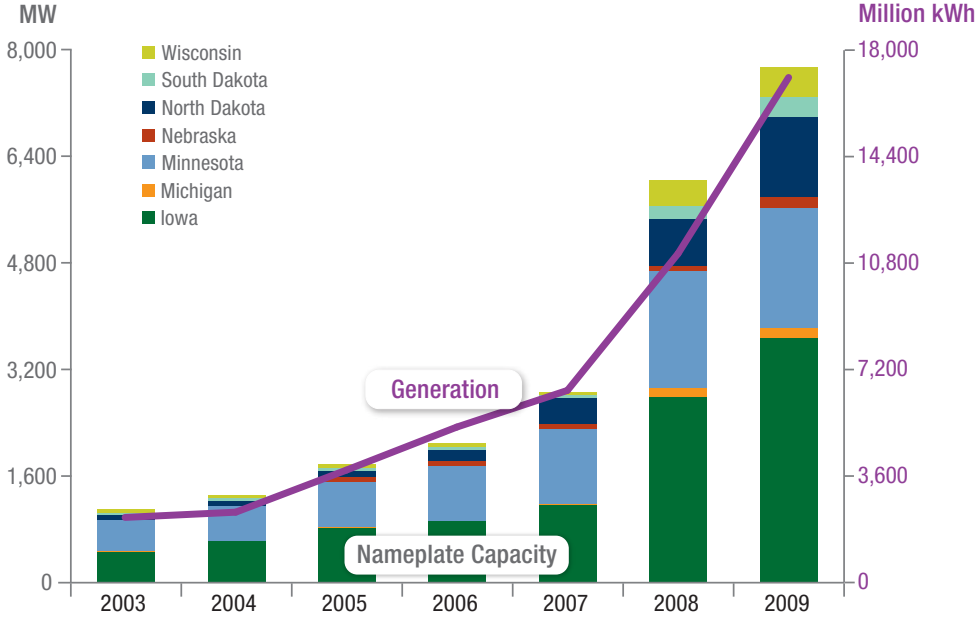
Midwest



Sources: EIA

Total Installed Wind Energy Nameplate Capacity and Generation

Midwest



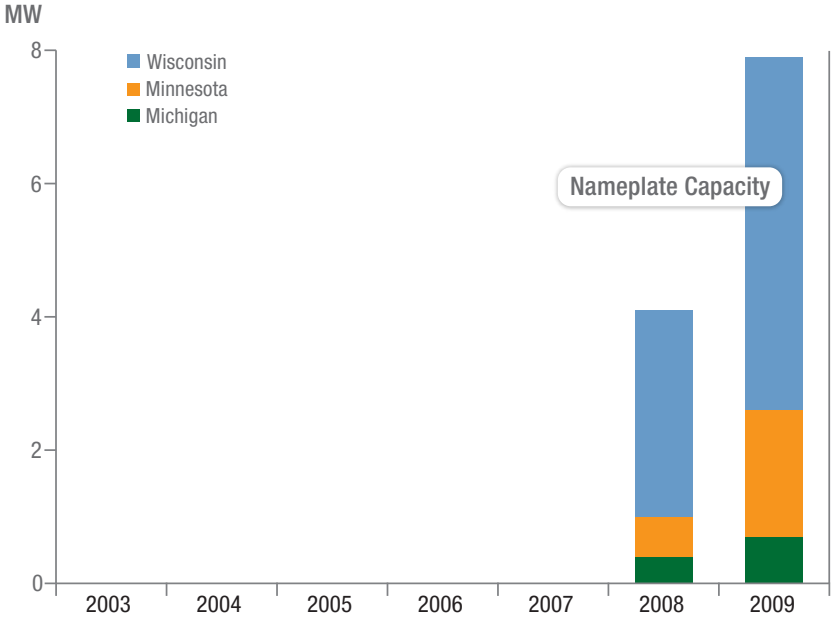
	Wind Energy Capacity (MW)			
	IA	MI	MN	NE
2003	462	1.8	468	13
2004	623	1.8	518	13
2005	820	1.8	687	73
2006	921	1.8	829	73
2007	1,170	1.8	1,139	71
2008	2,791	129	1,754	72
2009	3,670	143	1,809	153

	Wind Energy Capacity (MW)			Regional Wind Energy Generation (Million kWh)
	ND	SD	WI	
2003	64	43	53	2,201
2004	64	43	53	2,378
2005	96	43	53	3,799
2006	164	43	53	5,256
2007	383	43	53	6,495
2008	714	187	395	11,120
2009	1,203	313	449	17,074

Sources: EIA, AWEA

Total Installed Solar Energy Nameplate Capacity and Generation

Midwest

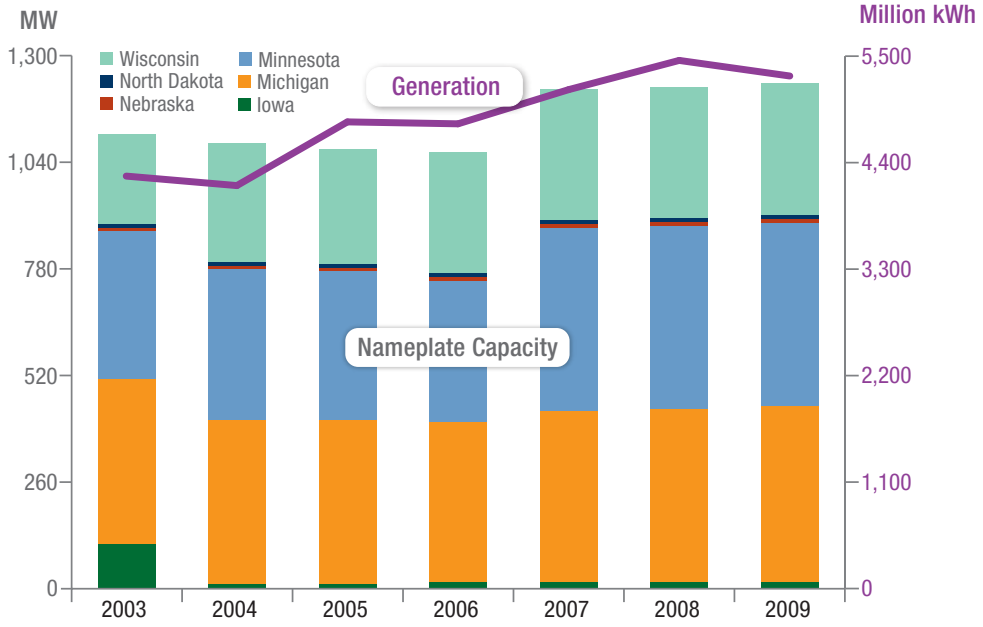


	Solar Energy Capacity (MW)			Regional Solar Energy Generation (Million kWh)
	MI	MN	WI	
2003	0	0	0	0
2004	0	0	0	0
2005	0	0	0	0
2006	0	0	0	0
2007	0	0	0	0
2008	0.4	0.6	3.1	0
2009	0.7	1.9	5.3	0

Sources: EIA, SEIA, Larry Sherwood/IREC

Total Installed Biomass Energy Nameplate Capacity and Generation

Midwest



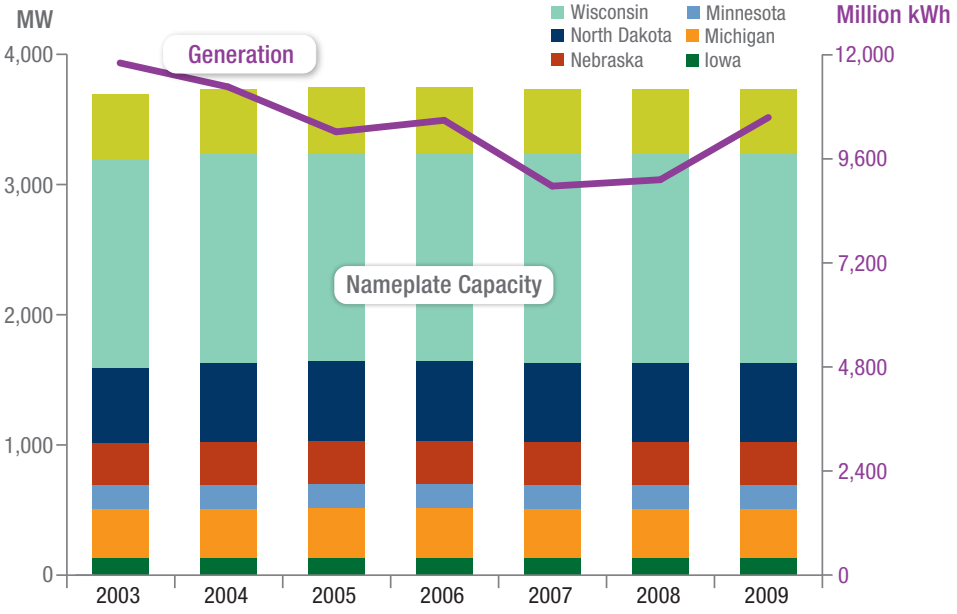
	Biomass Energy Capacity (MW)			
	IA	MI	MN	NE
2003	108	403	360	7.7
2004	9.8	402	366	7.7
2005	9.8	402	361	7.7
2006	14.6	392	343	10.1
2007	14.6	419	445	10.1
2008	14.6	424	445	10.1
2009	14.6	430	445	10.9

	Biomass Energy Capacity (MW)		Regional Biomass Energy Generation (Million kWh)
	ND	WI	
2003	10.2	220	4,261
2004	9.8	291	4,163
2005	9.8	282	4,821
2006	9.8	293	4,801
2007	9.8	318	5,154
2008	9.8	319	5,456
2009	9.8	321	5,295

Source: EIA

Total Installed Hydropower Energy Nameplate Capacity and Generation

Midwest

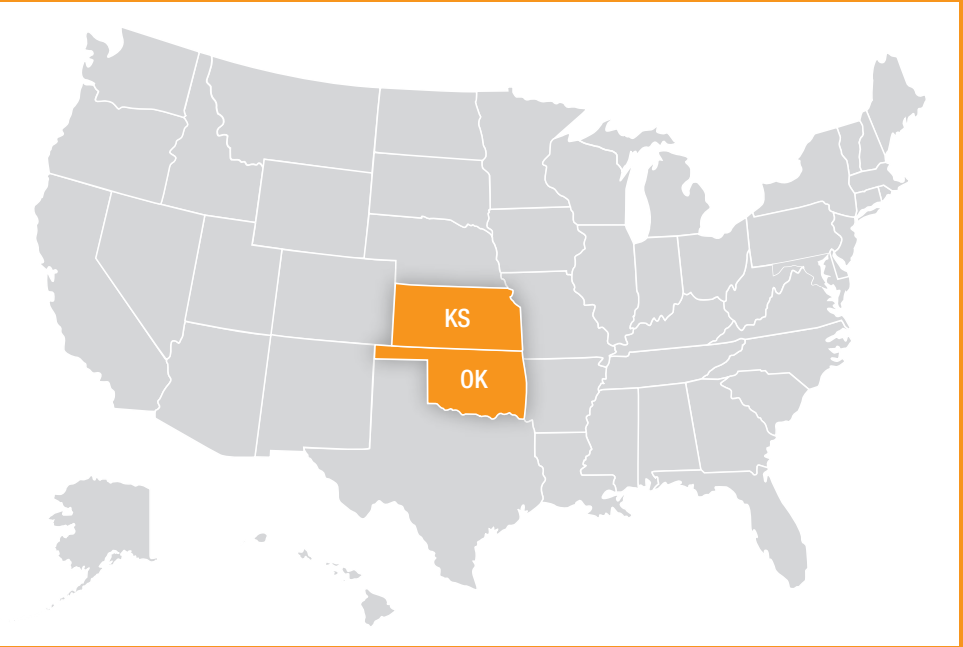


	Hydro Energy Capacity (MW)			
	IA	MI	MN	NE
2003	131	373	186	325
2004	131	375	186	327
2005	131	384	186	327
2006	131	383	186	327
2007	131	374	186	327
2008	131	374	186	327
2009	131	374	186	327

	Hydro Energy Capacity (MW)			Regional Hydro Energy Generation (Million kWh)
	ND	SD	WI	
2003	576	1,598	500	11,813
2004	614	1,598	500	11,261
2005	614	1,598	506	10,224
2006	614	1,598	506	10,491
2007	614	1,598	505	8,972
2008	614	1,598	505	9,119
2009	614	1,598	505	10,555

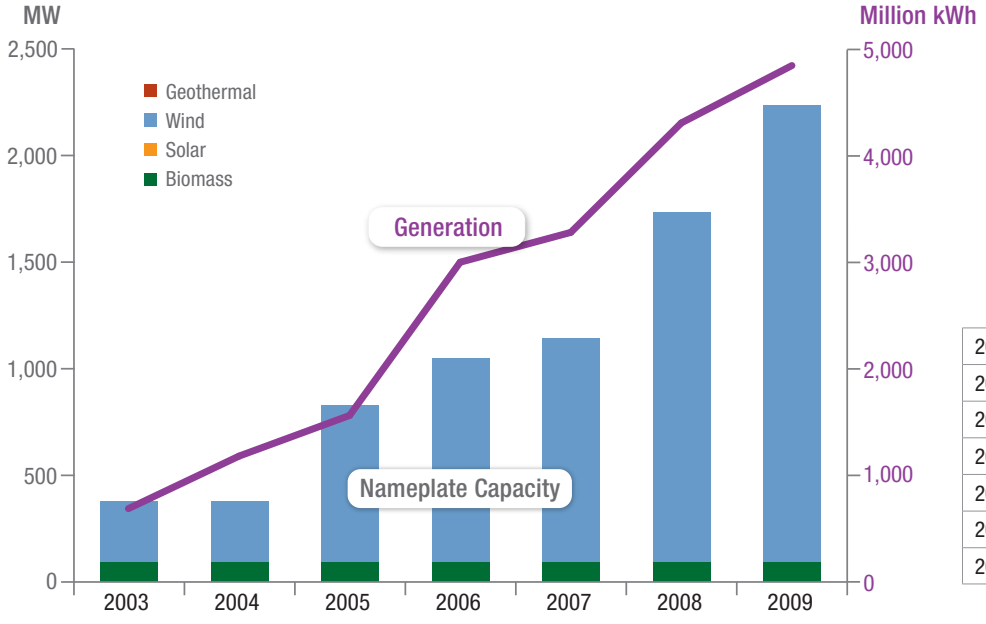
Source: EIA

Heartland



Capacity and Generation: Renewables *(excluding hydropower)*

Heartland

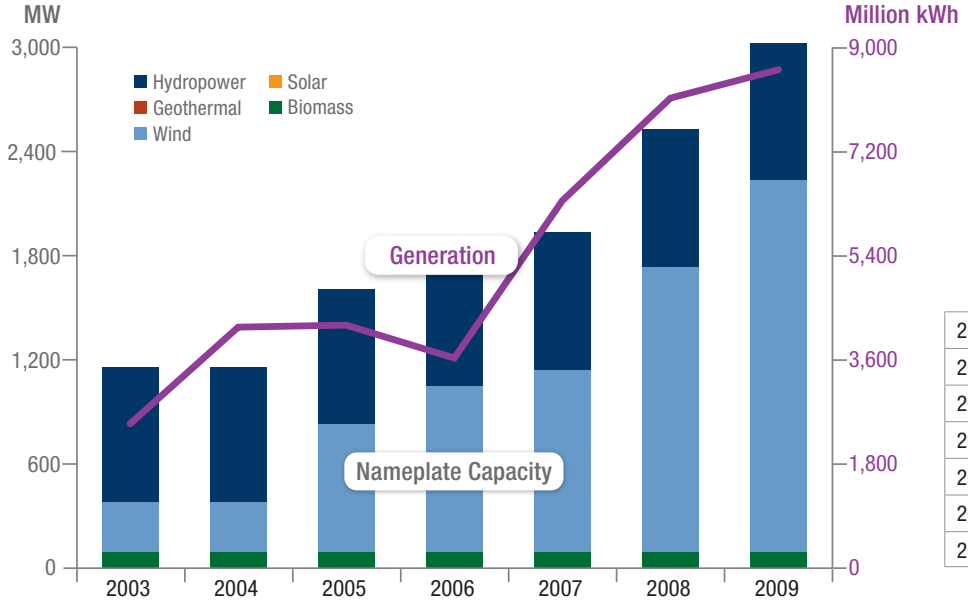


	Total Nameplate Capacity (MW)				Total Generation (Million kWh)
	Biomass	Geothermal	Wind	Solar	
2003	90	0	290	0	688
2004	90	0	290	0	1,181
2005	90	0	738	0	1,563
2006	90	0	958	0	3,002
2007	90	0	1,052	0	3,282
2008	90	0	1,645	0	4,310
2009	90	0	2,144	0	4,849

Sources: EIA, AWEA, SEIA, GEA, Larry Sherwood/IREC

Capacity and Generation: Renewables *(including hydropower)*

Heartland



	Total Nameplate Capacity (MW)					Total Generation (Million kWh)
	Biomass	Geothermal	Wind	Solar	Hydro	
2003	90	0	290	0	780	2,498
2004	90	0	290	0	780	4,170
2005	90	0	738	0	780	4,205
2006	90	0	958	0	780	3,635
2007	90	0	1,052	0	792	6,358
2008	90	0	1,645	0	792	8,132
2009	90	0	2,144	0	792	8,624

Sources: EIA, AWEA, SEIA, GEA, Larry Sherwood/IREC

Renewable Electricity Nameplate Capacity (MW) and Percent Cumulative Increase from Previous Year

Heartland

	Hydro	Solar	Wind	Geothermal	Biomass	Total (without Hydropower)	Total
2003	**780**	**0**	**290**	**0**	**90**	**380**	**1,160**
2004	**780** 0%	**0** 0%	**290** 0%	**0** 0%	**90** 0%	**380** 0%	**1,160** 0%
2005	**780** 0%	**0** 0%	**738** 154.6%	**0** 0%	**90** 0%	**828** 118.1%	**1,608** 38.6%
2006	**780** 0%	**0** 0%	**958** 29.8%	**0** 0%	**90** 0%	**1,048** 26.6%	**1,828** 13.7%
2007	**792** 1.5%	**0** 0%	**1,052** 9.9%	**0** 0%	**90** 0%	**1,142** 9.0%	**1,934** 5.8%
2008	**792** 0%	**0** 0%	**1,645** 56.4%	**0** 0%	**90** 0%	**1,735** 51.9%	**2,527** 30.7%
2009	**792** 0%	**0** 0%	**2,144** 30.3%	**0** 0%	**90** 0%	**2,233** 28.7%	**3,025** 19.7%

- annual decrease | annual increase +

Sources: EIA, AWEA, SEIA, GEA, Larry Sherwood/IREC

Renewable Electricity Generation (MWh) and Percent Cumulative Increase from Previous Year

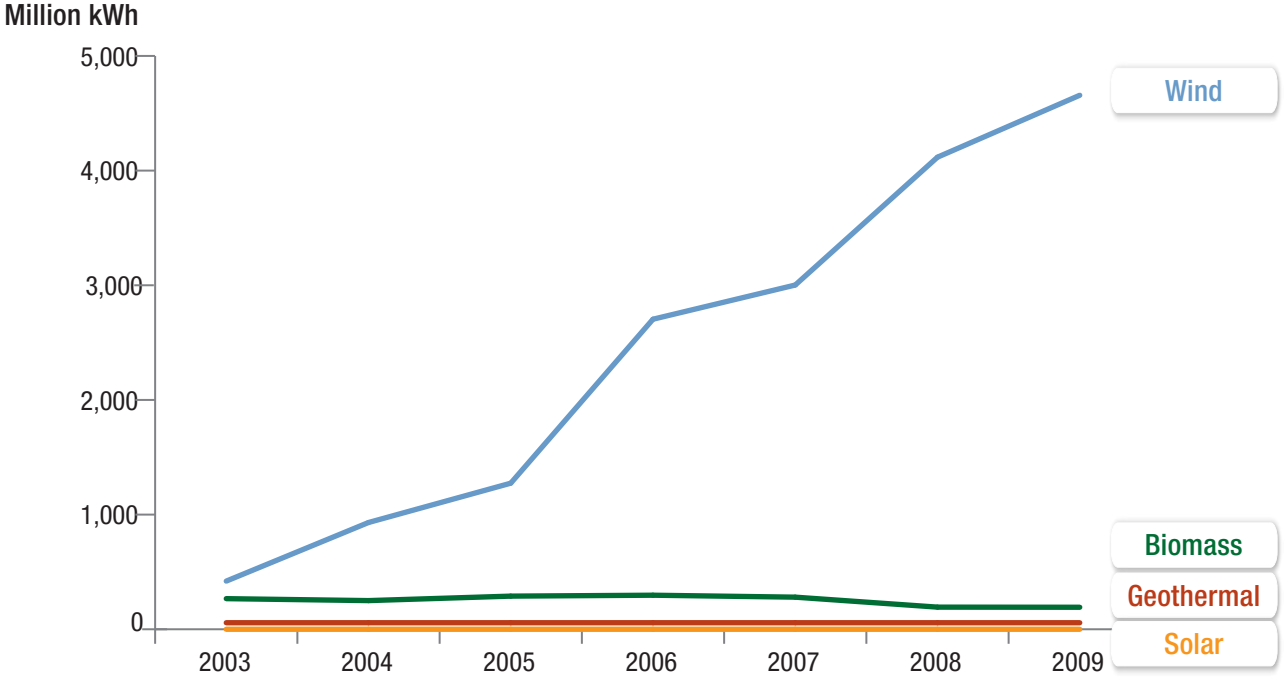
Heartland

	Hydro	Solar	Wind	Geothermal	Biomass	Total (without Hydropower)	All Renewables
2003	**1,811**	**0**	**420**	**0**	**267**	**688**	**2,498**
2004	**2,989** 65.1%	**0** 0.0%	**931** 121.5%	**0** 0.0%	**250** -6.5%	**1,181** 71.8%	**4,170** 66.9%
2005	**2,642** -11.6%	**0** 0.0%	**1,274** 36.7%	**0** 0.0%	**289** 15.8%	**1,563** 32.3%	**4,205** 0.8%
2006	**633** -76.0%	**0** 0.0%	**2,704** 112.3%	**0** 0.0%	**297** 2.8%	**3,002** 92.1%	**3,635** -13.5%
2007	**3,076** 385.8%	**0** 0.0%	**3,002** 11.0%	**0** 0.0%	**280** -5.9%	**3,282** 9.3%	**6,358** 74.9%
2008	**3,822** 24.2%	**0** 0.0%	**4,117** 37.2%	**0** 0.0%	**193** -31.2%	**4,310** 31.3%	**8,132** 27.9%
2009	**3,775** -1.2%	**0** 0.0%	**4,657** 13.1%	**0** 0.0%	**192** -0.1%	**4,849** 12.5%	**8,624** 6.0%

Source: EIA

Renewable Generation by Technology *(excluding hydropower)*

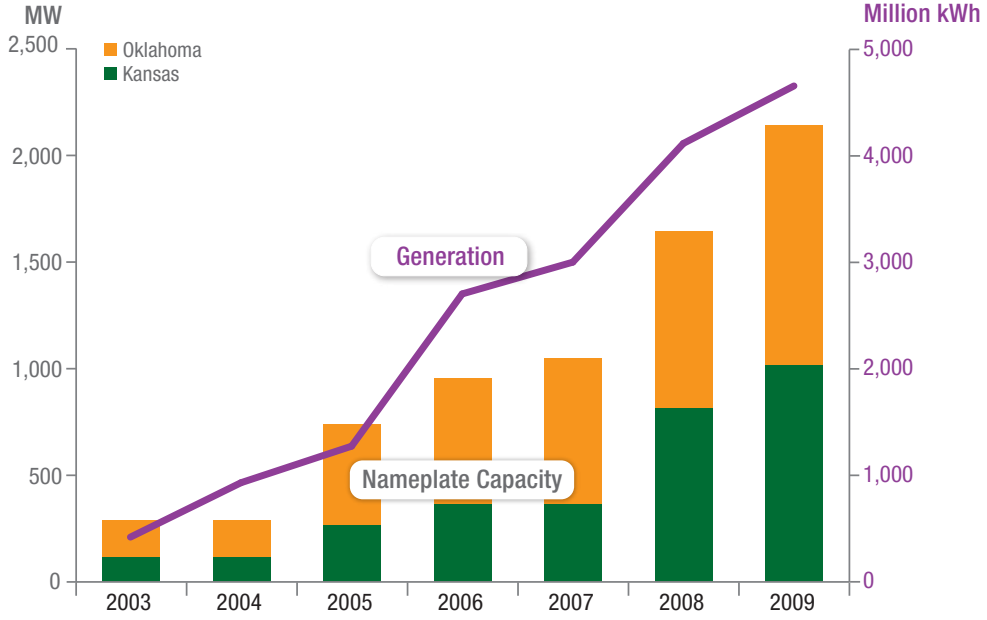
Heartland



Source: EIA

Total Installed Wind Energy Nameplate Capacity and Generation

Heartland

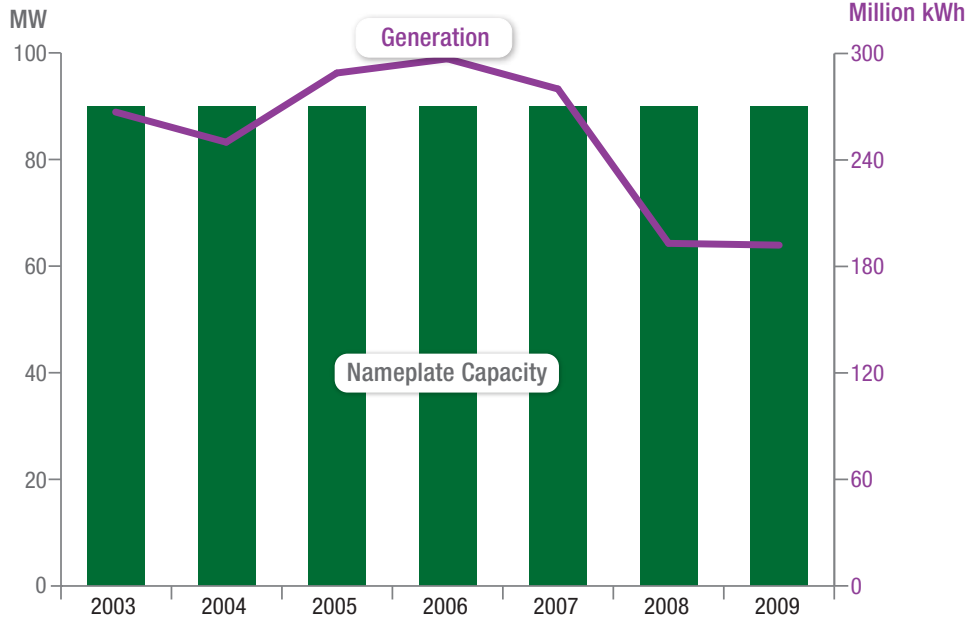


	Wind Energy Capacity (MW)		Regional Wind Energy Generation (Million kWh)
	Kansas	Oklahoma	
2003	113	176	420
2004	113	176	931
2005	263	474	1,274
2006	363	594	2,704
2007	363	689	3,002
2008	815	831	4,117
2009	1,014	1,130	4,657

Sources: EIA, AWEA

Total Installed Biomass Energy Nameplate Capacity and Generation

Heartland

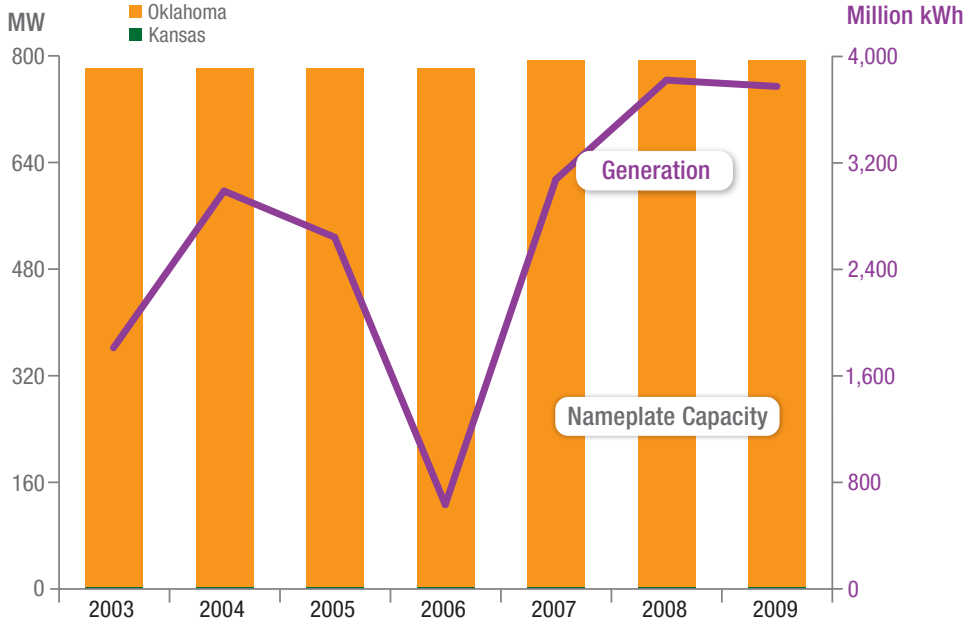


	Biomass Energy Capacity (MW)	Regional Biomass Energy Generation (Million kWh)
	Oklahoma	
2003	90	267
2004	90	250
2005	90	289
2006	90	297
2007	90	280
2008	90	193
2009	90	192

Source: EIA

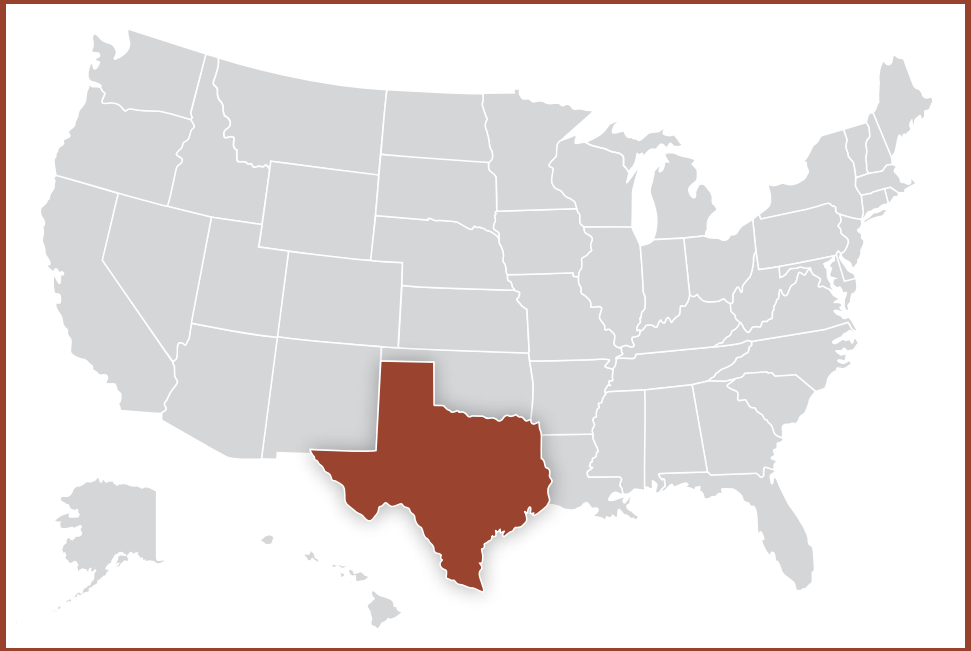
Total Installed Hydropower Energy Nameplate Capacity and Generation

Heartland



	Hydro Energy Capacity (MW)		Regional Hydro Energy Generation (Million kWh)
	Kansas	Oklahoma	
2003	2.6	778	1,811
2004	2.6	778	2,989
2005	2.6	778	2,642
2006	2.6	778	633
2007	2.6	790	3,076
2008	2.6	790	3,822
2009	2.6	790	3,775

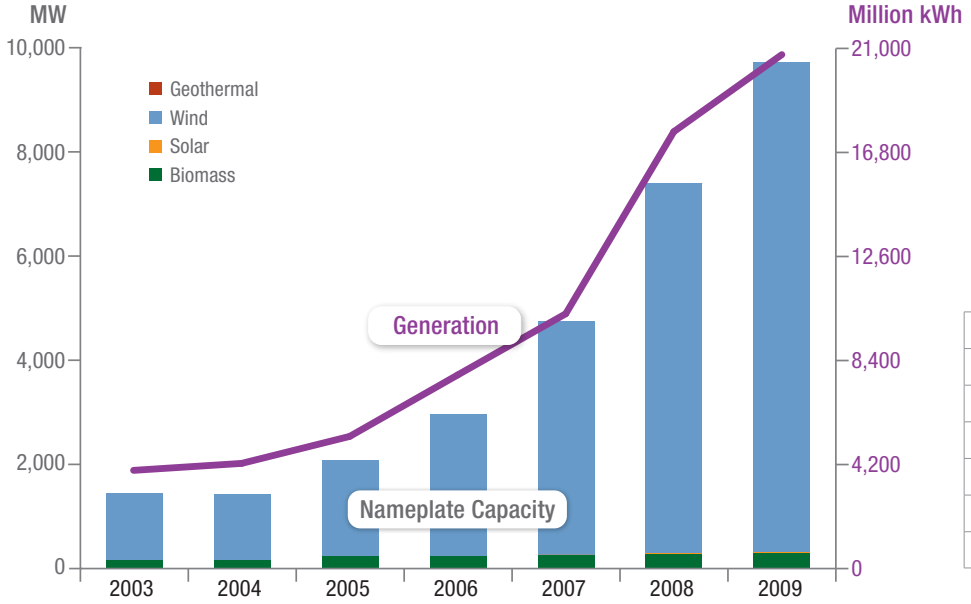
Source: EIA



Texas

Capacity and Generation: Renewables *(excluding hydropower)*

Texas

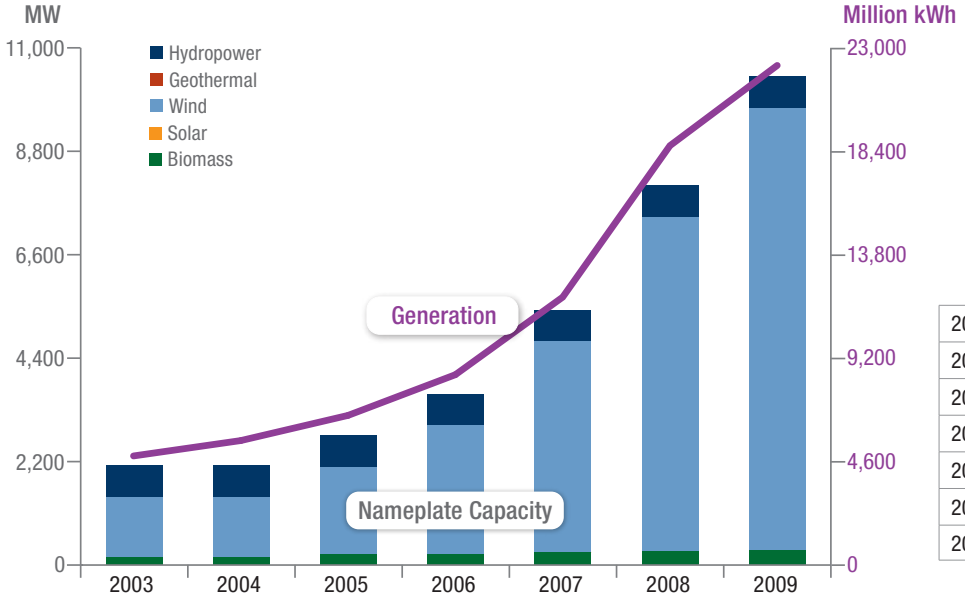


	Total Nameplate Capacity (MW)				Total Generation (Million kWh)
	Biomass	Geothermal	Wind	Solar	
2003	156	0	1,286	0	3,966
2004	155	0	1,286	0	4,247
2005	232	0	1,846	0	5,336
2006	233	0	2,738	0	7,818
2007	268	0	4,490	0	10,288
2008	279	0	7,118	4.4	17,639
2009	300	0	9,410	8.6	20,750

Sources: EIA, AWEA, SEIA, GEA, Larry Sherwood/IREC

Capacity and Generation: Renewables *(including hydropower)*

Texas



	Total Nameplate Capacity (MW)					Total Generation (Million kWh)
	Biomass	Geothermal	Wind	Solar	Hydro	
2003	156	0	1,286	0	676	4,862
2004	155	0	1,286	0	676	5,547
2005	232	0	1,846	0	676	6,668
2006	233	0	2,738	0	673	8,480
2007	268	0	4,490	0	672	11,932
2008	279	0	7,118	4.4	672	18,679
2009	300	0	9,410	8.6	672	22,251

Sources: EIA, AWEA, SEIA, GEA, Larry Sherwood/IREC

Renewable Electricity Nameplate Capacity (MW) and Percent Cumulative Increase from Previous Year

Texas

	Hydro	Solar	Wind	Geothermal	Biomass	Total (without Hydropower)	Total
2003	**676**	**0**	**1,286**	**0**	**156**	**1,442**	**2,118**
2004	**676** 0%	**0** 0%	**1,286** 0%	**0** 0%	**155** -0.7%	**1,441** -0.1%	**2,117** -0.1%
2005	**676** 0%	**0** 0%	**1,846** 43.6%	**0** 0%	**232** 49.4%	**2,078** 44.2%	**2,754** 30.1%
2006	**673** -0.4%	**0** 0%	**2,738** 48.3%	**0** 0%	**233** 0.8%	**2,971** 43.0%	**3,644** 32.3%
2007	**672** -0.2%	**0** 0%	**4,490** 64.0%	**0** 0%	**268** 14.7%	**4,757** 60.1%	**5,430** 49.0%
2008	**676** 0%	**4.4** NA	**7,118** 58.5%	**0** 0%	**279** 4.1%	**7,401** 55.6%	**8,073** 48.7%
2009	**676** 0%	**8.6** 94.2%	**9,410** 32.2%	**0** 0%	**300** 7.6%	**9,710** 31.2%	**10,382** 28.6%

- annual decrease | annual increase +

Sources: EIA, AWEA, SEIA, GEA, Larry Sherwood/IREC

Renewable Electricity Generation (MWh) and Percent Cumulative Increase from Previous Year

Texas

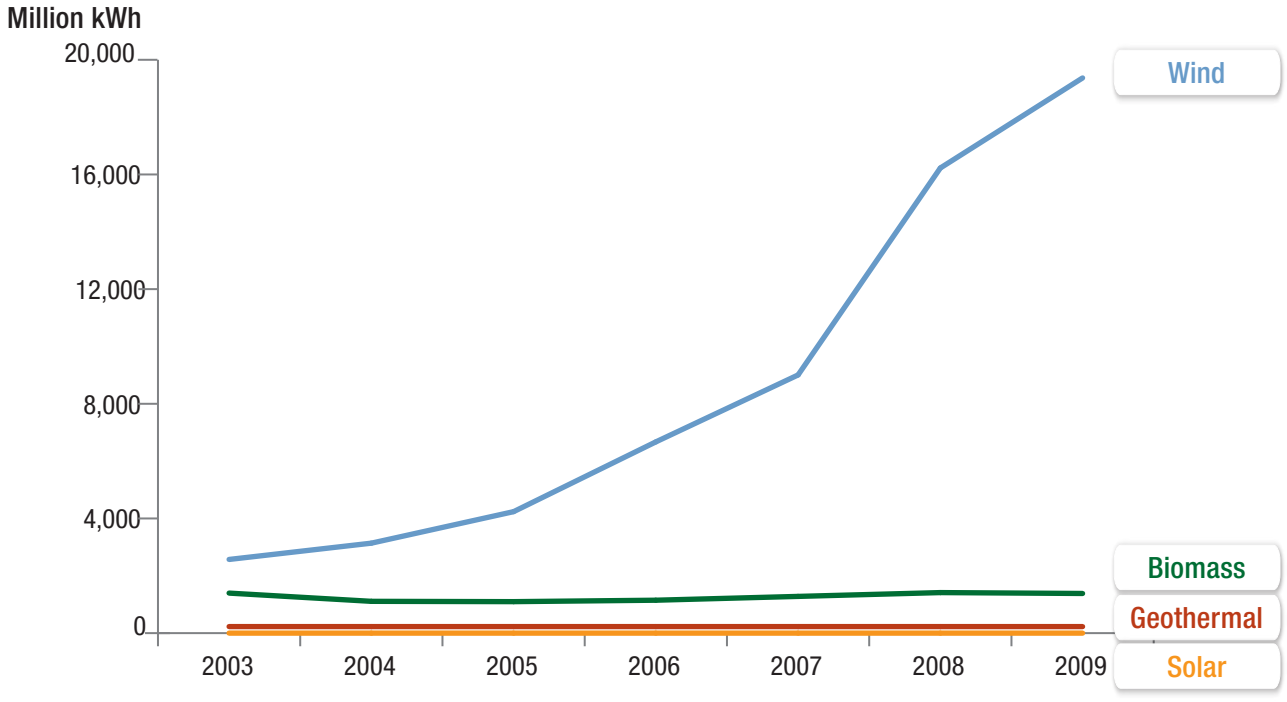
	Hydro	Solar	Wind	Geothermal	Biomass	Total (without Hydropower)	All Renewables
2003	**897**	**0**	**2,570**	**0**	**1,396**	**3,966**	**4,862**
2004	**1,301** 45.1%	**0** 0.0%	**3,138** 22.1%	**0** 0.0%	**1,109** -20.6%	**4,247** 7.1%	**5,547** 14.1%
2005	**1,333** 2.5%	**0** 0.0%	**4,237** 35.0%	**0** 0.0%	**1,098** -1.0%	**5,336** 25.6%	**6,668** 20.2%
2006	**662** -50.3%	**0** 0.0%	**6,671** 57.4%	**0** 0.0%	**1,148** 4.5%	**7,818** 46.5%	**8,480** 27.2%
2007	**1,644** 148.4%	**0** 0.0%	**9,006** 35.0%	**0** 0.0%	**1,281** 11.6%	**10,288** 31.6%	**11,932** 40.7%
2008	**1,039** -36.8%	**0** 0.0%	**16,225** 80.2%	**0** 0.0%	**1,414** 10.4%	**17,639** 71.5%	**18,679** 56.5%
2009	**1,501** 44.4%	**0** 0.0%	**19,367** 19.4%	**0** 0.0%	**1,383** -2.2%	**20,750** 17.6%	**22,251** 19.1%

- annual decrease | annual increase **+**

Source: EIA

Renewable Generation by Technology *(excluding hydropower)*

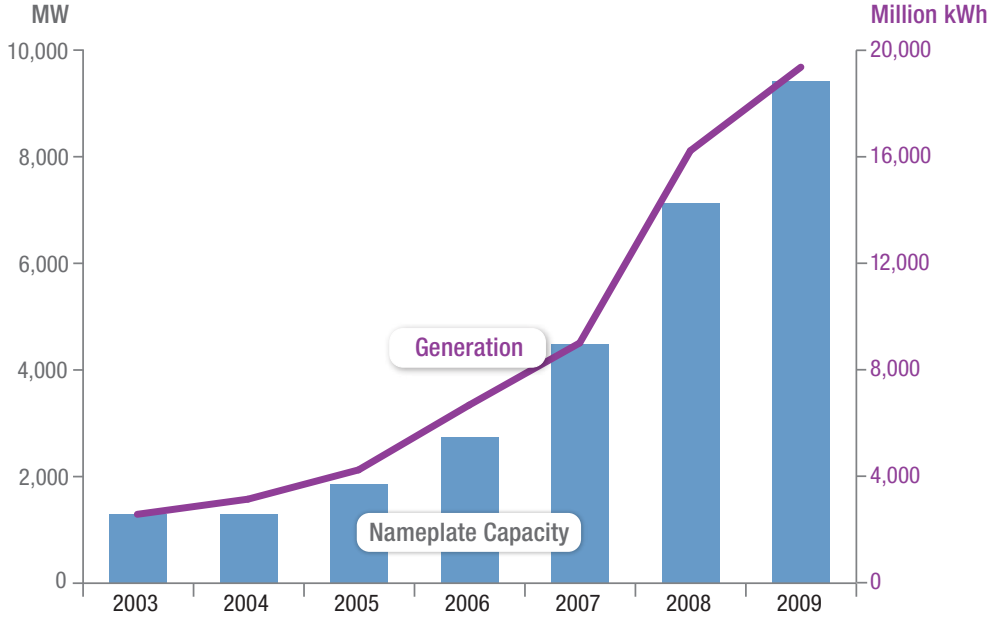
Texas



Source: EIA

Total Installed Wind Energy Nameplate Capacity and Generation

Texas

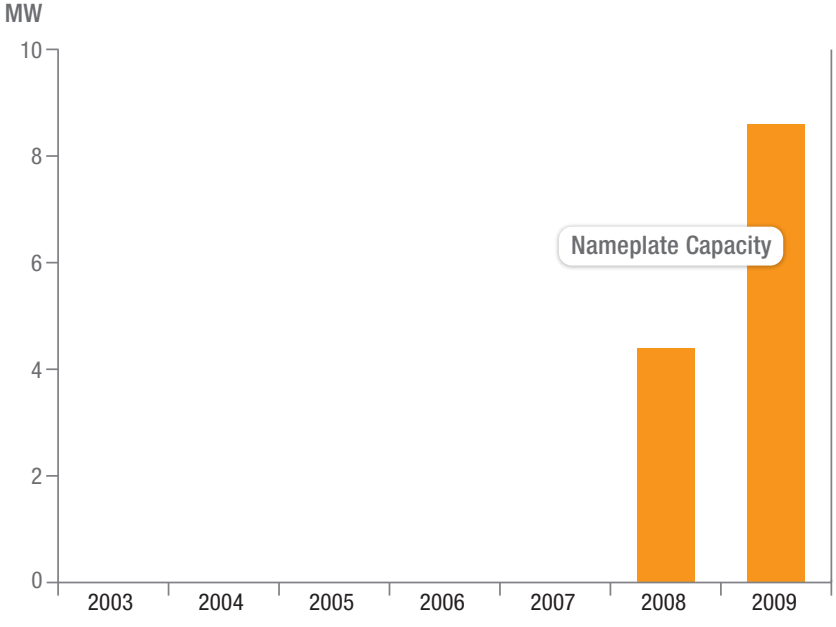


	Wind Energy Capacity (MW)	Regional Wind Energy Generation (Million kWh)
	Texas	
2003	1,286	2,570
2004	1,286	3,138
2005	1,846	4,237
2006	2,738	6,671
2007	4,490	9,006
2008	7,118	16,225
2009	9,410	19,367

Sources: EIA, AWEA

Total Installed Solar Energy Nameplate Capacity and Generation

Texas

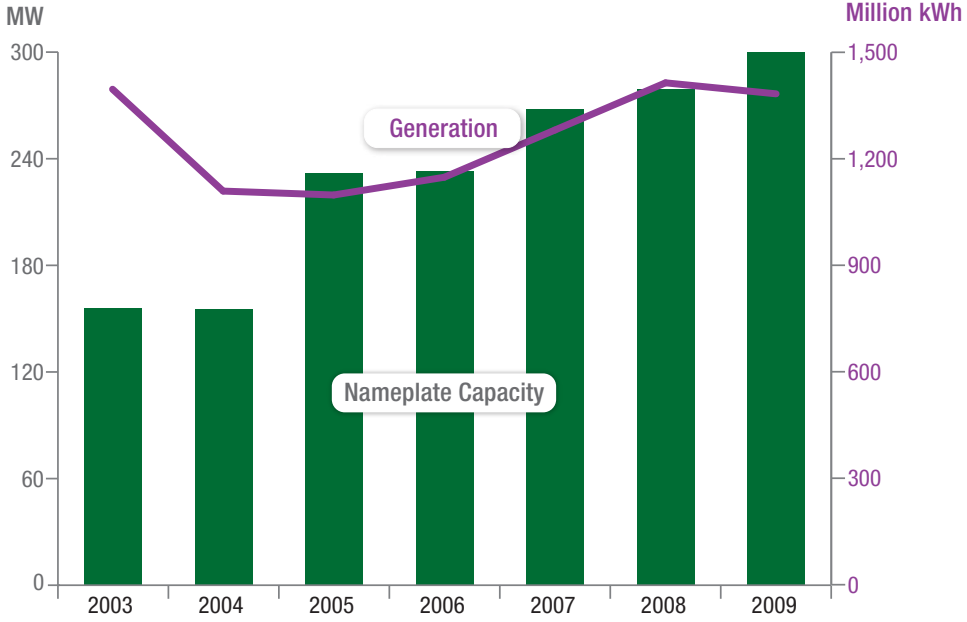


	Solar Energy Capacity (MW)	Regional Solar Energy Generation (Million kWh)
	Texas	
2003	0	0
2004	0	0
2005	0	0
2006	0	0
2007	0	0
2008	4.4	0
2009	8.6	0

Sources: EIA, SEIA, Larry Sherwood/IREC

Total Installed Biomass Energy Nameplate Capacity and Generation

Texas

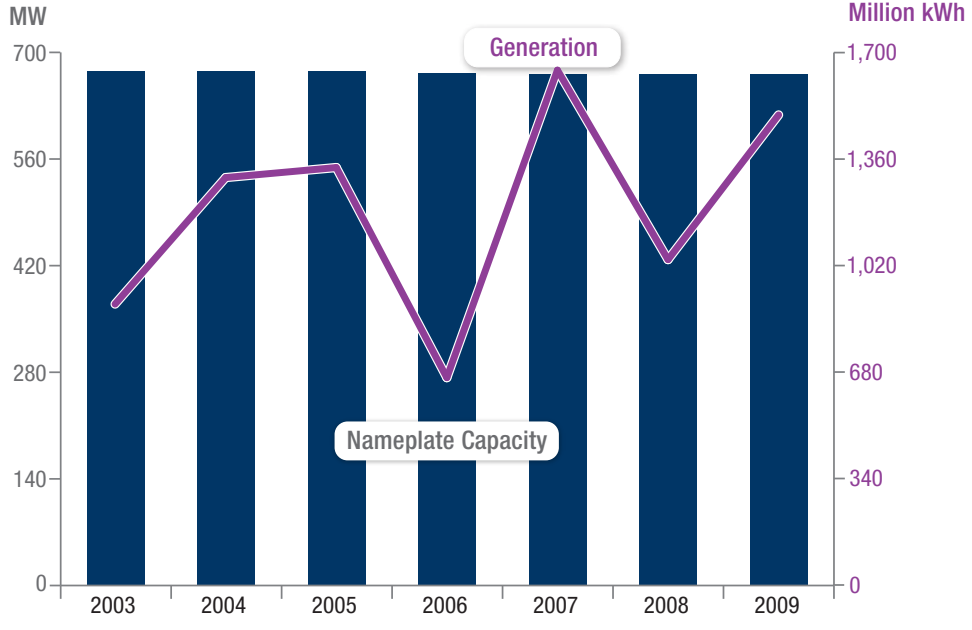


	Biomass Energy Capacity (MW)	Regional Biomass Energy Generation (Million kWh)
	Texas	
2003	156	1,396
2004	155	1,109
2005	232	1,098
2006	233	1,148
2007	268	1,281
2008	279	1,414
2009	300	1,383

Source: EIA

Total Installed Hydropower Energy Nameplate Capacity and Generation

Texas



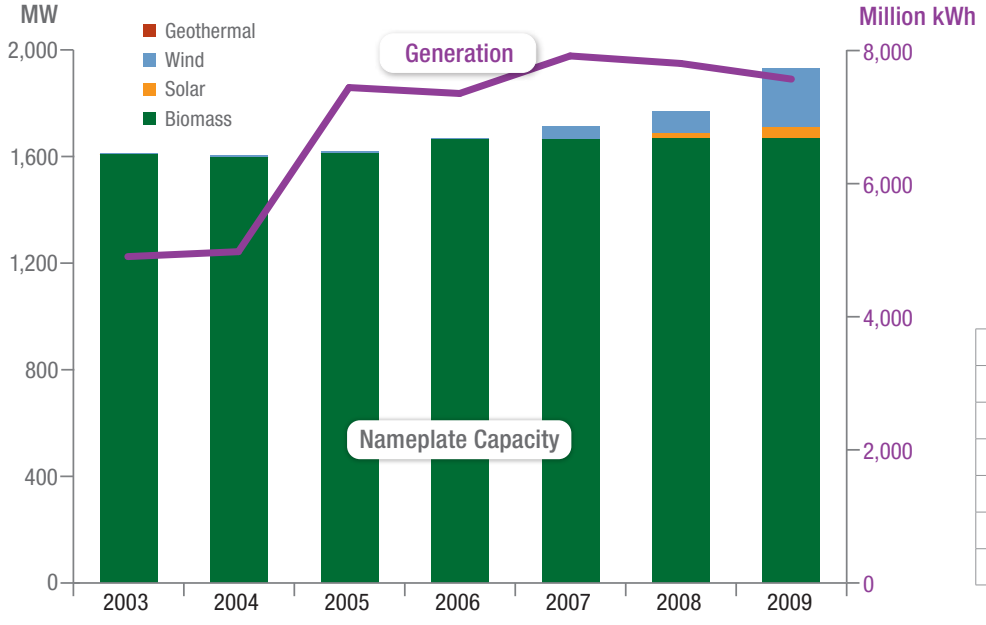
	Hydro Energy Capacity (MW)	Regional Hydro Energy Generation (Million kWh)
	Texas	
2003	676	897
2004	676	1,301
2005	676	1,333
2006	673	662
2007	672	1,644
2008	672	1,039
2009	672	1,501

Source: EIA

New England

Capacity and Generation: Renewables *(excluding hydropower)*

New England

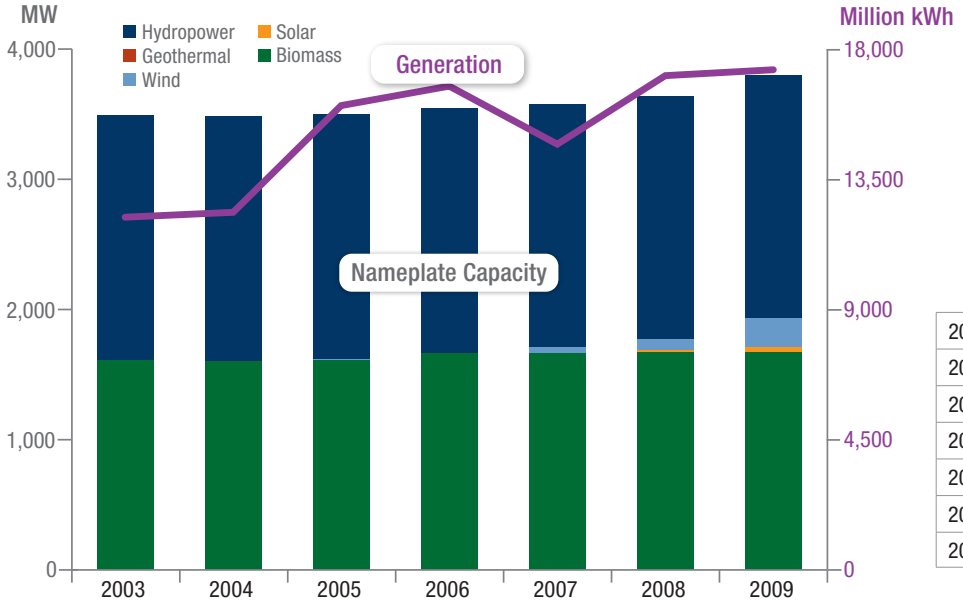


	Total Nameplate Capacity (MW)				Total Generation (Million kWh)
	Biomass	Geothermal	Wind	Solar	
2003	1,606	0	6	0	4,904
2004	1,598	0	6	0	4,978
2005	1,612	0	6	0	7,444
2006	1,662	0	6	0	7,355
2007	1,663	0	50	0	7,919
2008	1,669	0	84	18.4	7,806
2009	1,669	0	222	41	7,571

Sources: EIA, AWEA, SEIA, GEA, Larry Sherwood/IREC

Capacity and Generation: Renewables *(including hydropower)*

New England



	Total Nameplate Capacity (MW)					Total Generation (Million kWh)
	Biomass	Geothermal	Wind	Solar	Hydro	
2003	1,606	0	6	0	1,877	12,208
2004	1,598	0	6	0	1,882	12,377
2005	1,612	0	6	0	1,880	16,071
2006	1,662	0	6	0	1,879	16,743
2007	1,663	0	50	0	1,859	14,734
2008	1,669	0	84	18.4	1,870	17,106
2009	1,669	0	222	41	1,870	17,310

Sources: EIA, AWEA, SEIA, GEA, Larry Sherwood/IREC

Renewable Electricity Nameplate Capacity (MW) and Percent Cumulative Increase from Previous Year

New England

	Hydro	Solar	Wind	Geothermal	Biomass	Total (without Hydropower)	Total
2003	**1,877**	**0**	**6**	**0**	**1,606**	**1,612**	**3,489**
2004	**1,882** 0.2%	**0** 0%	**6** 0%	**0** 0%	**1,598** -0.5%	**1,604** -0.5%	**3,486** -0.1%
2005	**1,880** -0.1%	**0** 0%	**6** 0%	**0** 0%	**1,612** 0.9%	**1,618** 0.9%	**3,498** 0.3%
2006	**1,879** -0.1%	**0** 0%	**6** 0%	**0** 0%	**1,662** 3.1%	**1,668** 3.1%	**3,547** 1.4%
2007	**1,859** -1.1%	**0** 0%	**50** 730%	**0** 0%	**1,663** 0.1%	**1,713** 2.7%	**3,571** 0.7%
2008	**1,870** 0.6%	**18** NA	**84** 68.9%	**0** 0%	**1,669** 0.3%	**1,771** 3.4%	**3,641** 2.0%
2009	**1,870** 0%	**41** 121.3%	**222** 164.2%	**0** 0%	**1,669** 0%	**1,891** 6.8%	**3,761** 3.3%

- annual decrease | annual increase **+**

Sources: EIA, AWEA, SEIA, GEA, Larry Sherwood/IREC

Renewable Electricity Generation (MWh) and Percent Cumulative Increase from Previous Year

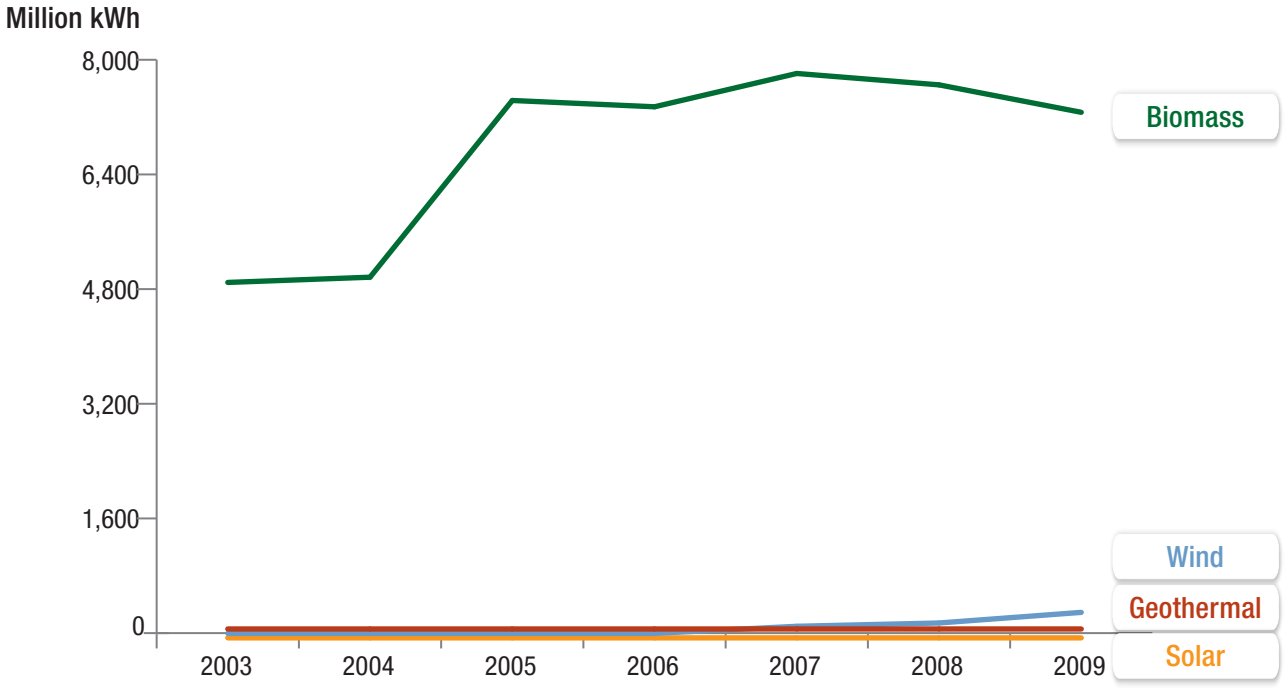
New England

	Hydro	Solar	Wind	Geothermal	Biomass	Total (without Hydropower)	All Renewables
2003	**7,304**	**0**	**11**	**0**	**4,893**	**4,904**	**12,208**
2004	**7,400** 1.3%	**0** 0.0%	**11** 4.9%	**0** 0.0%	**4,966** 1.5%	**4,978** 1.5%	**12,377** 1.4%
2005	**8,628** 16.6%	**0** 0.0%	**11** 1.1%	**0** 0.0%	**7,432** 49.7%	**7,444** 49.5%	**16,071** 29.8%
2006	**9,388** 8.8%	**0** 0.0%	**11** -6.9%	**0** 0.0%	**7,344** -1.2%	**7,355** -1.2%	**16,743** 4.2%
2007	**6,815** -27.4%	**0** 0.0%	**110** 925.3%	**0** 0.0%	**7,809** 6.3%	**7,919** 7.7%	**14,734** -12.0%
2008	**9,300** 36.5%	**.08** N/A	**156** 42.2%	**0** 0.0%	**7,650** -2.0%	**7,806** -1.4%	**17,106** 16.1%
2009	**9,739** 4.7%	**.07** -16.0%	**304** 95.0%	**0** 0.0%	**7,267** -5.0%	**7,571** -3.0%	**17,310** 1.2%

Source: EIA

Renewable Generation by Technology *(excluding hydropower)*

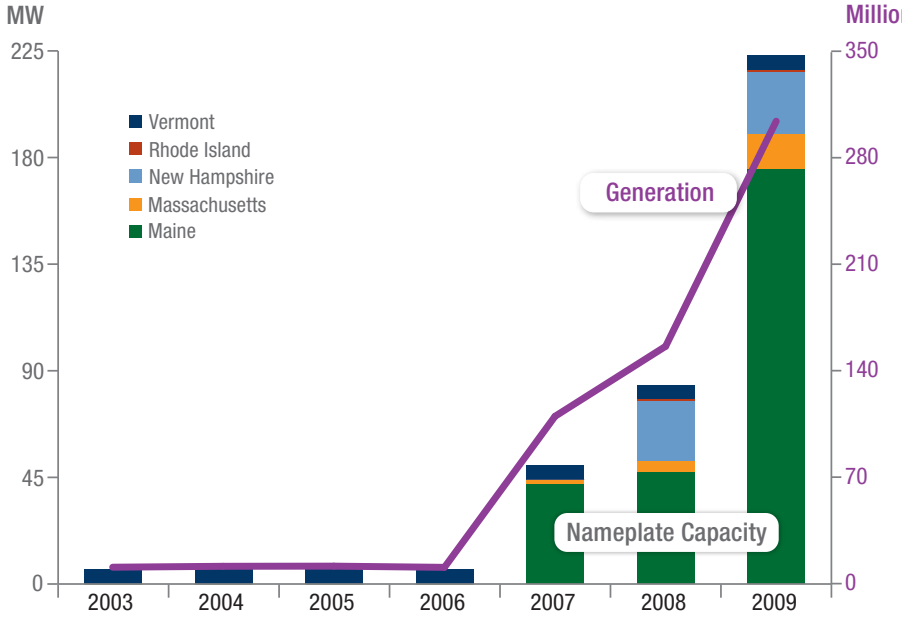
New England



Source: EIA

Total Installed Wind Energy Nameplate Capacity and Generation

New England

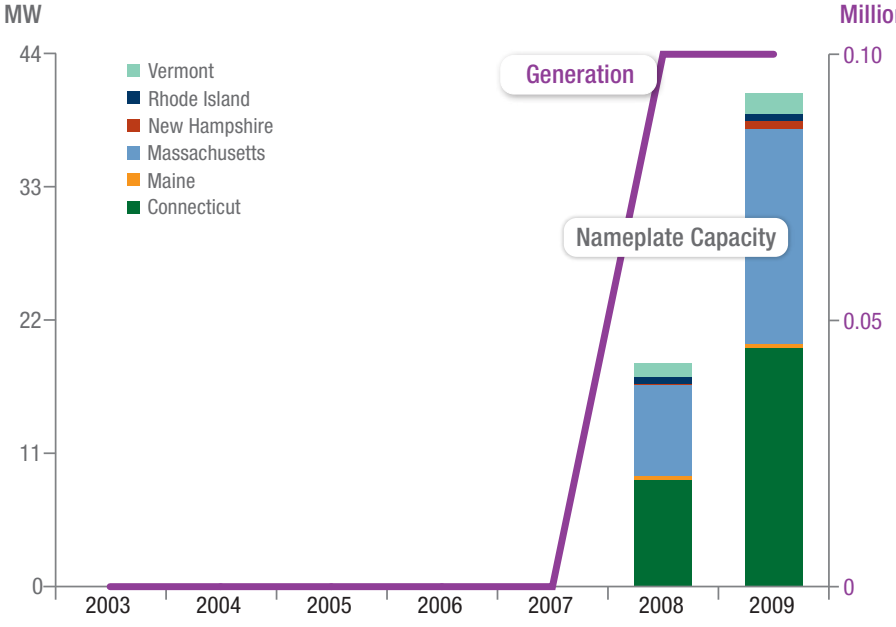


	Wind Energy Capacity (MW)					Regional Wind Energy Generation (Million kWh)
	ME	MA	NH	RI	VT	
2003	0	0	0	0	6.0	10.8
2004	0	0	0	0	6.0	11.4
2005	0	0	0	0	6.0	11.5
2006	0	0	0	0	6.0	10.7
2007	42	1.8	0	0	6.0	110
2008	47	5.4	25	0.7	6.1	156
2009	175	15	26	0.8	6.1	304

Sources: EIA, AWEA

Total Installed Solar Energy Nameplate Capacity and Generation

New England

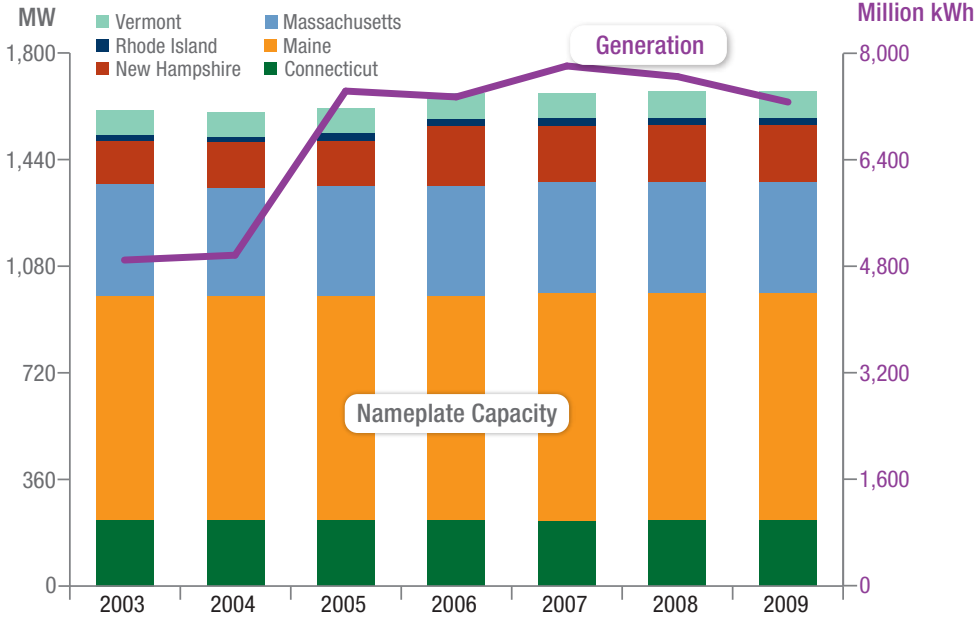


	Solar Energy Capacity (MW)						Regional Solar Energy Generation (Million kWh)
	CT	ME	MA	NH	RI	VT	
2003	0	0	0	0	0	0	0
2004	0	0	0	0	0	0	0
2005	0	0	0	0	0	0	0
2006	0	0	0	0	0	0	0
2007	0	0	0	0	0	0	0
2008	8.8	0.3	7.5	0.1	0.6	1.1	0.1
2009	19.7	0.3	17.7	0.7	0.6	1.7	0.1

Sources: EIA, SEIA, Larry Sherwood/IREC

Total Installed Biomass Energy Nameplate Capacity and Generation

New England



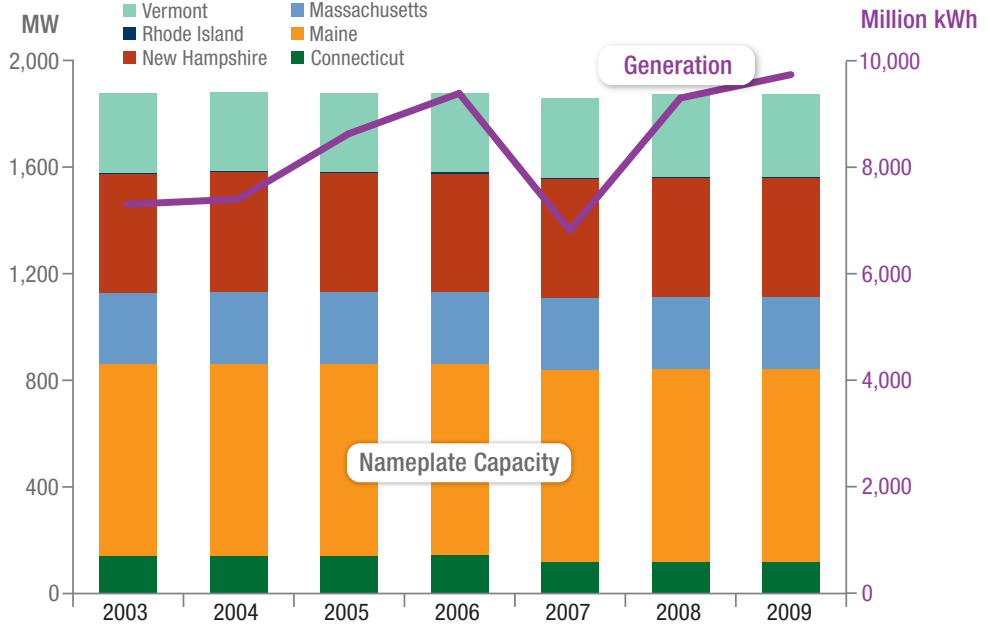
	Biomass Energy Capacity (MW)		
	CT	ME	MA
2003	223	755	378
2004	222	756	366
2005	222	755	372
2006	222	755	372
2007	219	768	375
2008	221	768	375
2009	221	768	375

	Biomass Energy Capacity (MW)			Regional Biomass Energy Generation (Million kWh)
	NH	RI	VT	
2003	148	17	85	4,893
2004	153	17	85	4,966
2005	153	26	85	7,432
2006	203	26	85	7,344
2007	191	26	85	7,809
2008	191	26	88	7,650
2009	191	26	88	7,267

Source: EIA

Total Installed Hydropower Energy Nameplate Capacity and Generation

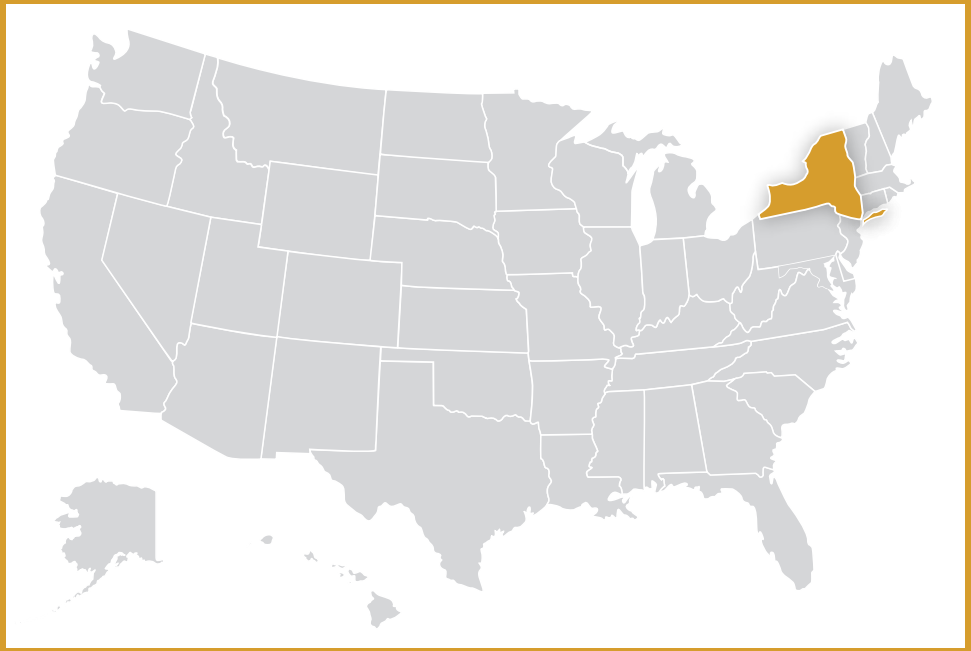
New England



	Hydro Energy Capacity (MW)		
	CT	ME	MA
2003	142	718	266
2004	142	719	270
2005	142	719	270
2006	143	719	268
2007	119	719	271
2008	119	722	272
2009	119	722	272

	Hydro Energy Capacity (MW)			Regional Hydro Energy Generation (Million kWh)
	NH	RI	VT	
2003	447	4.3	299	7,304
2004	447	4.3	299	7,400
2005	445	4.3	299	8,628
2006	445	4.3	299	9,388
2007	445	4.3	300	6,815
2008	445	4.3	309	9,300
2009	445	4.3	309	9,739

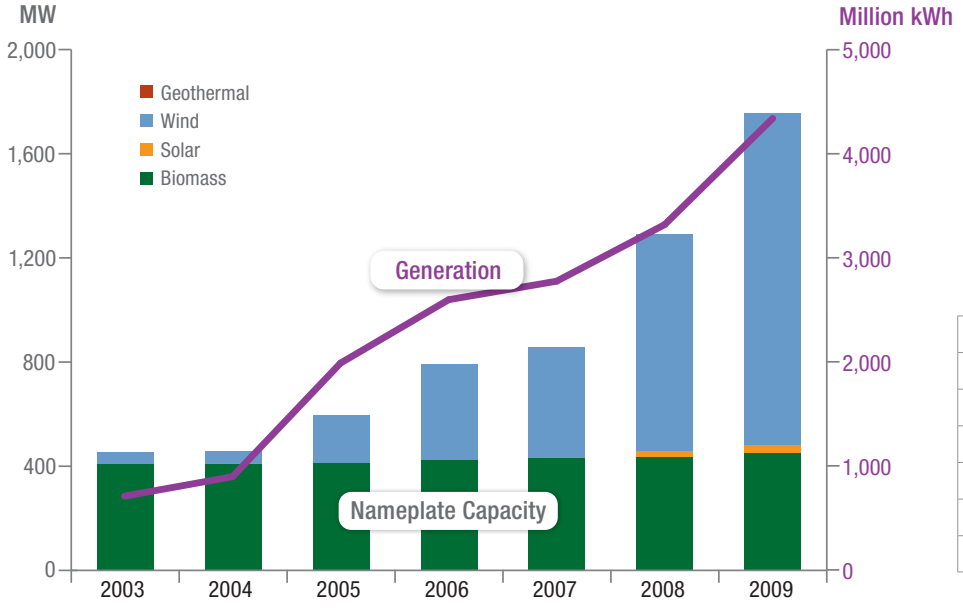
Source: EIA



New York

Capacity and Generation: Renewables *(excluding hydropower)*

New York

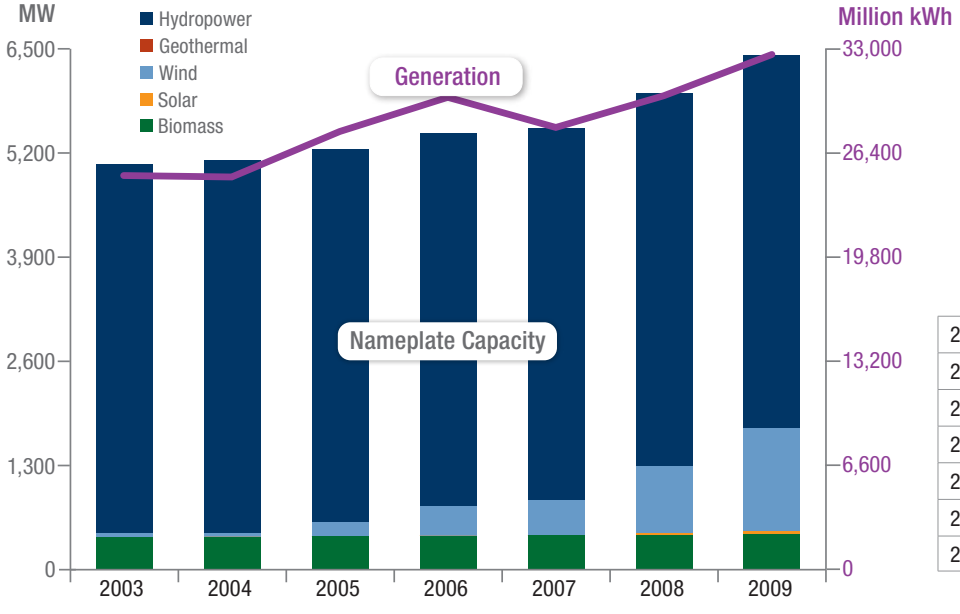


	Total Nameplate Capacity (MW)				Total Generation (Million kWh)
	Biomass	Geothermal	Wind	Solar	
2003	407	0	48	0	709
2004	410	0	48	0	896
2005	412	0	185	0	1,988
2006	423	0	370	0	2,597
2007	433	0	425	0	2,775
2008	436	0	832	22	3,319
2009	449	0	1,274	34	4,340

Sources: EIA, AWEA, SEIA, GEA, Larry Sherwood/IREC

Capacity and Generation: Renewables *(including hydropower)*

New York



	Total Nameplate Capacity (MW)					Total Generation (Million kWh)
	Biomass	Geothermal	Wind	Solar	Hydro	
2003	407	0	48	0	4,602	24,978
2004	410	0	48	0	4,651	24,886
2005	412	0	185	0	4,648	27,771
2006	423	0	370	0	4,648	29,941
2007	433	0	425	0	4,654	28,028
2008	436	0	832	22	4,654	30,042
2009	449	0	1,274	34	4,662	32,658

Sources: EIA, AWEA, SEIA, GEA, Larry Sherwood/IREC

Renewable Electricity Nameplate Capacity (MW) and Percent Cumulative Increase from Previous Year

New York

	Hydro	Solar	Wind	Geothermal	Biomass	Total (without Hydropower)	Total
2003	**4,602**	**0**	**48**	**0**	**407**	**455**	**5,056**
2004	**4,651** 1.1%	**0** 0%	**48** 0%	**0** 0%	**410** 0.8%	**458** 0.7%	**5,109** 1.0%
2005	**4,648** -0.1%	**0** 0%	**185** 284.8%	**0** 0%	**412** 0.6%	**598** 30.4%	**5,246** 2.7%
2006	**4,648** 0%	**0** 0%	**370** 99.9%	**0** 0%	**423** 2.5%	**793** 32.7%	**5,441** 3.7%
2007	**4,654** 0.1%	**0** 0%	**425** 14.7%	**0** 0%	**433** 2.3%	**857** 8.1%	**5,511** 1.3%
2008	**4,654** -0%	**22** NA	**832** 95.9%	**0** 0%	**436** 0.8%	**1,290** 50.5%	**5,944** 7.9%
2009	**4,662** 0.2%	**34** 54.9%	**1,274** 53.2%	**0** 0%	**449** 2.9%	**1,723** 33.6%	**6,385** 7.4%

– annual decrease | annual increase +

Sources: EIA, AWEA, SEIA, GEA, Larry Sherwood/IREC

Renewable Electricity Generation (MWh) and Percent Cumulative Increase from Previous Year

New York

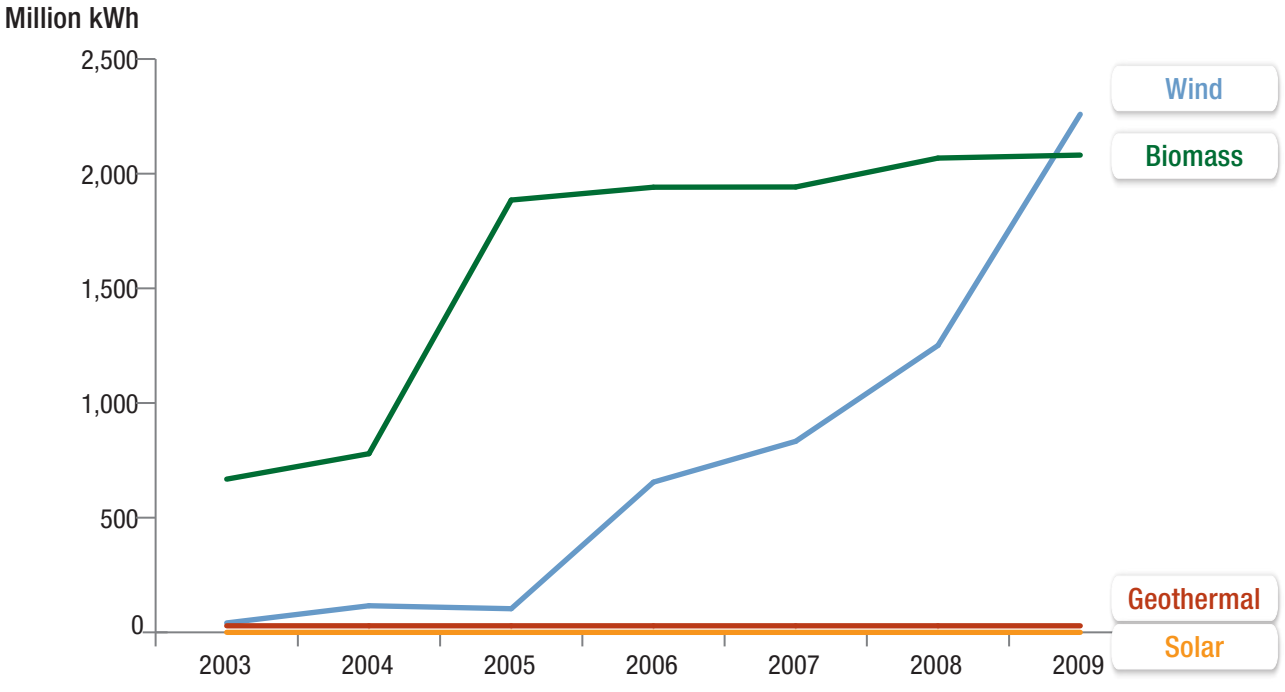
	Hydro	Solar	Wind	Geothermal	Biomass	Total (without Hydropower)	All Renewables
2003	**24,269**	**0**	**41**	**0**	**668**	**709**	**24,978**
2004	**23,990** -1.1%	**0** 0.0%	**116** 182.6%	**0** 0.0%	**779** 16.7%	**896** 26.3%	**24,886** -0.4%
2005	**25,783** 7.5%	**0** 0.0%	**103** -11.6%	**0** 0.0%	**1,885** 141.9%	**1,988** 121.9%	**27,771** 11.6%
2006	**27,345** 6.1%	**0** 0.0%	**655** 536.3%	**0** 0.0%	**1,941** 3.0%	**2,597** 30.6%	**29,941** 7.8%
2007	**25,253** -7.7%	**0** 0.0%	**833** 27.2%	**0** 0.0%	**1,942** 0.0%	**2,775** 6.9%	**28,028** -6.4%
2008	**26,723** 5.8%	**0** 0.0%	**1,251** 50.1%	**0** 0.0%	**2,068** 6.5%	**3,319** 19.6%	**30,042** 7.2%
2009	**28,318** 6.0%	**0** 0.0%	**2,259** 80.6%	**0** 0.0%	**2,081** 0.6%	**4,340** 30.8%	**32,658** 8.7%

- annual decrease | annual increase +

Source: EIA

Renewable Generation by Technology *(excluding hydropower)*

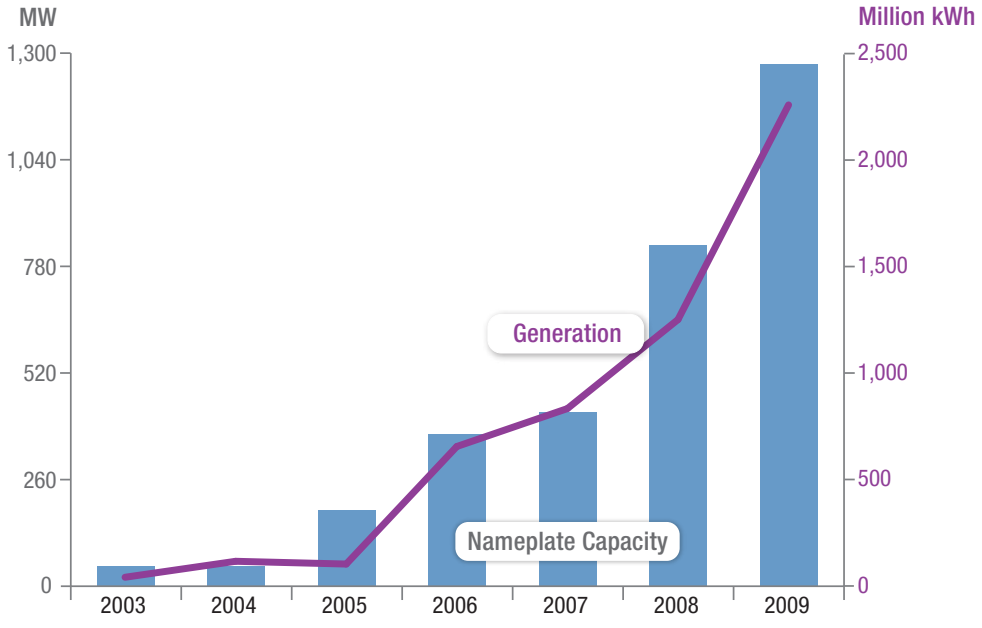
New York



Source: EIA

Total Installed Wind Energy Nameplate Capacity and Generation

New York

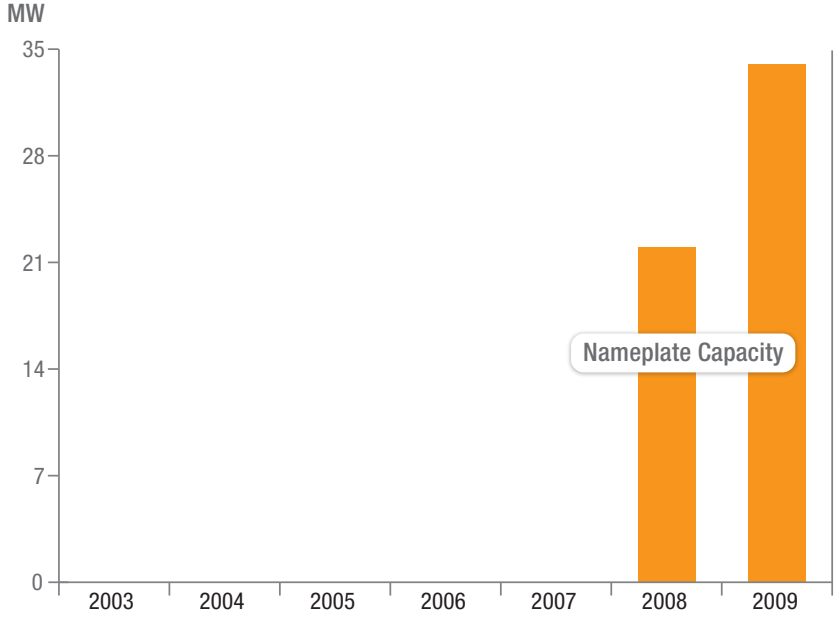


	Wind Energy Capacity (MW)	Regional Wind Energy Generation (Million kWh)
	New York	
2003	48	41
2004	48	116
2005	185	103
2006	370	655
2007	425	833
2008	832	1,251
2009	1,274	2,259

Sources: EIA, AWEA

Total Installed Solar Energy Nameplate Capacity and Generation

New York

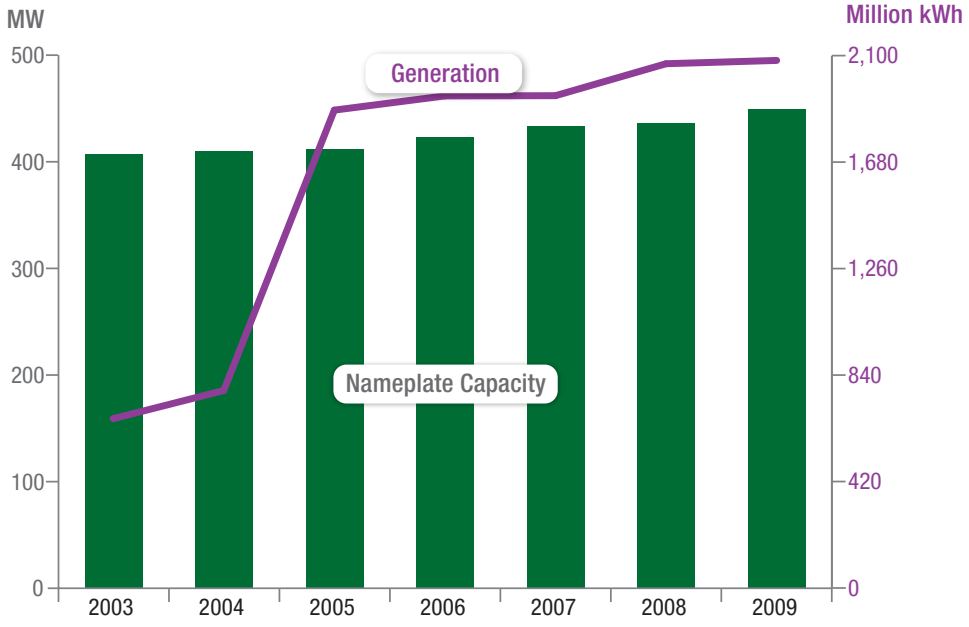


	Solar Energy Capacity (MW)	Regional Solar Energy Generation (Million kWh)
	New York	
2003	0	0
2004	0	0
2005	0	0
2006	0	0
2007	0	0
2008	22	0
2009	34	0

Sources: EIA, SEIA, Larry Sherwood/IREC

Total Installed Biomass Energy Nameplate Capacity and Generation

New York

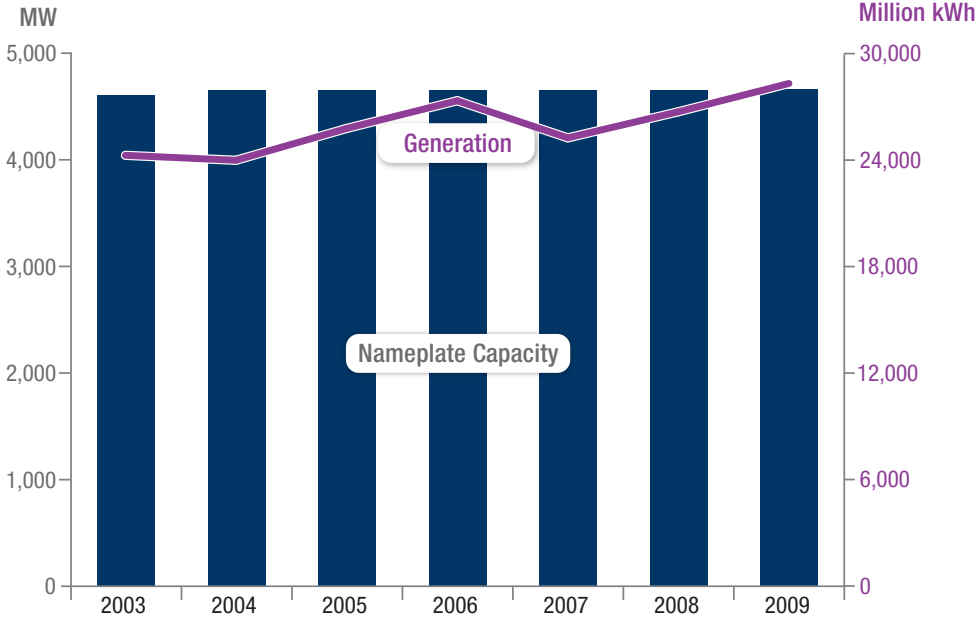


	Biomass Energy Capacity (MW)	Regional Biomass Energy Generation (Million kWh)
	New York	
2003	407	668
2004	410	779
2005	412	1,885
2006	423	1,941
2007	433	1,942
2008	436	2,068
2009	449	2,081

Source: EIA

Total Installed Hydropower Energy Nameplate Capacity and Generation

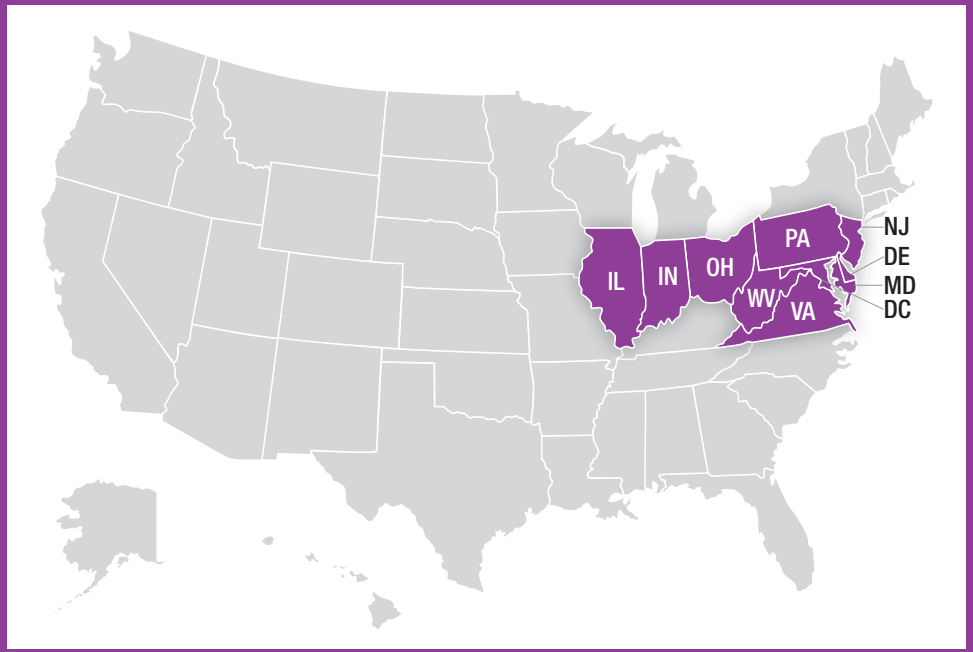
New York



	Hydro Energy Capacity (MW)	Regional Hydro Energy Generation (Million kWh)
	New York	
2003	4,602	24,269
2004	4,651	23,990
2005	4,648	25,783
2006	4,648	27,345
2007	4,654	25,253
2008	4,654	26,723
2009	4,662	28,318

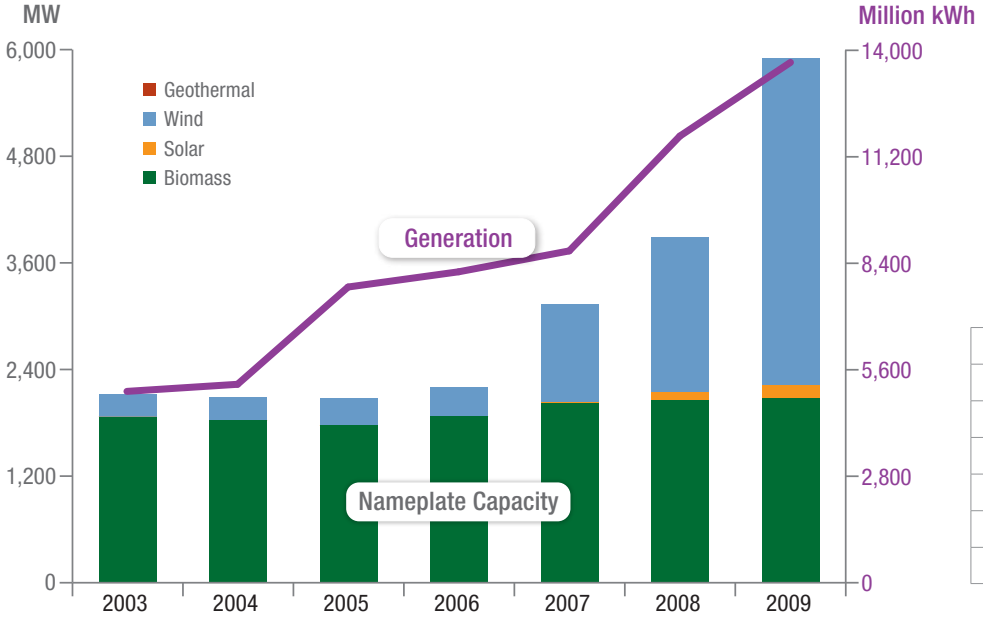
Source: EIA

Mid-Atlantic



Capacity and Generation: Renewables *(excluding hydropower)*

Mid-Atlantic

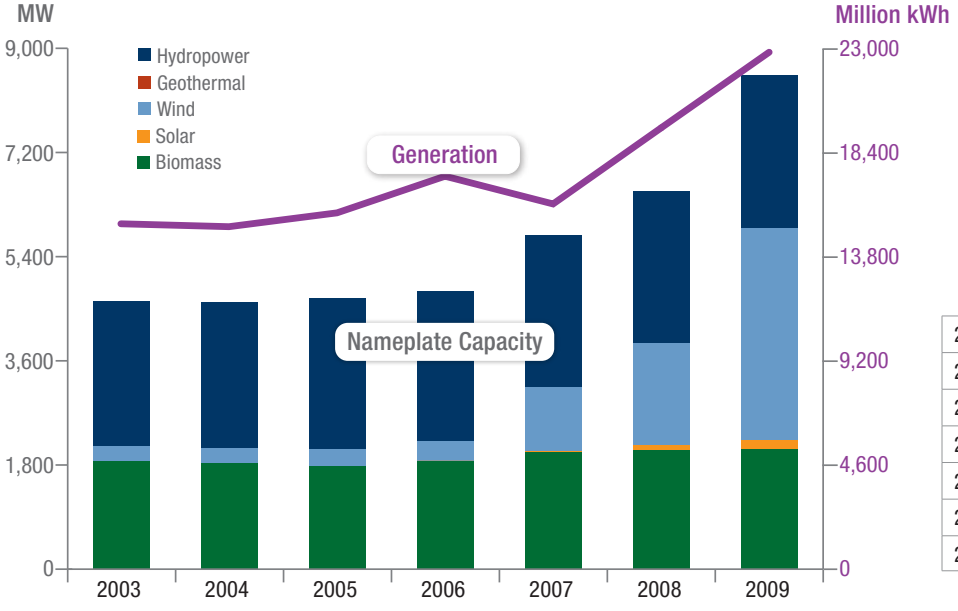


	Total Nameplate Capacity (MW)				Total Generation (Million kWh)
	Biomass	Geothermal	Wind	Solar	
2003	1,866	0	252	0	5,032
2004	1,829	0	256	0	5,218
2005	1,770	0	310	0	7,776
2006	1,871	0	336	0	8,176
2007	2,025	0	1,114	1.5	8,726
2008	2,059	0	1,751	83	11,745
2009	2,073	0	3,676	152	13,682

Sources: EIA, AWEA, SEIA, GEA, Larry Sherwood/IREC

Capacity and Generation: Renewables *(including hydropower)*

Mid-Atlantic



	Total Nameplate Capacity (MW)					Total Generation (Million kWh)
	Biomass	Geothermal	Wind	Solar	Hydro	
2003	1,866	0	252	0	2,521	15,275
2004	1,829	0	256	0	2,523	15,147
2005	1,770	0	310	0	2,606	15,758
2006	1,871	0	336	0	2,606	17,379
2007	2,025	0	1,114	1.5	2,640	16,152
2008	2,059	0	1,751	83	2,642	19,515
2009	2,073	0	3,676	152	2,642	22,861

Sources: EIA, AWEA, SEIA, GEA, Larry Sherwood/IREC

Renewable Electricity Nameplate Capacity (MW) and Percent Cumulative Increase from Previous Year

Mid-Atlantic

	Hydro	Solar	Wind	Geothermal	Biomass	Total (without Hydropower)	Total
2003	**2,521**	**0**	**252**	**0**	**1,866**	**2,118**	**4,639**
2004	**2,523** 0.1%	**0** 0%	**256** 1.4%	**0** 0%	**1,829** -2.0%	**2,084** -1.6%	**4,607** -0.7%
2005	**2,606** 3.3%	**0** 0%	**310** 21.4%	**0** 0%	**1,770** -3.2%	**2,080** -0.2%	**4,686** 1.7%
2006	**2,606** -0%	**0** 0%	**336** 8.4%	**0** 0%	**1,871** 5.7%	**2,208** 6.1%	**4,813** 2.7%
2007	**2,640** 1.3%	**1.5** NA	**1,114** 231.2%	**0** 0%	**2,025** 8.2%	**3,140** 42.2%	**5,779** 20.1%
2008	**2,642** 0.1%	**83** 5464.8%	**1,751** 57.3%	**0** 0%	**2,059** 1.7%	**3,894** 24.0%	**6,536** 13.1%
2009	**2,642** 0%	**152** 81.7%	**3,676** 109.9%	**0** 0%	**2,073** 0.7%	**5,749** 47.6%	**8,391** 28.4%

- annual decrease | annual increase +

Sources: EIA, AWEA, SEIA, GEA, Larry Sherwood/IREC

Renewable Electricity Generation (MWh) and Percent Cumulative Increase from Previous Year

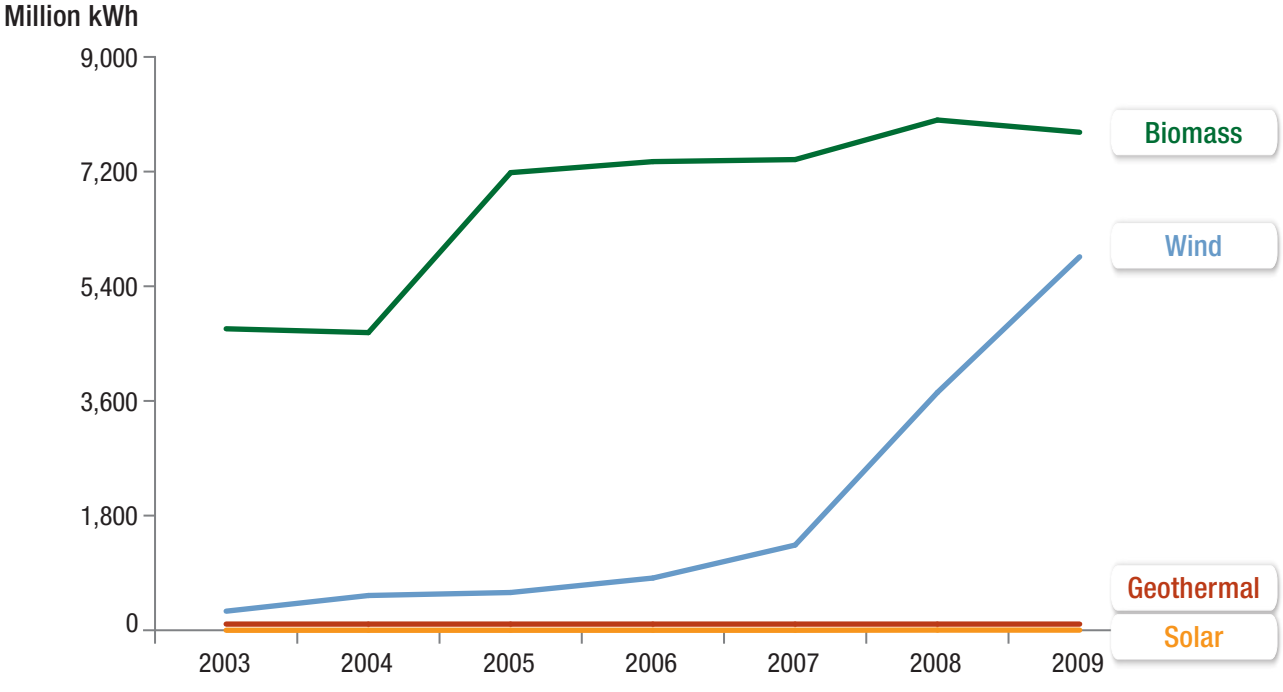
Mid-Atlantic

	Hydro	Solar	Wind	Geothermal	Biomass	Total (without Hydropower)	All Renewables
2003	**10,243**	**0**	**299**	**0**	**4,732**	**5,032**	**15,275**
2004	**9,929** -3.1%	**0** 0.0%	**546** 82.3%	**0** 0.0%	**4,672** -1.3%	**5,218** 3.7%	**15,147** -0.8%
2005	**7,982** -19.6%	**0** 0.0%	**593** 8.6%	**0** 0.0%	**7,184** 53.7%	**7,776** 49.0%	**15,758** 4.0%
2006	**9,202** 15.3%	**0** 0.0%	**820** 38.4%	**0** 0.0%	**7,357** 2.4%	**8,176** 5.1%	**17,379** 10.3%
2007	**7,426** -19.3%	**0** 0.0%	**1,337** 63.1%	**0** 0.0%	**7,388** 0.4%	**8,726** 6.7%	**16,152** -7.1%
2008	**7,770** 4.6%	**2.8** N/A	**3,733** 179.1%	**0** 0.0%	**8,010** 8.4%	**11,745** 34.6%	**19,515** 20.8%
2009	**9,179** 18.1%	**2.4** -14.3%	**5,863** 57.1%	**0** 0.0%	**7,818** -2.4%	**13,682** 16.5%	**22,861** 17.1%

Source: EIA

Renewable Generation by Technology *(excluding hydropower)*

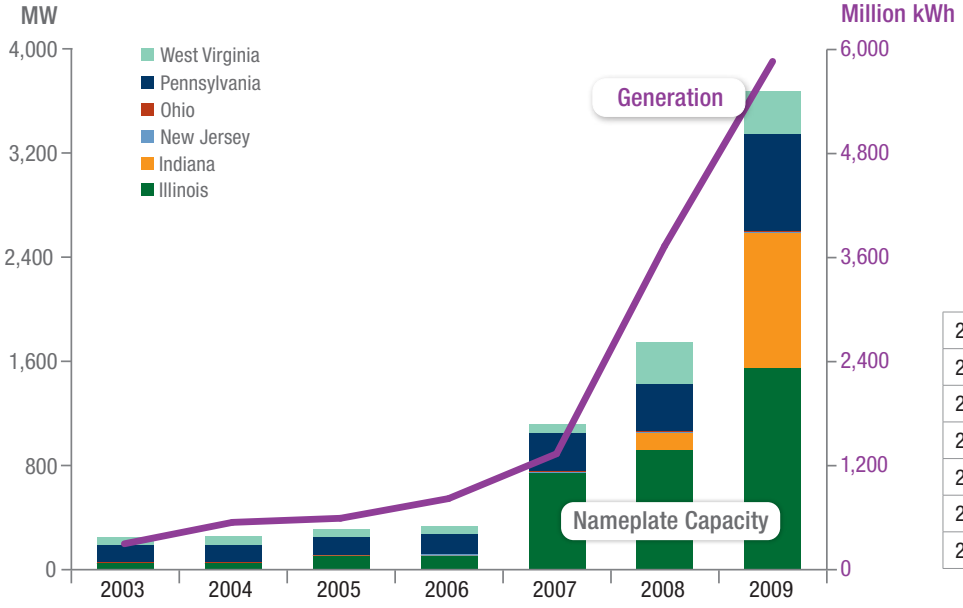
Mid-Atlantic



Source: EIA

Total Installed Wind Energy Nameplate Capacity and Generation

Mid-Atlantic

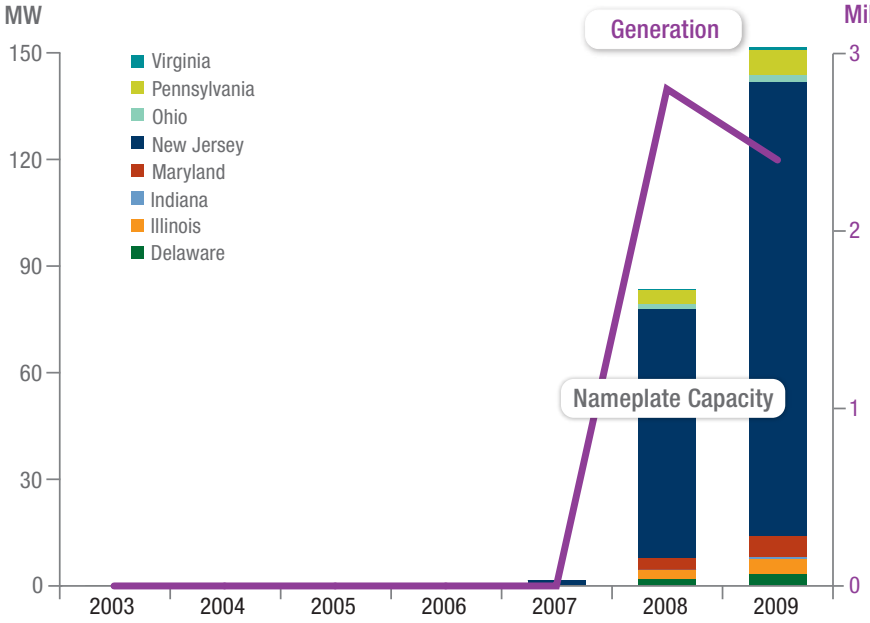


	Wind Energy Capacity (MW)						Regional Wind Energy Generation (Million kWh)
	IL	IN	NJ	OH	PA	WV	
2003	50	0	0	3.6	132	66	299
2004	50	0	0	7.2	132	66	546
2005	105	0	0	7.2	132	66	593
2006	105	0	7.5	7.2	150	66	820
2007	740	0	7.5	7.2	293	66	1,337
2008	915	131	7.5	7.4	361	330	3,733
2009	1,547	1,036	7.5	7.4	748	330	5,863

Sources: EIA, AWEA

Total Installed Solar Energy Nameplate Capacity and Generation

Mid-Atlantic

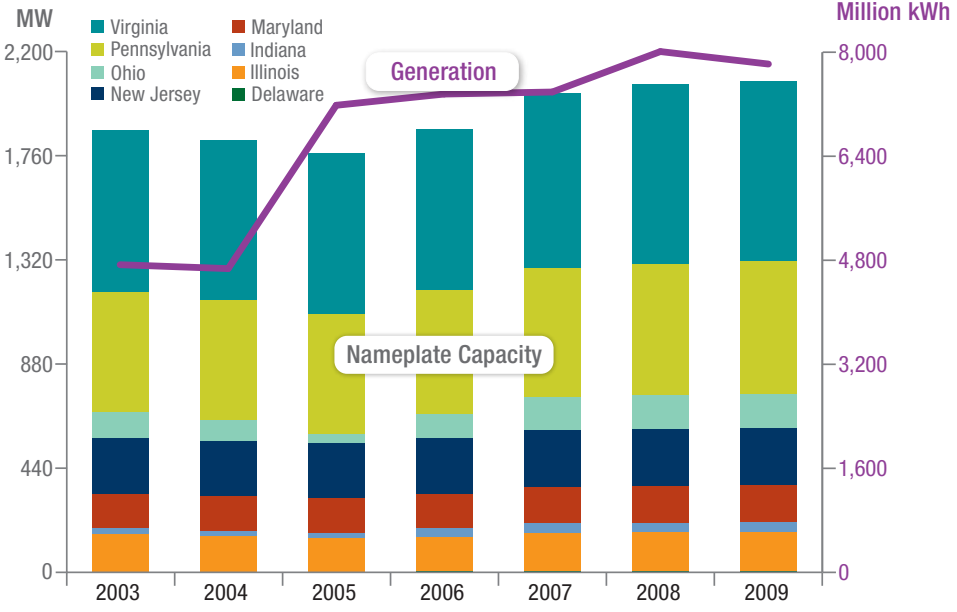


	Solar Energy Capacity (MW)								Regional Solar Energy Generation (Million kWh)
	DE	IL	IN	MD	NJ	OH	PA	VA	
2003	0	0	0	0	0	0	0	0	0
2004	0	0	0	0	0	0	0	0	0
2005	0	0	0	0	0	0	0	0	0
2006	0	0	0	0	0	0	0	0	0
2007	0	0	0	0	1.5	0	0	0	0
2008	1.8	2.8	2.8	3.1	70	1.4	3.9	0.2	2.8
2009	3.2	4.5	4.5	6.1	128	2.0	7.3	0.8	2.4

Sources: EIA, SEIA, Larry Sherwood/IREC

Total Installed Biomass Energy Nameplate Capacity and Generation

Mid-Atlantic



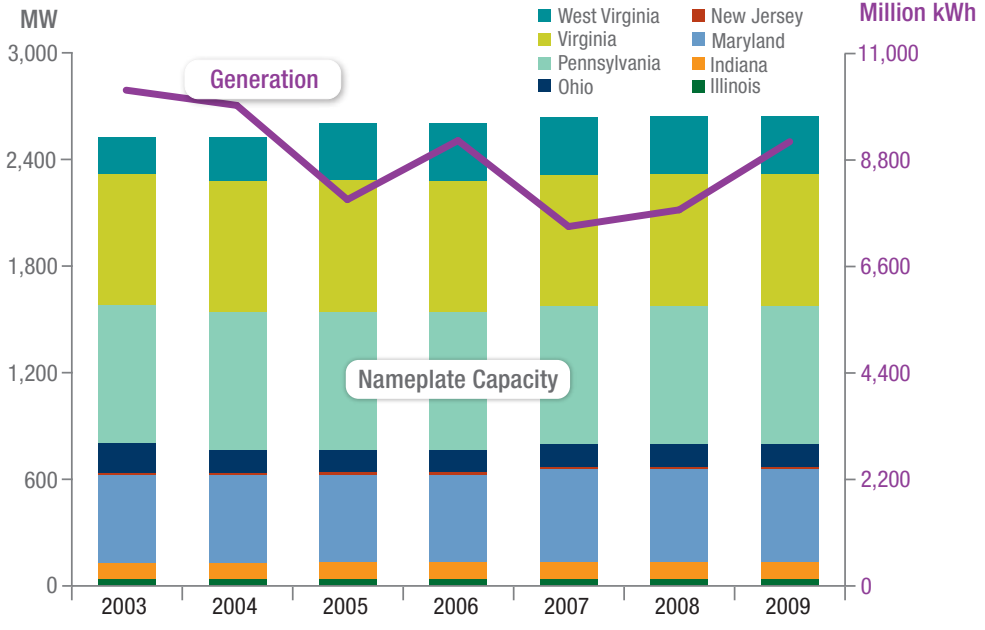
	Biomass Energy Capacity (MW)				
	DE	IL	IN	MD	NJ
2003	0	163	22	146	235
2004	0	152	22	147	235
2005	0	144	21	147	235
2006	7.0	143	34	147	235
2007	7.0	160	42	152	238
2008	7.0	161	42	154	242
2009	7.0	161	43	157	242

	Biomass Energy Capacity (MW)			Regional Biomass Energy Generation (Million kWh)
	OH	PA	VA	
2003	110	507	683	4,732
2004	85	507	680	4,672
2005	36	507	680	7,184
2006	102	525	679	7,357
2007	140	545	742	7,388
2008	140	556	757	8,010
2009	140	564	759	7,818

Source: EIA

Total Installed Hydropower Energy Nameplate Capacity and Generation

Mid-Atlantic

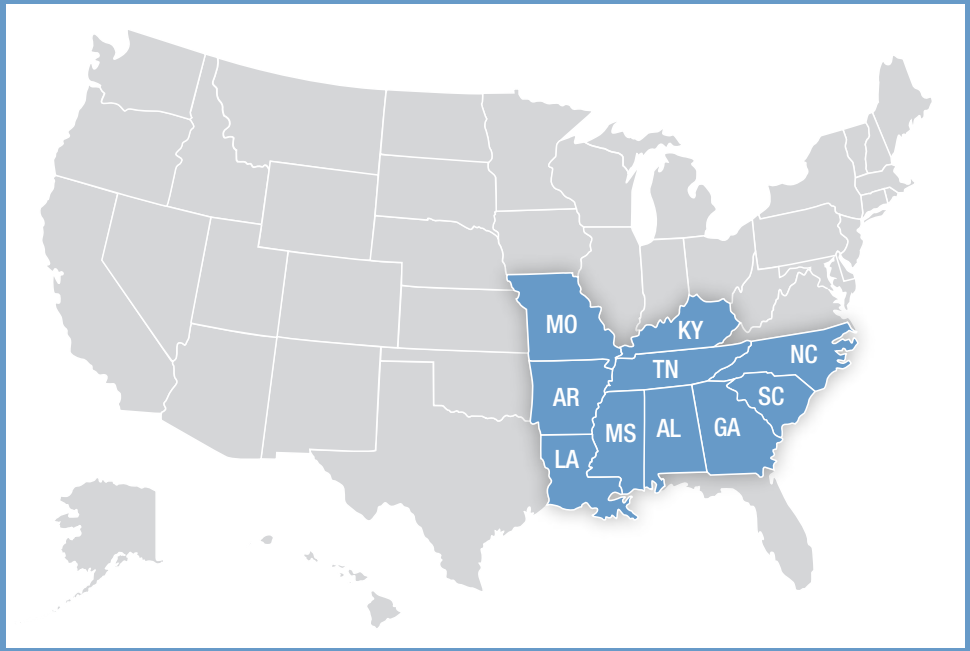


	Hydro Energy Capacity (MW)				
	IL	IN	MD	NJ	OH
2003	38	89	494	13.2	169
2004	38	89	494	13.5	128
2005	38	92	494	13.5	128
2006	38	92	494	13.2	128
2007	38	92	527	13.2	128
2008	38	92	527	13.2	128
2009	38	92	527	13.2	128

	Hydro Energy Capacity (MW)			Regional Hydro Energy Generation (Million kWh)
	PA	VA	WV	
2003	775	740	203	10,243
2004	775	740	245	9,929
2005	775	740	325	7,982
2006	775	740	325	9,202
2007	775	741	325	7,426
2008	775	744	325	7,770
2009	775	744	325	9,179

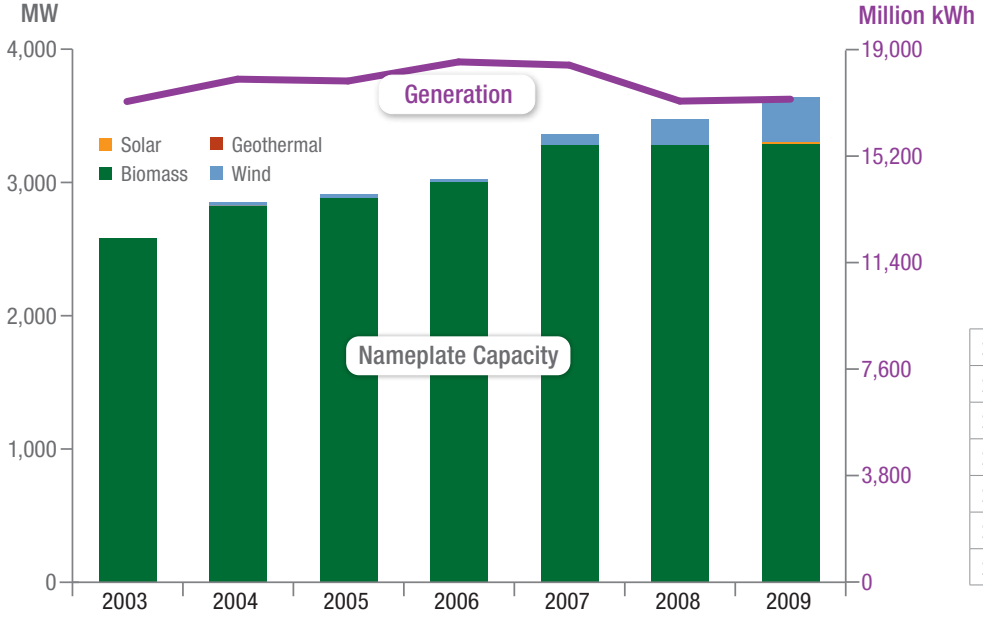
Source: EIA

Southeast



Capacity and Generation: Renewables *(excluding hydropower)*

Southeast

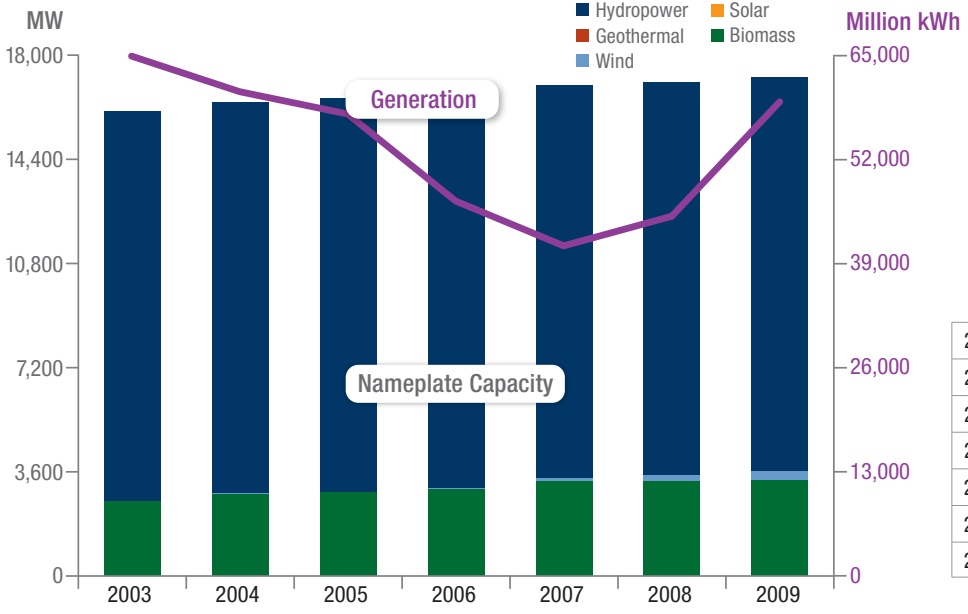


	Total Nameplate Capacity (MW)				Total Generation (Million kWh)
	Biomass	Geothermal	Wind	Solar	
2003	2,578	0	1.8	0	17,148
2004	2,824	0	29	0	17,946
2005	2,880	0	29	0	17,880
2006	2,998	0	29	0	18,562
2007	3,278	0	86	0	18,447
2008	3,277	0	192	5.4	17,162
2009	3,287	0	338	14.6	17,231

Sources: EIA, AWEA, SEIA, GEA, Larry Sherwood/IREC

Capacity and Generation: Renewables *(including hydropower)*

Southeast



	Total Nameplate Capacity (MW)					Total Generation (Million kWh)
	Biomass	Geothermal	Wind	Solar	Hydro	
2003	2,578	0	1.8	0	13,469	64,945
2004	2,824	0	29	0	13,527	60,503
2005	2,880	0	29	0	13,588	57,714
2006	2,998	0	29	0	13,588	46,832
2007	3,278	0	86	0	13,598	41,235
2008	3,277	0	192	5.4	13,598	44,935
2009	3,287	0	338	14.6	13,598	59,246

Sources: EIA, AWEA, SEIA, GEA, Larry Sherwood/IREC

Renewable Electricity Nameplate Capacity (MW) and Percent Cumulative Increase from Previous Year

Southeast

	Hydro	Solar	Wind	Geothermal	Biomass	Total (without Hydropower)	Total
2003	**13,469**	**0**	**2**	**0**	**2,578**	**2,580**	**16,049**
2004	**13,527** 0.4%	**0** 0%	**29** 1500%	**0** 0%	**2,824** 9.5%	**2,853** 10.6%	**16,379** 2.1%
2005	**13,588** 0.5%	**0** 0%	**29** 0%	**0** 0%	**2,880** 2.0%	**2,909** 2.0%	**16,497** 0.7%
2006	**13,588** 0%	**0** 0%	**29** 0%	**0** 0%	**2,998** 4.1%	**3,027** 4.0%	**16,615** 0.7%
2007	**13,598** 0.1%	**0** 0%	**86** 196.9%	**0** 0%	**3,278** 9.3%	**3,363** 11.1%	**16,961** 2.1%
2008	**13,598** 0%	**5.4** NA	**192** 125.1%	**0** 0%	**3,277** -0%	**3,475** 3.3%	**17,073** 0.7%
2009	**13,598** 0%	**14.6** 170%	**338** 75.4%	**0** 0%	**3,287** 0.3%	**3,624** 4.3%	**17,222** 0.9%

Sources: EIA, AWEA, SEIA, GEA, Larry Sherwood/IREC

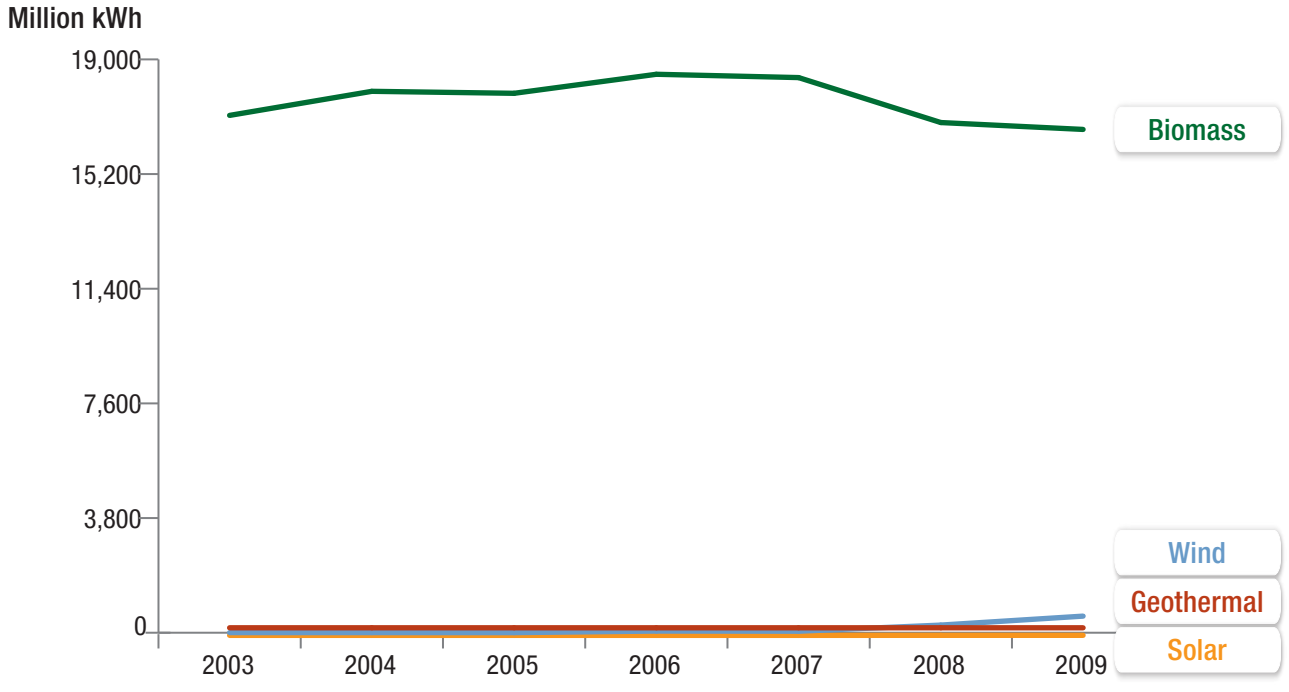
Renewable Electricity Generation (MWh) and Percent Cumulative Increase from Previous Year

	Hydro	Solar	Wind	Geothermal	Biomass	Total (without Hydropower)	All Renewables
2003	**47,798**	**0**	**4**	**0**	**17,144**	**17,148**	**64,945**
2004	**42,557** -11.0%	**0** 0.0%	**4** -3.1%	**0** 0.0%	**17,942** 4.7%	**17,946** 4.7%	**60,503** -6.8%
2005	**39,835** -6.4%	**0** 0.0%	**3** -12.4%	**0** 0.0%	**17,876** -0.4%	**17,880** -0.4%	**57,714** -4.6%
2006	**28,270** -29.0%	**0** 0.0%	**55** 1535.2%	**0** 0.0%	**18,507** 3.5%	**18,562** 3.8%	**46,832** -18.9%
2007	**22,788** -19.4%	**0** 0.0%	**50** -8.5%	**0** 0.0%	**18,397** -0.6%	**18,447** -0.6%	**41,235** -12.0%
2008	**27,773** 21.9%	**1.8** N/A	**253** 407.5%	**0** 0.0%	**16,907** -8.1%	**17,162** -7.0%	**44,935** 9.0%
2009	**42,014** 51.3%	**2.3** 28.9%	**550** 117.1%	**0** 0.0%	**16,679** -1.4%	**17,231** 0.4%	**59,246** 31.8%

Source: EIA

Renewable Generation by Technology *(excluding hydropower)*

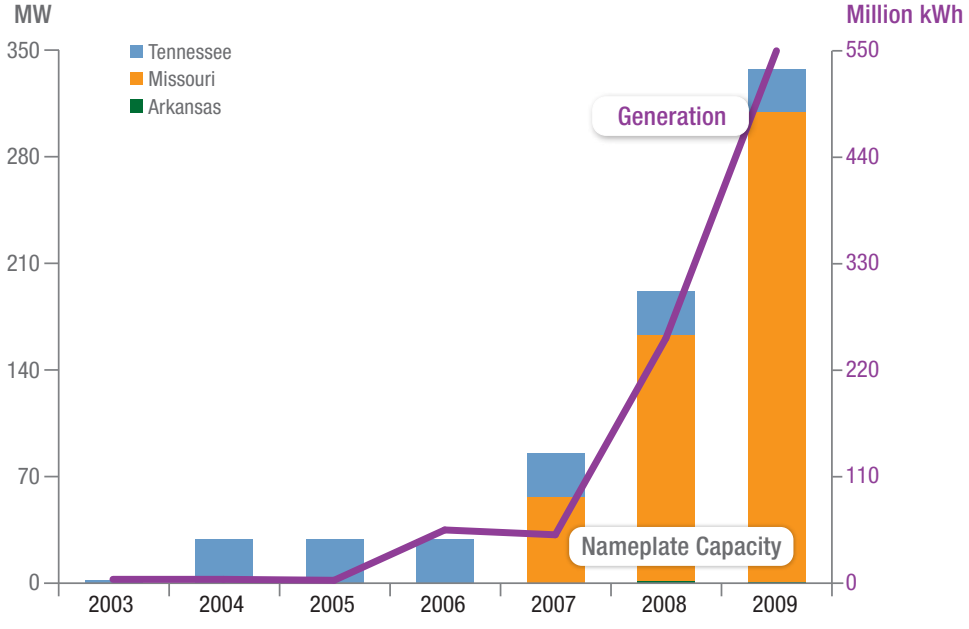
Southeast



Source: EIA

Total Installed Wind Energy Nameplate Capacity and Generation

Southeast

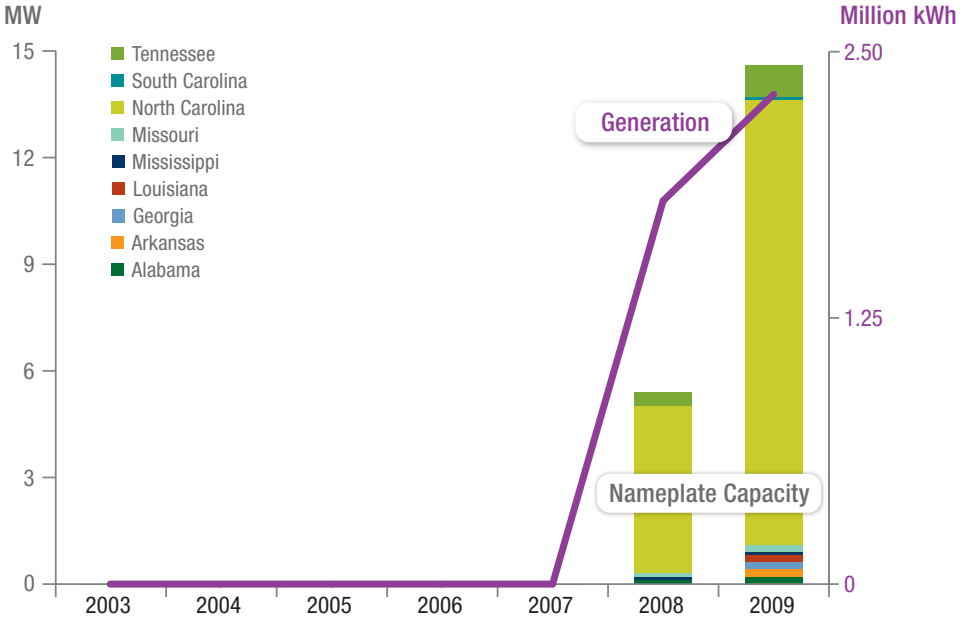


	Wind Energy Capacity (MW)			Regional Wind Energy Generation (Million kWh)
	Arkansas	Missouri	Tennessee	
2003	0	0	1.8	3.9
2004	0	0	29	3.8
2005	0	0	29	3.3
2006	0	0	29	55
2007	0	57	29	50
2008	1.0	163	29	253
2009	0.1	309	29	550

Sources: EIA, AWEA

Total Installed Solar Energy Nameplate Capacity and Generation

Southeast



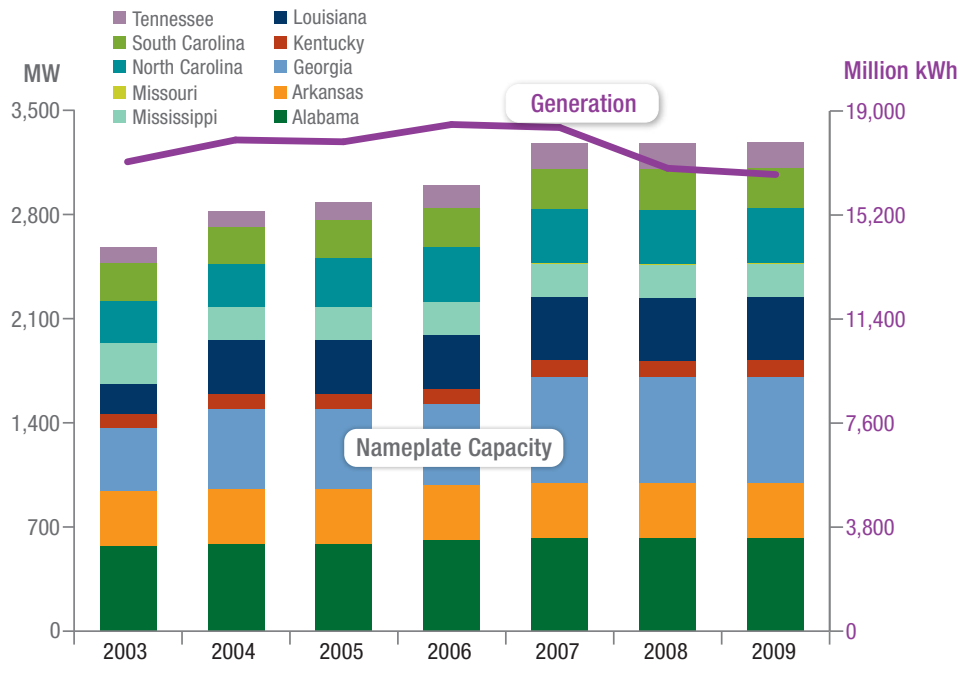
	Solar Energy Capacity (MW)					
	AL	AR	GA	LA	MS	MO
2003	0	0	0	0	0	0
2004	0	0	0	0	0	0
2005	0	0	0	0	0	0
2006	0	0	0	0	0	0
2007	0	0	0	0	0	0
2008	0.1	0	0	0	0.1	0.1
2009	0.2	0.2	0.2	0.2	0.1	0.2

	Solar Energy Capacity (MW)			Regional Solar Energy Generation (Million kWh)
	NC	SC	TN	
2003	0	0	0	0
2004	0	0	0	0
2005	0	0	0	0
2006	0	0	0	0
2007	0	0	0	0
2008	4.7	0	0.4	1.8
2009	12.5	0.1	0.9	2.3

Sources: EIA, SEIA, Larry Sherwood/IREC

Total Installed Biomass Energy Nameplate Capacity and Generation

Southeast



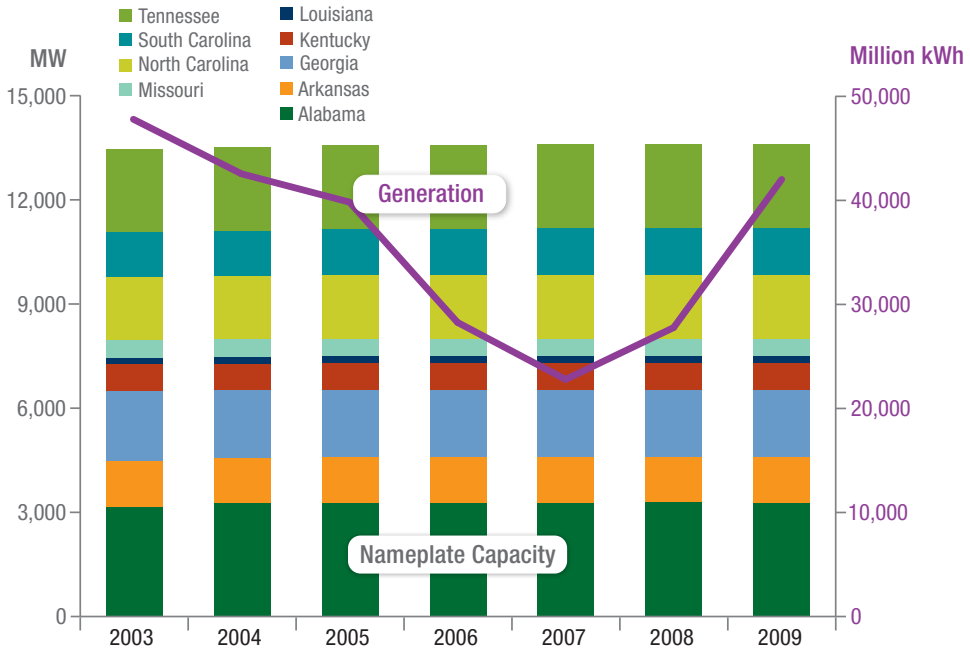
	Biomass Energy Capacity (MW)					
	AL	AR	GA	KY	LA	MS
2003	568	370	425	93	203	273
2004	581	370	540	102	361	223
2005	581	370	540	103	359	223
2006	607	375	540	105	359	223
2007	622	375	712	108	426	223
2008	622	374	706	108	426	223
2009	622	374	711	110	426	223

	Biomass Energy Capacity (MW)				Regional Biomass Energy Generation (Million kWh)
	MO	NC	SC	TN	
2003	0	287	250	110	17,144
2004	0	287	250	110	17,942
2005	0	331	256	119	17,876
2006	3.2	363	267	156	18,507
2007	3.2	367	267	175	18,397
2008	5.2	367	270	175	16,907
2009	8.2	367	270	175	16,679

Source: EIA

Total Installed Hydropower Energy Nameplate Capacity and Generation

Southeast



	Hydro Energy Capacity (MW)				
	AL	AR	GA	KY	LA
2003	3,159	1,309	2,016	777	192
2004	3,261	1,309	1,931	777	192
2005	3,280	1,309	1,932	777	192
2006	3,280	1,309	1,932	777	192
2007	3,280	1,309	1,932	777	192
2008	3,280	1,309	1,932	777	192
2009	3,280	1,309	1,932	777	192

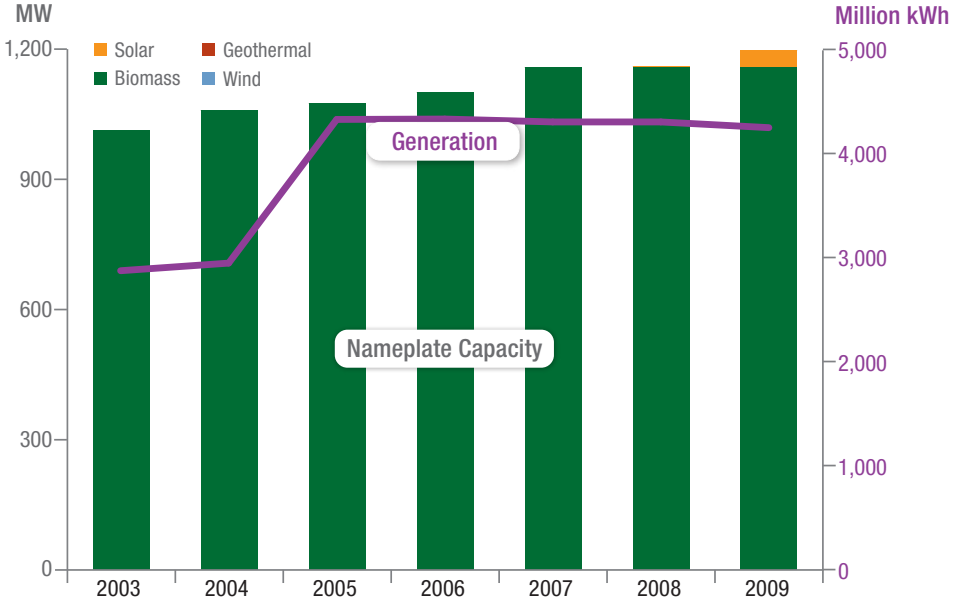
	Hydro Energy Capacity (MW)				Regional Hydro Energy Generation (Million kWh)
	MO	NC	SC	TN	
2003	499	1,828	1,271	2,418	47,798
2004	499	1,828	1,311	2,418	42,557
2005	499	1,828	1,353	2,418	39,835
2006	499	1,828	1,353	2,418	28,270
2007	499	1,828	1,363	2,418	22,788
2008	499	1,828	1,363	2,418	27,773
2009	499	1,828	1,363	2,418	42,014

Source: EIA

Florida

Capacity and Generation: Renewables *(excluding hydropower)*

Florida

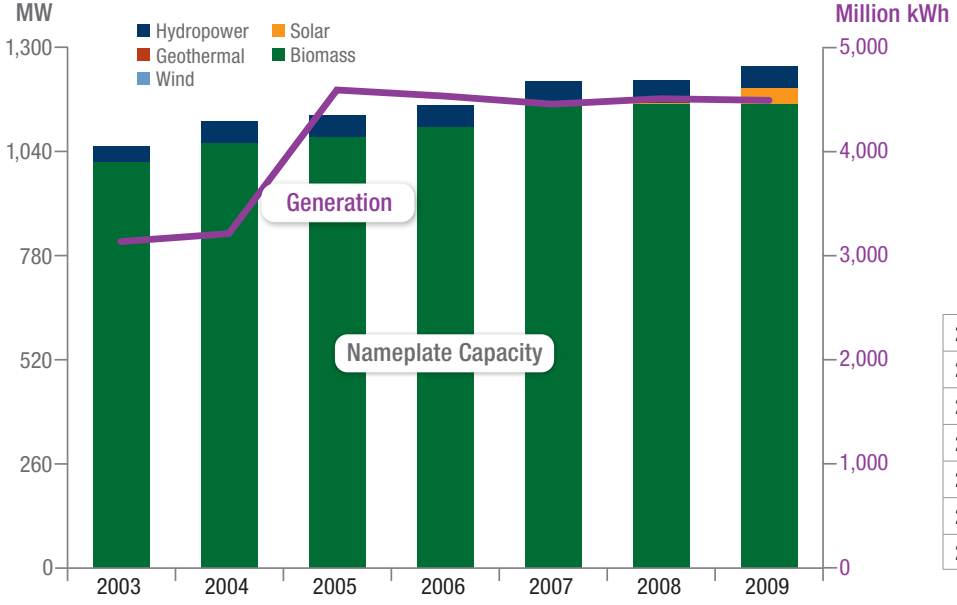


	Total Nameplate Capacity (MW)				Total Generation (Million kWh)
	Biomass	Geothermal	Wind	Solar	
2003	1,012	0	0	0	2,873
2004	1,059	0	0	0	2,946
2005	1,075	0	0	0	4,327
2006	1,100	0	0	0	4,331
2007	1,158	0	0	0	4,303
2008	1,158	0	0	3	4,303
2009	1,158	0	0	39	4,248

Sources: EIA, AWEA, SEIA, GEA, Larry Sherwood/IREC

Capacity and Generation: Renewables *(including hydropower)*

Florida



	Total Nameplate Capacity (MW)					Total Generation (Million kWh)
	Biomass	Geothermal	Wind	Solar	Hydro	
2003	1,012	0	0	0	42	3,136
2004	1,059	0	0	0	56	3,212
2005	1,075	0	0	0	56	4,593
2006	1,100	0	0	0	56	4,534
2007	1,158	0	0	0	56	4,457
2008	1,158	0	0	3	56	4,509
2009	1,158	0	0	39	56	4,493

Sources: EIA, AWEA, SEIA, GEA, Larry Sherwood/IREC

Renewable Electricity Nameplate Capacity (MW) and Percent Cumulative Increase from Previous Year

Florida

	Hydro	Solar	Wind	Geothermal	Biomass	Total (without Hydropower)	Total
2003	**42**	**0**	**0**	**0**	**1,012**	**1,012**	**1,055**
2004	**56** 32.0%	**0** 0%	**0** 0%	**0** 0%	**1,059** 4.6%	**1,059** 4.6%	**1,115** 5.7%
2005	**56** 0%	**0** 0%	**0** 0%	**0** 0%	**1,075** 1.5%	**1,075** 1.5%	**1,131** 1.4%
2006	**56** 0%	**0** 0%	**0** 0%	**0** 0%	**1,100** 2.3%	**1,100** 2.3%	**1,156** 2.2%
2007	**56** 0%	**0** 0%	**0** 0%	**0** 0%	**1,158** 5.3%	**1,158** 5.3%	**1,213** 5.0%
2008	**56** 0%	**3** NA	**0** 0%	**0** 0%	**1,158** 0%	**1,161** 0.3%	**1,216** 0.2%
2009	**56** 0%	**39** 1200.1%	**0** 0%	**0** 0%	**1,158** 0%	**1,158** -0.3%	**1,213** -0.2%

Sources: EIA, AWEA, SEIA, GEA, Larry Sherwood/IREC

Renewable Electricity Generation (MWh) and Percent Cumulative Increase from Previous Year

Florida

	Hydro	Solar	Wind	Geothermal	Biomass	Total (without Hydropower)	All Renewables
2003	**263**	**0**	**0**	**0**	**2,873**	**2,873**	**3,136**
2004	**265** 1.0%	**0** 0.0%	**0** 0.0%	**0** 0.0%	**2,946** 2.6%	**2,946** 2.6%	**3,212** 2.4%
2005	**266** 0.3%	**0** 0.0%	**0** 0.0%	**0** 0.0%	**4,327** 46.9%	**4,327** 46.9%	**4,593** 43.0%
2006	**203** -23.6%	**0** 0.0%	**0** 0.0%	**0** 0.0%	**4,331** 0.1%	**4,331** 0.1%	**4,534** -1.3%
2007	**154** -24.1%	**0** 0.0%	**0** 0.0%	**0** 0.0%	**4,303** -0.6%	**4,303** -0.6%	**4,457** -1.7%
2008	**206** 33.5%	**0** 0.0%	**0** 0.0%	**0** 0.0%	**4,303** 0.0%	**4,303** 0.0%	**4,509** 1.2%
2009	**245** 18.6%	**10** N/A	**0** 0.0%	**0** 0.0%	**4,238** -1.3%	**4,248** -1.3%	**4,493** -0.4%

Source: EIA

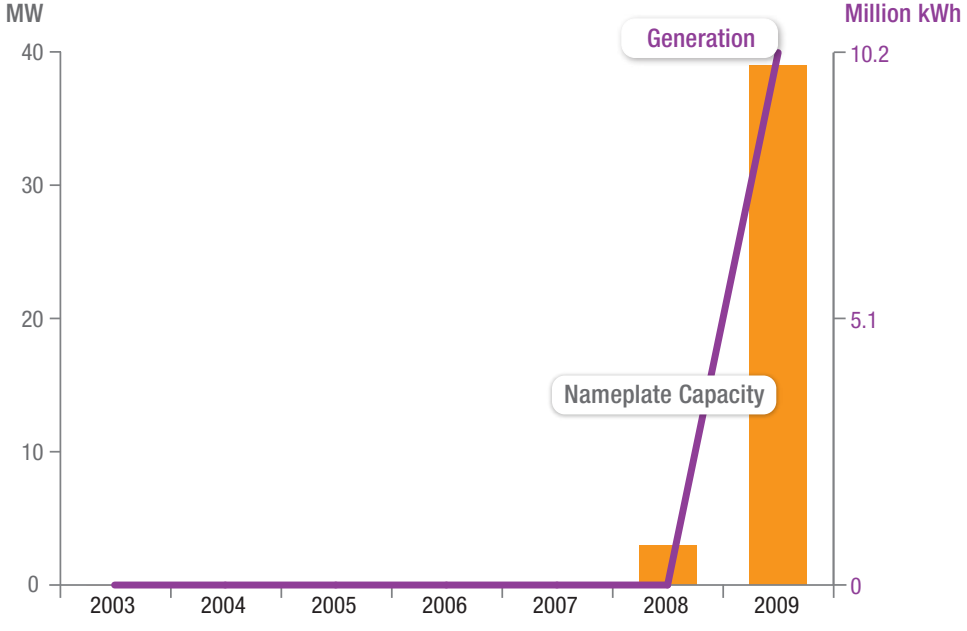
Renewable Generation by Technology *(excluding hydropower)*

Florida

Source: EIA

Total Installed Solar Energy Nameplate Capacity and Generation

Florida

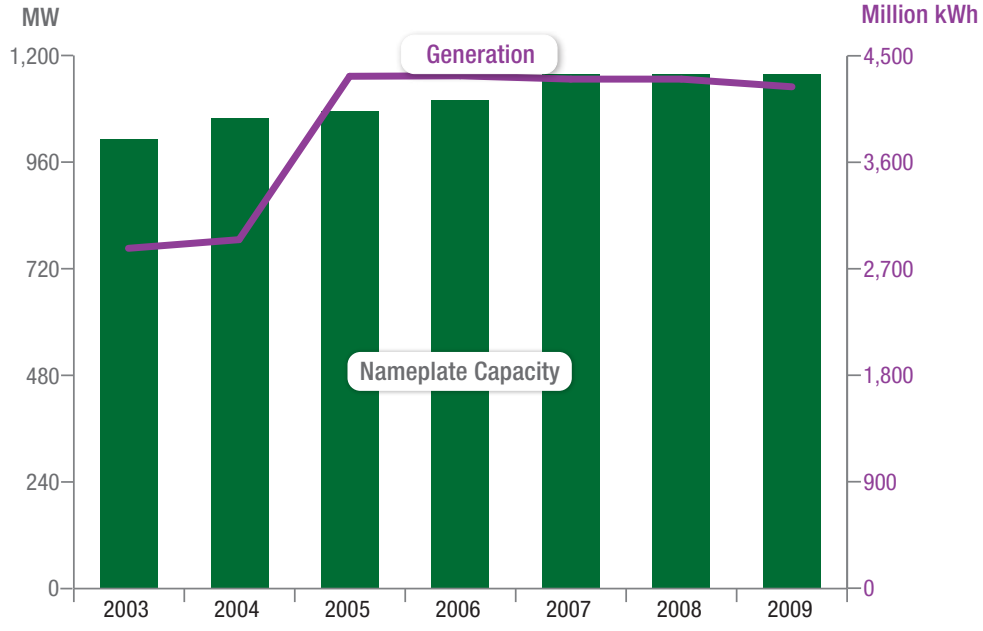


	Solar Energy Capacity (MW)	Regional Solar Energy Generation (Million kWh)
	Florida	
2003	0	0
2004	0	0
2005	0	0
2006	0	0
2007	0	0
2008	3.0	0
2009	39	10.2

Sources: EIA, SEIA, Larry Sherwood/IREC

Total Installed Biomass Energy Nameplate Capacity and Generation

Florida

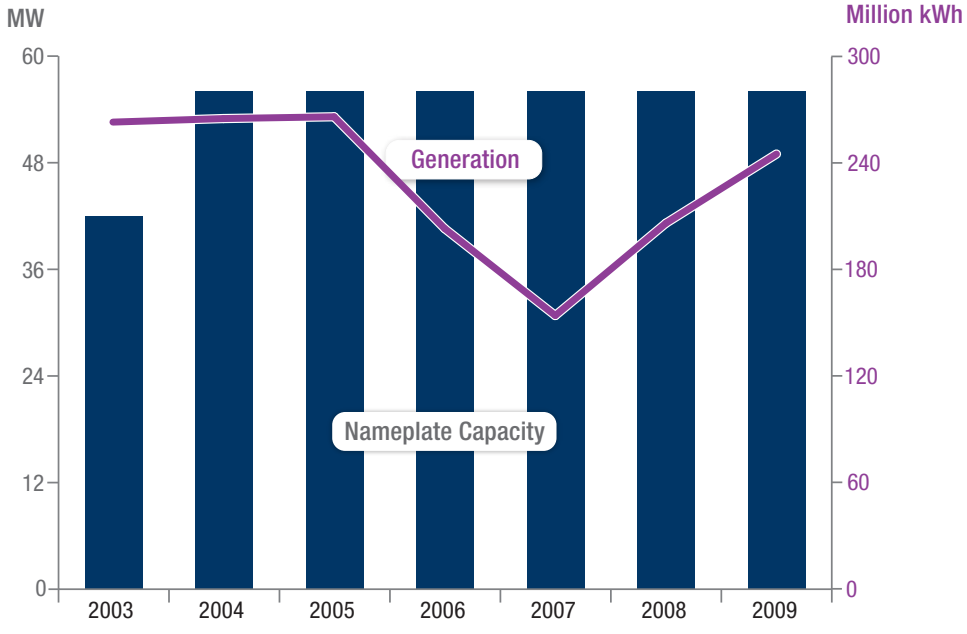


	Biomass Energy Capacity (MW)	Regional Biomass Energy Generation (Million kWh)
	Florida	
2003	1,012	2,873
2004	1,059	2,946
2005	1,075	4,327
2006	1,100	4,331
2007	1,158	4,303
2008	1,158	4,303
2009	1,158	4,238

Source: EIA

Total Installed Hydropower Energy Nameplate Capacity and Generation

Florida



	Hydro Energy Capacity (MW)	Regional Hydro Energy Generation (Million kWh)
	Florida	
2003	42	263
2004	56	265
2005	56	266
2006	56	203
2007	56	154
2008	56	206
2009	56	245

Source: EIA

IV. State Policies Supporting Renewable Energy

State Policies and Incentives for Renewable Electricity Generation

		Access Laws	Bonds	Construction & Design	Contractor Licensing	Corporate Tax Incentives	Equipment Certification	Generation Disclosure	Grants	Industry Support	Interconnection	Line Extension Analysis	Loans	Net Metering	Personal Tax Incentives	Production Incentives	Property Tax Incentives	Public Benefit Funds	Rebates	Required Green Power	Renewable Portfolio Standard	Sales Tax Incentives	Number of Policies
Alaska & Hawaii	Alaska	•							•				•	•									4
	Hawaii	•		•	•	•				•	•		•	•	•	•		•			•		12
California	California	•		•	•			•			•		•	•		•	•	•	•		•		12
Heartland & Texas	Kansas	•								•	•		•	•			•				•		7
	Oklahoma			•		•				•			•	•									5
	Texas			•		•		•	•	•	•	•	•				•				•		10
Southeast & Florida	Alabama								•				•		•								3
	Arkansas			•							•			•									3
	Florida	•		•	•	•	•	•			•		•	•					•			•	11
	Georgia	•		•		•					•			•	•				•			•	8
	Kentucky	•				•					•		•	•	•							•	7
	Louisiana					•					•		•	•	•		•						6
	Mississippi												•										1
	Missouri	•		•		•					•		•	•							•		7
	North Carolina	•		•		•			•		•		•	•	•		•				•	•	11
	South Carolina			•		•					•		•		•	•						•	7
	Tennessee	•							•	•			•				•						5

Indicates state-level policies implemented as of Feb. 22, 2010.
See policy definitions, pages 160–164. Source: DSIRE 2010

State Policies and Incentives for Renewable Electricity Generation

		Access Laws	Bonds	Construction & Design	Contractor Licensing	Corporate Tax Incentives	Equipment Certification	Generation Disclosure	Grants	Industry Support	Interconnection	Line Extension Analysis	Loans	Net Metering	Personal Tax Incentives	Production Incentives	Property Tax Incentives	Public Benefit Funds	Rebates	Required Green Power	Renewable Portfolio Standard	Sales Tax Incentives	Number of Policies
West	Arizona	•		•	•	•	•			•	•	•		•	•		•				•	•	13
	Colorado	•		•				•	•		•	•	•	•			•			•	•	•	12
	Idaho	•	•										•		•		•					•	6
	Montana	•				•				•	•		•	•	•		•	•		•	•		11
	Nevada	•			•			•			•		•	•			•		•		•	•	10
	New Mexico	•	•	•		•				•	•		•	•	•					•	•	•	12
	Oregon	•		•	•	•	•	•	•	•	•		•	•	•	•	•	•	•	•	•		18
	Utah	•			•	•				•	•			•	•							•	8
	Washington	•		•				•		•	•			•		•				•	•	•	10
	Wyoming										•			•					•			•	4
Midwest	Iowa	•				•		•	•		•		•	•	•		•			•	•	•	12
	Michigan			•	•			•	•	•	•			•			•	•	•		•		11
	Minnesota	•		•			•	•	•		•		•	•		•	•	•	•		•	•	14
	Nebraska	•									•		•	•								•	5
	North Dakota	•				•								•	•		•						5
	South Dakota	•		•							•						•						4
	Wisconsin	•		•					•	•	•		•	•			•	•	•		•	•	12

Indicates state-level policies implemented as of Feb. 22, 2010.
See policy definitions, pages 160–164. Source: DSIRE 2010

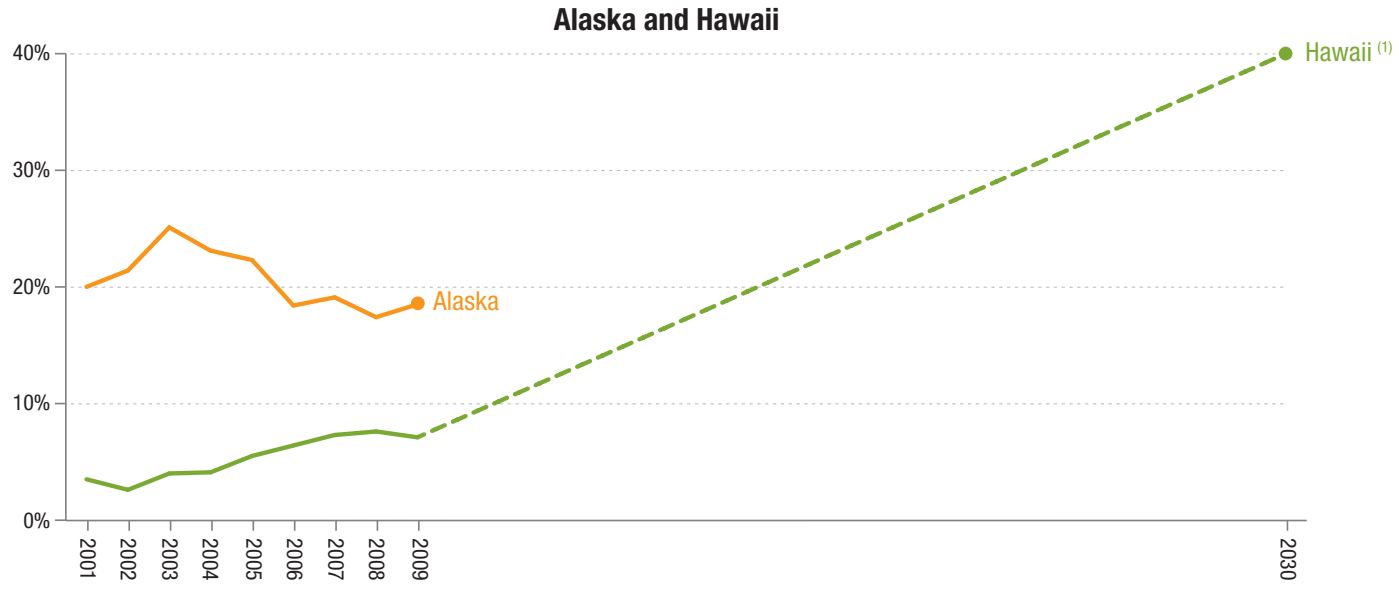
State Policies and Incentives for Renewable Electricity Generation

		Access Laws	Bonds	Construction & Design	Contractor Licensing	Corporate Tax Incentives	Equipment Certification	Generation Disclosure	Grants	Industry Support	Interconnection	Line Extension Analysis	Loans	Net Metering	Personal Tax Incentives	Production Incentives	Property Tax Incentives	Public Benefit Funds	Rebates	Required Green Power	Renewable Portfolio Standard	Sales Tax Incentives	Number of Policies
Mid-Atlantic	Delaware	•		•				•	•		•			•				•	•	•	•		7
	DC			•				•			•			•				•	•		•		10
	Illinois		•	•				•	•		•		•	•			•	•	•		•	•	12
	Indiana	•		•					•		•			•	•		•		•				8
	Maryland	•		•		•		•		•	•		•	•	•		•		•		•	•	13
	New Jersey	•		•				•	•	•	•		•	•		•	•	•	•		•	•	14
	Ohio	•		•		•		•	•	•	•		•	•			•	•			•	•	13
	Pennsylvania			•				•	•	•	•		•	•			•	•	•		•		11
	Virginia	•		•				•		•	•		•	•			•		•	•			10
	West Virginia					•								•	•		•				•		5
New England & New York	Connecticut			•	•			•	•	•	•		•	•			•	•	•		•	•	13
	Maine	•		•	•			•	•		•			•		•		•	•	•	•	•	13
	Massachusetts	•		•		•		•	•	•	•		•	•	•		•	•	•		•	•	15
	New Hampshire	•									•		•	•			•		•		•		7
	New York	•		•		•		•	•	•	•		•	•	•		•	•	•		•	•	15
	Rhode Island	•		•		•		•	•				•	•	•		•	•			•	•	12
	Vermont	•				•			•		•		•	•	•	•	•	•	•			•	12

Indicates state-level policies implemented as of Feb. 22, 2010.
See policy definitions, pages 160–164. Source: DSIRE 2010

Renewable Electricity Generation as a Percent of Total Generation

(and in-state growth required to meet state RPS target)*



IV

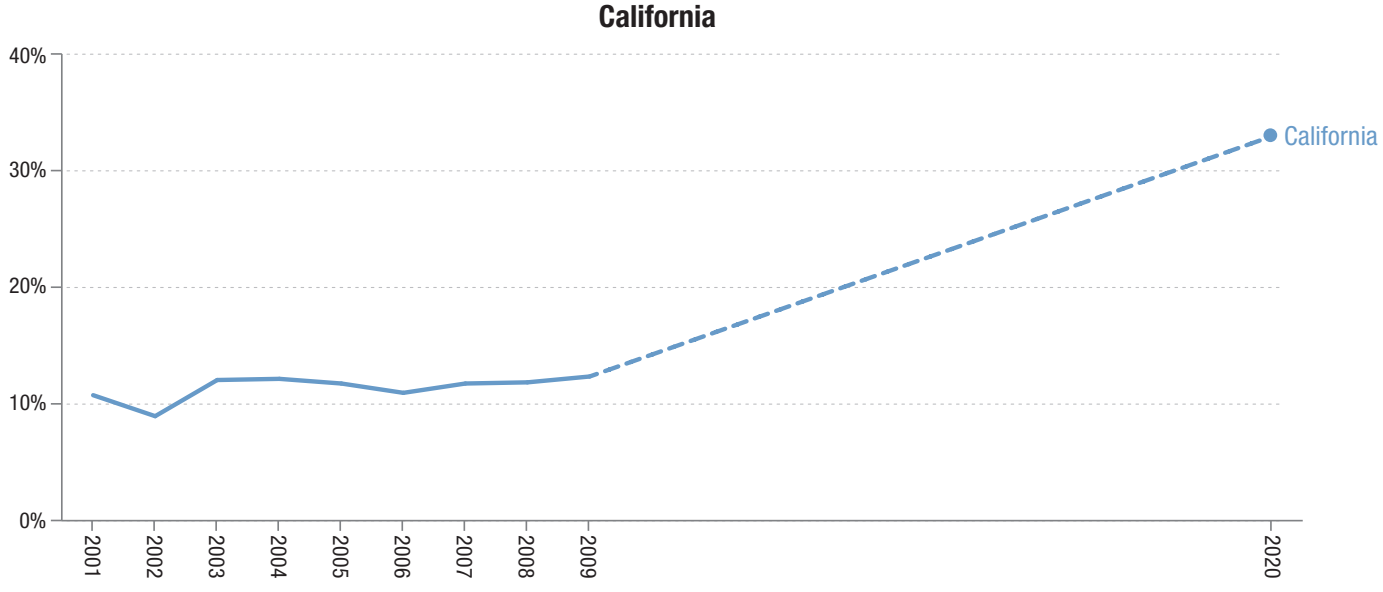
* This graphic does not include electricity that may be imported from other states and qualifies in meeting the state renewable portfolio standard (RPS).
As data sets with this information are developed, slides will be updated. Please see www.nrel.gov/CEPA for updated information.

(1) Nonspecified percentage of energy efficiency (EE) technologies may count toward the standard.
Reflects end goal, does not reflect interim generation goals. Data as of August 4, 2010. Generation figures include the technologies that count toward the RPS target. If no RPS target listed, generation consists of all renewable energy technologies, including hydropower. Generation is exclusive of pumped storage.

Source: EIA, DSIRE

Renewable Electricity Generation as a Percent of Total Generation

(and in-state growth required to meet state RPS target)*



IV

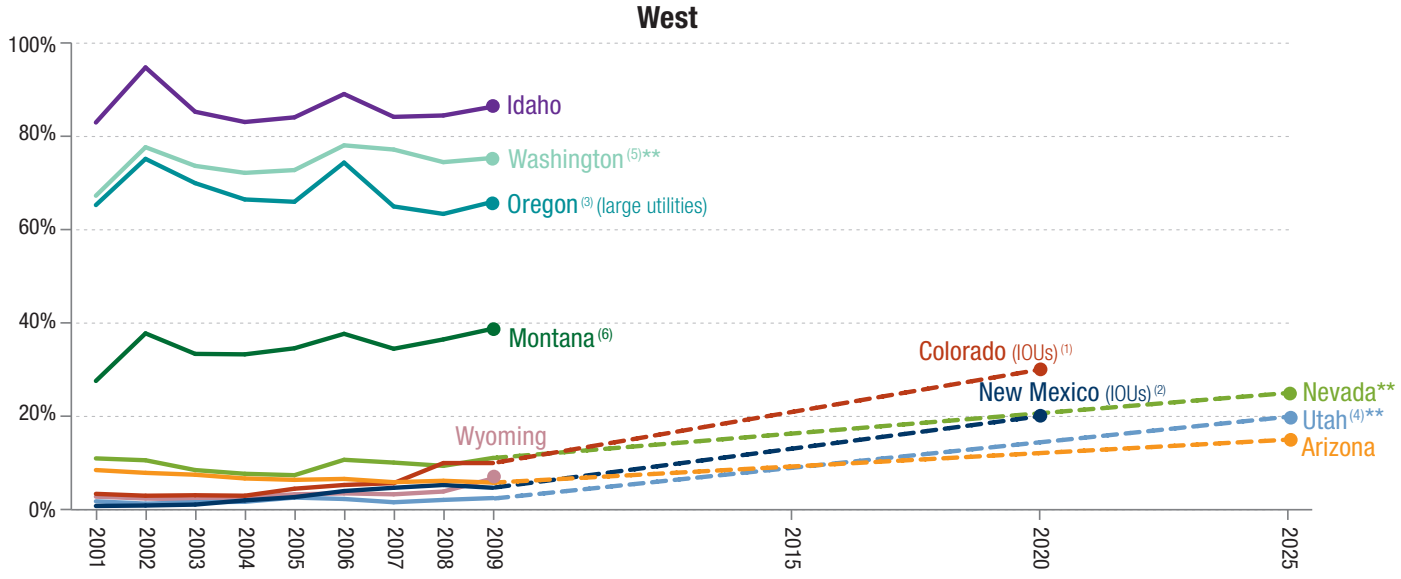
* This graphic does not include electricity that may be imported from other states and qualifies in meeting the state RPS.
As data sets with this information are developed, slides will be updated. Please see www.nrel.gov/CEPA for updated information.

Reflects end goal, does not reflect interim generation goals. Data as of August 4, 2010. Generation figures include the technologies that count toward the RPS target. If no RPS target listed, generation consists of all renewable energy technologies, including hydropower. Generation is exclusive of pumped storage.

Source: EIA, DSIRE

Renewable Electricity Generation as a Percent of Total Generation

(and in-state growth required to meet state RPS target)*



IV

* This graphic does not include electricity that may be imported from other states and qualifies in meeting the state RPS. As data sets with this information are developed, slides will be updated. Please see www.nrel.gov/CEPA for updated information.

** Nonspecified percentage of EE technologies can count toward the standard.

(1) Colorado RPS: 30% by 2020 for investor-owned utilities; 10% for municipal and cooperative utilities.

(2) New Mexico RPS: 30% by 2020 for investor-owned utilities; 10% for municipal and cooperative utilities.

(3) Oregon RPS: 25% by 2025 for large utilities; 5–10% by 2025 for small utilities. RPS target has been met.

(4) Utah has a voluntary goal for adopting renewable energy rather than an RPS with binding targets.

(5) Washington's RPS target has been met.

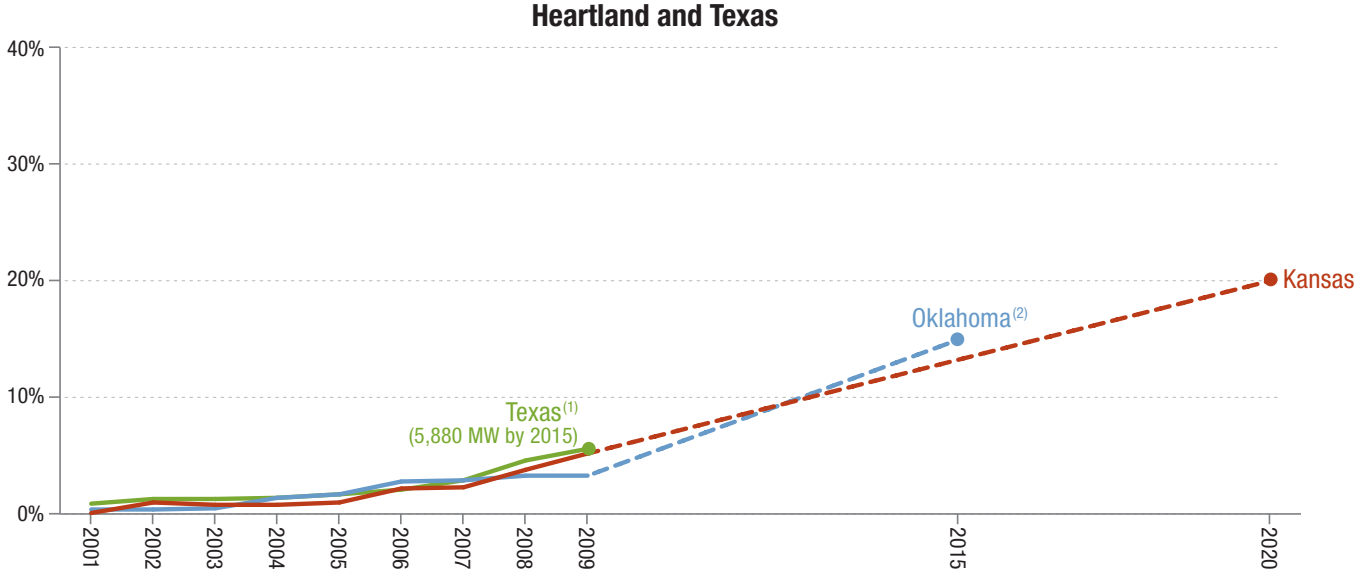
(6) Montana's RPS target has been met.

Reflects end goal, does not reflect interim generation goals. Data as of August 4, 2010. Generation figures include the technologies that count toward the RPS target. If no RPS target listed, generation consists of all renewable energy technologies, including hydropower. Generation is exclusive of pumped storage.

Source: EIA, DSIRE

Renewable Electricity Generation as a Percent of Total Generation

(and in-state growth required to meet state RPS target)*



IV

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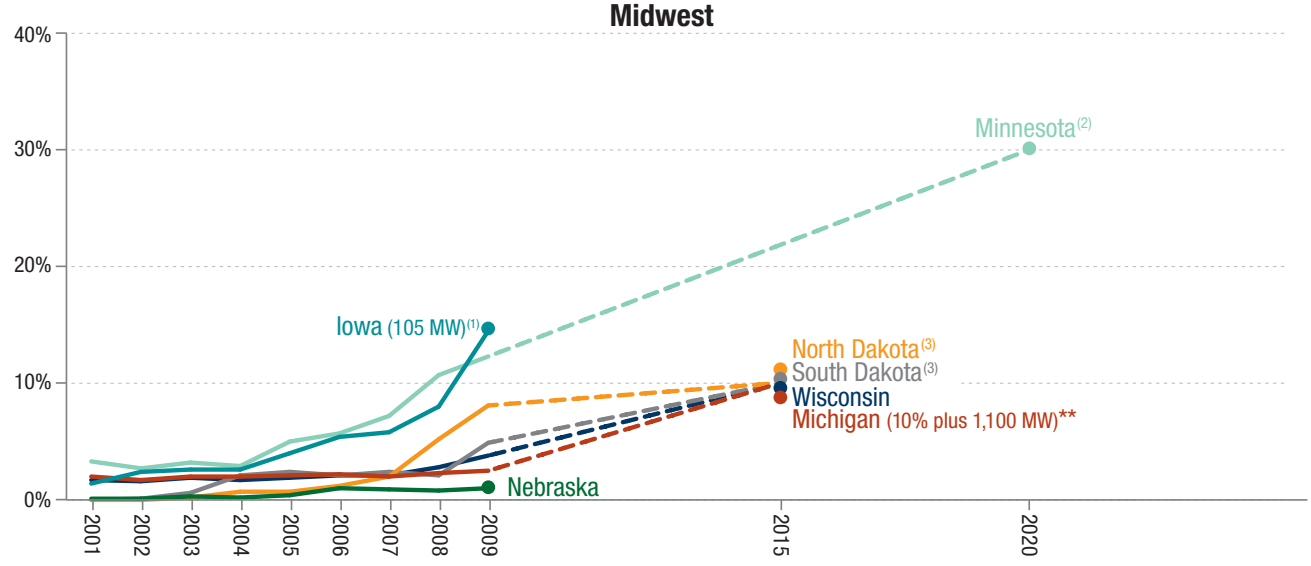
(1) Texas RPS: 5,880 MW capacity by 2015 (equivalent to about 5% of the state's current electricity demand), including a target of 500 MW of renewable energy capacity from resources other than wind. Texas currently has 9,428 MW of renewable capacity (excluding hydro), therefore exceeding their goal. Texas has a non-mandated goal of reaching 10,000 MW by 2025.
(2) Oklahoma has a voluntary goal for adopting renewable energy rather than an RPS with binding targets. EE can be used to meet 25% of goal.
Reflects end goal, does not reflect interim generation goals. Data as of August 4, 2010. Generation figures include the technologies that count toward the RPS target. If no RPS target listed, generation consists of all renewable energy technologies, including hydropower. Generation is exclusive of pumped storage.

Source: EIA, DSIRE

Renewable Electricity Generation as a Percent of Total Generation

(and in-state growth required to meet state RPS target)*



IV

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** Nonspecified percentage of EE technologies can count toward the standard.

(1) Iowa's RPS, enacted in 1983, requires the state's two investor-owned utilities to provide a combined total of 105 MW of capacity from renewable resources. This RPS has been reached; however, rather than raising the requirement, recent policy focus has been on establishing the transmission needed to export wind capacity out-of-state. Iowa currently has 3,670 MW of non-hydroelectric renewable capacity. In 2001, the state established a voluntary goal of 1,000 MW of wind capacity by 2010. This goal has been met.

(2) 30% by 2020 for Xcel Energy and 25% by 2025 for other activities.

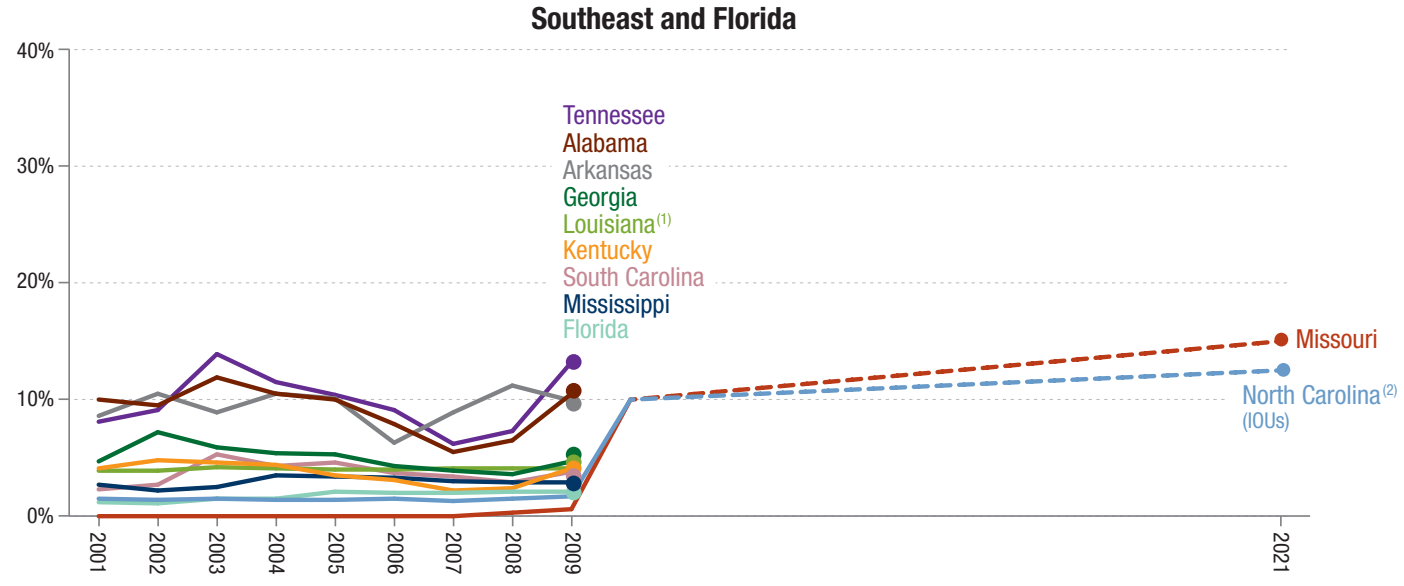
(3) North Dakota and South Dakota have voluntary goals for adopting renewable energy rather than an RPS with binding targets.

Reflects end goal, does not reflect interim generation goals. Data as of August 4, 2010. Generation figures include the technologies that count toward the RPS target. If no RPS target listed, generation consists of all renewable energy technologies, including hydropower. Generation is exclusive of pumped storage.

Source: EIA, DSIRE

Renewable Electricity Generation as a Percent of Total Generation

(and in-state growth required to meet state RPS target)*



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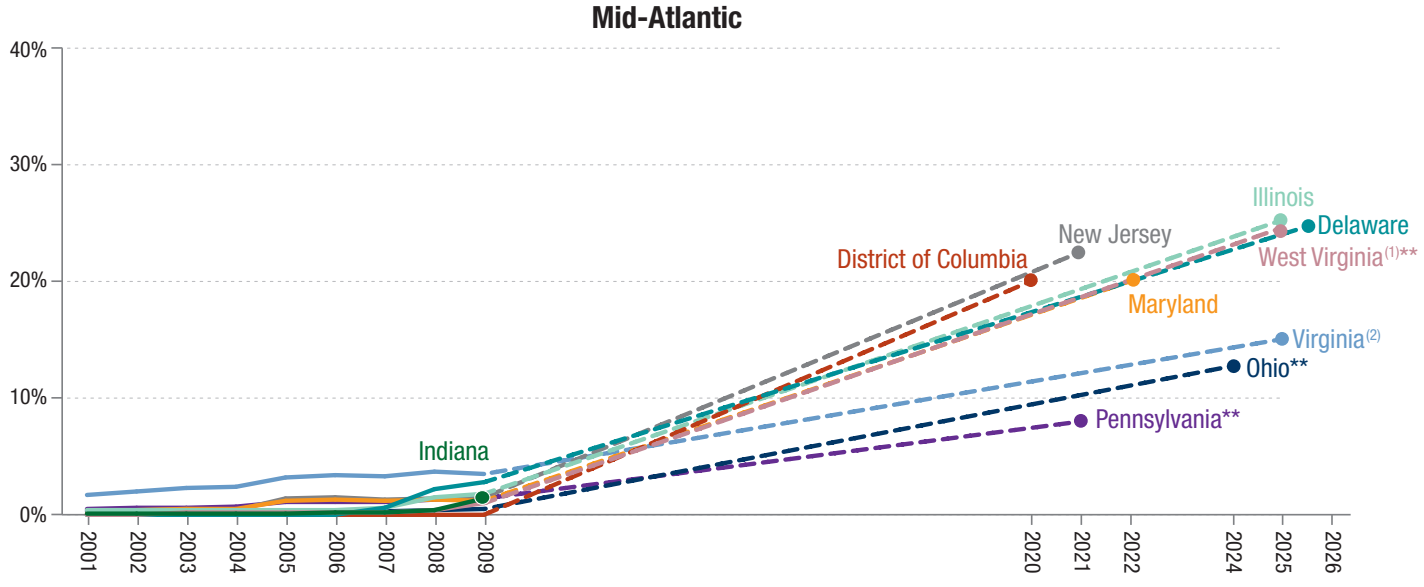
As data sets with this information are developed, slides will be updated. Please see www.nrel.gov/CEPA for updated information.

(1) Louisiana has a pilot program in place to conduct research and evaluations of renewable energy projects and requires utilities to develop a minimum of three projects or purchase renewable energy at a set tariff. Purchases of clean power from power purchasing agreements (PPAs) would be limited to 5MW for three years. Under the pilot policy, utilities would also be expected to conduct requests for proposals (RFPs) for larger renewable energy projects, with a view to projects that could come online in the next two–three years.
(2) North Carolina RPS: 12.5% by 2021 for investor-owned utilities; 10% by 2018 for municipal and cooperative utilities; 25% of standard can be met by EE and CHP. After 2021, EE can meet 40% of the standard. Reflects end goal, does not reflect interim generation goals. Data as of August 4, 2010. Generation figures include the technologies that count toward the RPS target. If no RPS target listed, generation consists of all renewable energy technologies, including hydropower. Generation is exclusive of pumped storage.

Source: EIA, DSIRE

Renewable Electricity Generation as a Percent of Total Generation

(and in-state growth required to meet state RPS target)*



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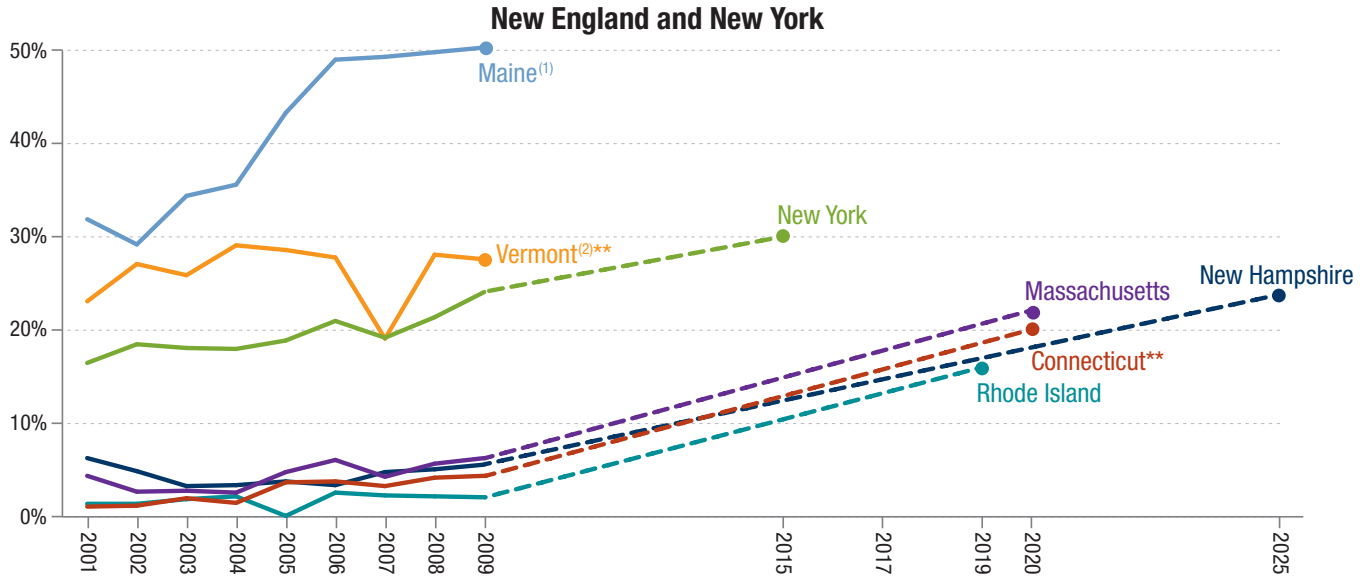
* This graphic does not include electricity that may be imported from other states and qualifies in meeting the state RPS.
As data sets with this information are developed, slides will be updated. Please see www.nrel.gov/CEPA for updated information.

** Nonspecified percentage of EE technologies can count toward the standard.
(1) Mandate is for alternative energy resources and is not limited to renewable energy.
(2) Virginia has a voluntary goal for adopting renewable energy rather than an RPS with binding targets. The goal is 15% of 2007 sales by 2025.
Reflects end goal, does not reflect interim generation goals. Data as of August 4, 2010. Generation figures include the technologies that count toward the RPS target. If no RPS target listed, generation consists of all renewable energy technologies, including hydropower. Generation is exclusive of pumped storage.

Source: EIA, DSIRE

Renewable Electricity Generation as a Percent of Total Generation

(and in-state growth required to meet state RPS target)*



IV

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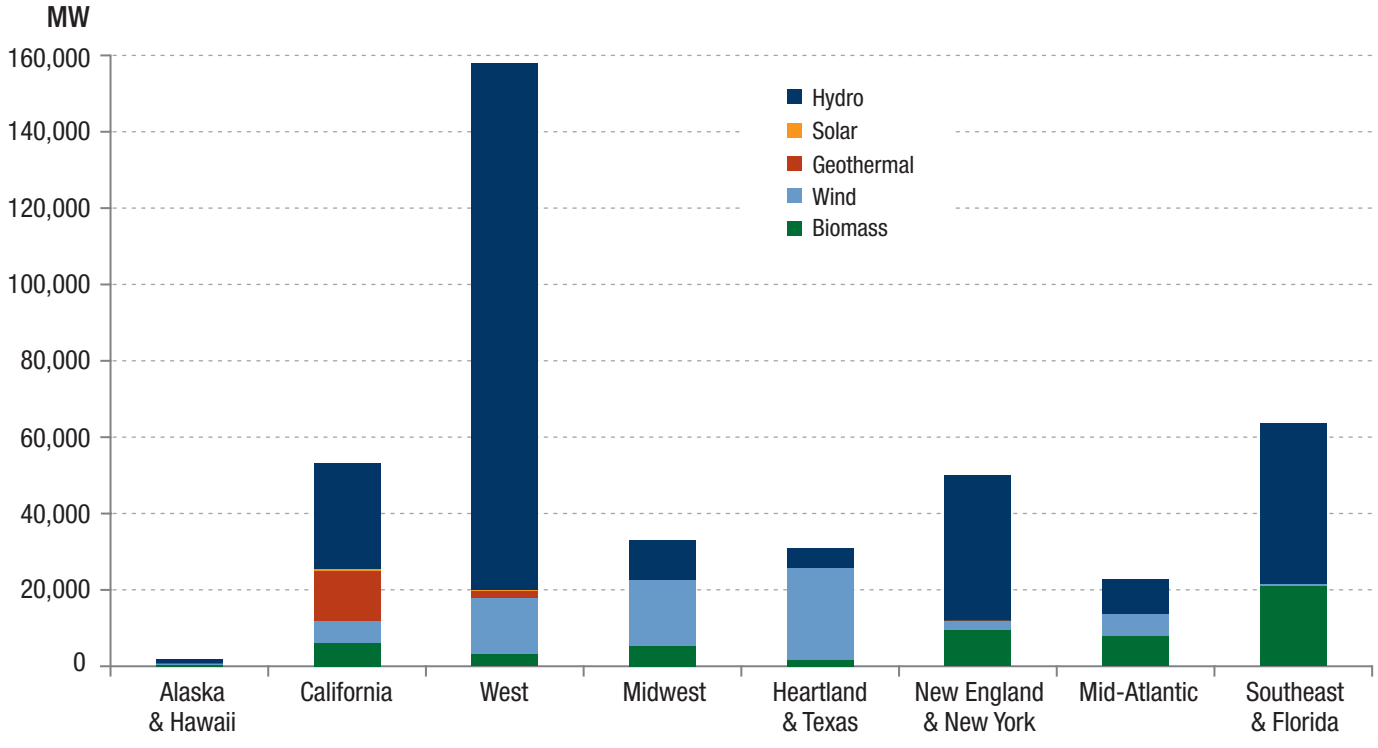
As data sets with this information are developed, slides will be updated. Please see www.nrel.gov/CEPA for updated information.

** Nonspecified percentage of EE technologies can count toward the standard.
(1) Maine RPS: 40% by 2017, with 10% from new renewable energy capacity. RPS target has been met.
(2) Vermont has a voluntary goal for adopting renewable energy rather than an RPS with binding targets. RPS target has been met.
Reflects end goal, does not reflect interim generation goals. Data as of August 4, 2010. Generation figures include the technologies that count toward the RPS target.
If no RPS target listed, generation consists of all renewable energy technologies, including hydropower. Generation is exclusive of pumped storage.

Source: EIA, DSIRE

Renewable Energy Capacity by Region (2009)



Source: AWEA, GEA, SEIA, Larry Sherwood/IREC, EIA

Definitions of State Policies and Incentives for Renewable Electricity Generation

Access Laws

Access laws establish a homeowner or facility owner's right to install and operate a solar or wind energy system. Some solar access laws also secure a system owner's access to sunlight. These laws may be implemented at both the state and local levels. In some states, access laws prohibit homeowners associations, neighborhood covenants, and local ordinances from restricting a homeowner's right to use solar energy. Easements, the most common form of solar access law, establish an owner's rights of access to a renewable resource, such that nearby property cannot be developed in a way that restricts pre-existing access to a renewable resource. An easement is usually transferred with the property title. At the local level, communities use several policies to protect solar access, including solar access ordinances, development guidelines requiring proper street orientation, zoning ordinances that contain building height restrictions, and solar permits.

V

Bonds

Bonds allow governments (and corporations) to raise money by borrowing. Investors purchase the bonds and, in turn, receive interest payments over a predetermined period of time. The interest paid on the bond is often tax-exempt. At the end of the bond's term, the principal value of the bond is repaid to the investor by the issuing entity. A few states and local governments have established bond programs to support renewable energy and energy efficiency for government-owned facilities. The energy savings resulting from the projects can be used to repay the investors. A tax credit bond is a particular type of bond in which a government pays an investor in the form of tax credits, rather than tax-exempt interest payments. This provides funding for government initiatives at a very low interest rate.

Construction and Design

Permitting standards

Permitting standards can help the installation of wind and solar energy systems by specifying the conditions and fees involved in project development. Some local governments have adopted simplified or expedited permitting standards for wind and/or solar. Fast-track permitting saves system owners and project developers time and money. Some states have capped fees that local governments may charge for a permit for a solar or wind energy system. In addition, some states have developed model wind ordinances for use by local governments.

Energy Standards for Public Buildings

Governments at various levels have chosen to lead by example by requiring new government buildings to meet strict energy standards. These policies establish green building standards, energy-reduction goals, equipment-procurement requirements, and/or the use of on-site renewable energy. Many of these policies require that new government buildings (and renovated buildings, in some cases) attain a certain level of certification under the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) program. Equipment-procurement policies often mandate the use of the most efficient equipment, such as equipment that meets the federal Energy Star standard. Policies designed to encourage the use of on-site renewables generally establish conditional requirements tied to life cycle cost analysis.

Contractor Licensing

Some states have adopted a licensing process for renewable energy contractors. Several states have adopted contractor licensing requirements for solar water heating, active and passive solar space

Definitions of State Policies and Incentives for Renewable Electricity Generation

heating, solar industrial process heat, solar thermal electricity, and photovoltaics. These requirements are designed to ensure that contractors have the necessary knowledge and experience to install systems properly. Solar licenses typically take the form of either a separate, specialized solar contractor's license, or of a specialty classification under a general electrical or plumbing license.

Corporate Tax Incentives

Corporate tax incentives include tax credits, deductions, and exemptions. These incentives are available in some states to corporations that purchase and install eligible renewable energy or energy efficiency equipment, or construct green buildings. In a few cases, the incentive is based on the amount of energy produced by an eligible facility. Some states allow the tax credit only if a corporation has invested a minimum amount in an eligible project. Typically, there is a maximum limit on the dollar amount of the credit or deduction. In recent years, the federal government has offered corporate tax incentives for renewables and energy efficiency.

Equipment Certification

Equipment certification policies, which require renewable energy equipment to meet certain standards, protect consumers from buying inferior equipment. These requirements not only benefit consumers; they also protect the renewable energy industry by making it more difficult for substandard systems to reach the market.

Generation Disclosure

Disclosure policies require utilities to provide customers with information about the electricity they supply. This information, which is often included on the monthly bill, can include an explanation of fuel mix percentages and information on the related emissions. In states where the electricity market has been restructured, generation disclosure provides customers with valuable information that allows them to make informed choices on the electricity and provider they choose. Additionally, there may be a requirement that the utility provide certification that any renewable energy sources that they use are certified as renewable. The Greene certification, offered by the Center for Resource Solutions, is one example of a verifiable certification that can be used by utility companies.

Grants

States offer a variety of grant programs to encourage the use and development of renewables and energy efficiency. Most programs offer support for a broad range of technologies, while a few programs focus on promoting a single technology, such as photovoltaic systems. Grants are available primarily to the commercial, industrial, utility, education, and/or government sectors. Most grant programs are designed to pay down the cost of eligible systems or equipment. Others focus on research and development, or support project commercialization. In recent years, the federal government has offered grants for renewables and energy efficiency projects for end users. Grants are typically competitive.

Industry Recruitment and Support

To promote economic development and the creation of jobs, some states offer financial incentives to recruit or cultivate the manufacturing and development of renewable energy systems and equipment. These incentives commonly take the form of tax credits, tax exemptions, and grants. In some cases, the amount of the incentive depends on the quantity of eligible equipment that a company manufactures. Most of these incentives apply to several renewable energy technologies, but a few states target specific technologies, such as wind or solar. These incentives are usually designed as temporary measures to support

Definitions of State Policies and Incentives for Renewable Electricity Generation

industries in their early years, and they commonly include a sunset provision to encourage the industries to become self-sufficient.

Interconnection Standards

Interconnection standards specify the technical and procedural process by which an electric customer connects an electricity-generating system to the grid, facilitating the development of small-scale renewable energy systems by removing certain obstacles. Interconnection standards include the technical, contractual, metering, and rate arrangements that system owners and utilities must follow. Standards for systems interconnected at the distribution level are typically adopted by state public utility commissions, while the Federal Energy Regulatory Commission (FERC) has adopted standards for systems interconnected at the transmission level. Not all states have adopted interconnection standards, and some states' standards apply only to investor-owned utilities—not to municipal utilities or electric cooperatives.

V

Line Extension Analysis

When a prospective customer requests electric service for a home or facility that is not currently served by the electric grid, the customer usually must pay a distance-based fee for the cost of extending power lines to the home or facility. In some cases, it is cheaper to use an on-site renewable energy system to meet a prospective customer's electricity needs. A few states require utilities to provide information regarding renewable energy options when a line extension is requested.

Loans

Government loan programs help customers overcome the financial barriers associated with renewable energy installations and energy efficiency improvements by providing low-cost financing, which helps spread capital costs over a longer period of time. State government loans are available to the residential, commercial, industrial, transportation, public and/or nonprofit sectors. Loan rates and terms vary by program; in some cases, they are determined on an individual project basis. Loan terms are generally 10 years or less. In recent years, the federal government has also offered loans for renewables and energy efficiency projects.

Net Metering

For electric customers who generate their own electricity with small-scale renewable energy systems, net metering allows for the flow of electricity both to and from the customer—typically through a single, bi-directional meter. With net metering, during times when a customer's generation exceeds the customer's use, electricity from the customer flows back to the grid, which offsets electricity consumed by the customer at a different time. In effect, the customer uses excess generation to offset electricity that the customer otherwise would have to buy at the utility's full retail rate. Net metering is required by law in most U.S. states, but these policies vary drastically.

Personal Tax Incentives

Personal tax incentives include income tax credits and deductions. Many states offer these incentives to reduce the expense of purchasing and installing renewable energy or energy efficiency systems and equipment. The percentage of the credit or deduction varies by state and, in most cases, there is a maximum limit on the dollar amount of the credit or deduction. An allowable credit may include carryover provisions, or it may be structured so that the credit is spread out over a certain number of years. Eligible technologies vary widely by state. In recent years, the federal government has offered personal tax credits for renewables and energy efficiency.

Sources: DSIRE 2010 and REEEP 2010

Definitions of State Policies and Incentives for Renewable Electricity Generation

Production Incentives/Performance-Based Incentives/Feed-In Tariff

Production incentives (also called performance-based incentives) require utilities to pay renewable energy power producers a fixed, premium rate for renewable energy generation, based on the number of kilowatt-hours (kWh) fed into the grid. Requiring that these payments are based on a system's actual performance, rather than the system's rated capacity, encourages system performance. Note that this policy differs from tax incentives that are based on renewable energy production, in that the premium payments are made at the time of purchase of the renewable energy.

Property Tax Incentives

Property tax incentives include exemptions, exclusions, abatements, and credits. Most property tax incentives provide that the added value of a renewable energy system is excluded from the valuation of the property for taxation purposes. For example, if a new heating system that uses renewable energy costs more than a conventional heating system, the additional cost of the renewable energy system is not included in the property assessment. In a few cases, property tax incentives apply to the additional cost of a green building. Because property taxes are collected locally, some states have granted local taxing authorities the option of allowing a property tax incentive for renewable energy systems.

Public Benefit Funds

Public benefit funds are a policy tool used to secure stable, long-term funding for state energy programs and initiatives. The funds are commonly supported by a small, fixed fee added to the customer's electricity bill each month (e.g., $0.002/kWh). This charge is sometimes referred to as a "system benefits charge." Public Benefit Funds often support rebate or loan programs, research and development initiatives, and energy education programs.

Rebates

Rebates are direct cash subsidies, typically paid after installation is complete, that promote the installation of renewable energy systems by reducing the initial capital cost of the project. The majority of rebate programs that support renewables are administered by states, municipal utilities, and electric cooperatives; these programs commonly provide funding for solar water heating and/or photovoltaic (PV) systems. Most rebate programs that support energy efficiency are administered by utilities.

Required Green Power Option

Several states require that electric utilities offer customers the option to buy electricity generated from renewable resources. The utility programs offering such options are commonly known as "green power programs."

Renewable Portfolio Standard (RPS)/ Renewable Energy Standard (RES)

A renewable portfolio standard (sometimes called renewable energy standards) is a regulatory mechanism that requires retail electricity suppliers to procure a minimum quantity of eligible renewable energy by a specific date or according to a schedule. The required amount of renewable energy is expressed in either a percentage of the total electricity or a flat megawatt-hour term. Utilities may either generate the renewable energy or purchase the electricity from other generators. Accounting is accomplished through renewable energy credits (RECs), which are assigned to each unit of renewable energy generated and then bought and sold through a market system. The term "set-aside" or "carve-out" refers to a provision within an RPS that requires utilities to

use a specific renewable resource (usually solar energy) to account for a certain percentage of their retail electricity sales (or a certain amount of generating capacity) within a specified time frame. Note that renewable portfolio goals are similar to RPS policies, but renewable portfolio goals are not legally binding.)

Sales Tax Incentives

Sales tax incentives typically provide an exemption from, or refund of, the state sales tax (or sales and use tax) for the purchase of a renewable energy system, an energy-efficient appliance, or other energy efficiency measures. Some types of equipment purchases may be eligible for only a partial abatement of the sales tax. Several states have established an annual "sales tax holiday" for energy efficiency measures by annually allowing a temporary exemption—usually for one or two days—from the state sales tax.

Sources: DSIRE 2010 and REEEP 2010

Base-load capacity
The generating equipment normally operated to serve loads on an around-the-clock basis.

Biodiesel
Any liquid biofuel suitable as a diesel fuel substitute or diesel fuel additive or extender. Biodiesel fuels are typically made from oils such as soybeans, rapeseed, or sunflowers; or from animal tallow. Biodiesel can also be made from hydrocarbons derived from agricultural products such as rice hulls.

Biofuels
Liquid fuels and blending components produced from biomass (plant) feedstocks, used primarily for transportation.

Biomass
Organic non-fossil material of biological origin constituting a renewable energy source.

British Thermal Unit (Btu)
The quantity of heat required to increase the temperature of 1 pound of liquid water by 1 degree Fahrenheit at the temperature at which water has its greatest density (approximately 39 degrees Fahrenheit).

Capacity Factor
The ratio of the electrical energy produced by a generating unit for a certain period of time to the electrical energy that could have been produced at continuous full power operation during the same period.

Compound Annual Growth Rate
The year-over-year growth rate applied during a multiple-year period. The formula for calculating CAGR is (Current Value/Base Value)^(1/# of years) - 1.

Concentrating Solar Power (CSP)
A solar energy conversion system characterized by the optical concentration of solar rays through an arrangement of mirrors to heat working fluid to a high temperature. Concentrating solar power (but not solar thermal power) may also refer to a system that focuses solar rays on a photovoltaic cell to increase conversion efficiency.

Cost
The amount paid to produce a good or service. Cost represents the sum of the value of the inputs in production.

Direct Use
Use of electricity that (1) is self-generated, (2) is produced by either the same entity that consumes the power or an affiliate, and (3) is used in direct support of a service or industrial process located within the same facility or group of facilities that house the generating equipment. Direct use is exclusive of station use.

E85
A fuel containing a mixture of 85 percent ethanol and 15 percent gasoline.

Ethanol

A clear, colorless, flammable oxygenated hydrocarbon. Ethanol is typically produced chemically from ethylene, or biologically from fermentation of various sugars from carbohydrates found in agricultural crops and cellulosic residues from crops or wood. It is used in the United States as a gasoline octane enhancer and oxygenate (blended up to 10 percent concentration). Ethanol can also be used in high concentrations (E85) in vehicles designed for its use.

Federal Energy Regulatory Commission (FERC)

The federal agency with jurisdiction over interstate electricity sales, wholesale electric rates, hydroelectric licensing, natural gas pricing, oil pipeline rates, and gas pipeline certification. FERC is an independent regulatory agency within the Department of Energy (DOE) and is the successor to the Federal Power Commission.

Flexible-Fuel Vehicles

Vehicles that can operate on (1) alternative fuels (such as E85); (2) 100 percent petroleum-based fuels; (3) any mixture of an alternative fuel (or fuels) and a petroleum-based fuel. Flexible-fuel vehicles have a single fuel system to handle alternative and petroleum-based fuels.

Fuel Cell

A device capable of generating an electrical current by converting the chemical energy of a fuel (e.g., hydrogen) directly into electrical energy. Fuel cells differ from conventional electrical cells in that the active materials such as fuel and oxygen are not contained within the cell but are supplied from outside. It does not contain an intermediate heat cycle, as do most other electrical generation techniques.

Gasoline Pool

All gasoline produced by volume, including any additions such as ethanol or methyl tertiary-butyl ether (MTBE).

Generation

The total amount of electric energy produced by generating units and measured at the generating terminal in kilowatt-hours (kWh) or megawatt-hours (MWh).

Geothermal Energy

The heat that is extracted from hot water or steam that is mined from geothermal reservoirs in the earth's crust. Water or steam can be used as a working fluid for geothermal heat pumps, water heating, or electricity generation, and then is reinjected back into the earth.

Geothermal Heat Pump

A heat pump in which the refrigerant exchanges heat (in a heat exchanger) with a fluid circulating through an earth connection medium (ground or ground water). The fluid is contained in a variety of loop (pipe) configurations depending on the temperature of the ground and the ground area available. Loops may be installed horizontally or vertically in the ground or submersed in a body of water.

Gigawatt (GW)
One billion watts or one thousand megawatts.

Gigawatt-hour (GWh)
One billion watt-hours.

Incremental Capacity
Capacity added on an annual basis.

Insolation
The amount of radiation from the sun received at the surface of the Earth in a particular geographic location or region.

Kilowatt (kW)
One thousand watts.

Kilowatt-hour (kWh)
A measure of electricity defined as a unit of work or energy, measured as 1 kilowatt (1,000 watts) of power expended for 1 hour. One kWh is equivalent to 3,412 British thermal units (Btus).

Landfill Gas
Gas that is generated by decomposition of organic material at landfill disposal sites. The average composition of landfill gas is approximately 50% methane and 50% carbon dioxide and water vapor by volume. The methane in landfill gas may be vented, flared, or combusted to generate electricity or useful thermal energy on-site, or injected into a pipeline for combustion off-site.

Levelized Cost
The present value of the total cost of building and operating a generating plant over its economic life, converted to equal annual payments. Costs are levelized in real dollars (i.e., adjusted to remove the impact of inflation).

Megawatt (MW)
One million watts of electricity.

Megawatt-hour (MWh)
One thousand kilowatt-hours or 1 million watt-hours.

Municipal Solid Waste (MSW)
Residential solid waste and some nonhazardous commercial, institutional, and industrial wastes.

Nameplate Capacity
The maximum rated output of a generator under specific conditions designated by the manufacturer. Nameplate capacity is usually indicated in units of kilovolt-amperes (kVA) and in kilowatts (kW) on a nameplate physically attached to the generator.

Ocean Energy
Energy conversion technologies that harness the energy in tides, waves, and thermal gradients in the oceans.

Photovoltaic (PV) Cell
An electronic device consisting of layers of semiconductor materials fabricated to form a junction (adjacent layers of materials with different electronic characteristics) and electrical contacts and being capable of converting incident light directly into electricity (direct current).

Price
The amount paid to acquire a good or service.

Pumped-Storage Hydroelectric Plant
A plant that usually generates electric energy during peak load periods by using water previously pumped into an elevated storage reservoir during off-peak periods when excess generating capacity is available to do so. When additional generating capacity is needed, the water can be released from the reservoir through a conduit to turbine generators located in a power plant at a lower level.

Renewable Energy Resources
Energy resources that are naturally replenishing but flow-limited. They are virtually inexhaustible in duration but limited in the amount of energy that is available per unit of time. Renewable energy resources include: biomass, hydro, geothermal, solar, wind, ocean thermal, wave action, and tidal action.

Solar Thermal Collector
A device designed to receive solar radiation and convert it to thermal energy. Normally, a solar thermal collector includes a frame, glazing, and an absorber, together with appropriate insulation. The heat collected by the solar collector may be used immediately or stored for later use. Solar collectors are used for space heating; domestic hot water heating; and heating swimming pools, hot tubs, or spas.

Thermoelectric Power Plant
A term used to identify a type of electric generating station, capacity, capability, or output in which the source of energy for the prime mover is heat.

Wind Energy
Kinetic energy present in wind motion that can be converted to mechanical energy for driving pumps, mills, and electric power generators.

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For more information contact:
EERE Information Center
1-877-EERE-INFO (1-877-337-3463)
www.eere.energy.gov/informationcenter

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