ref2014.d102413a

Report Annual Energy Outlook 2014
Scenario ref2014 Reference case
Datekey d102413a
Release Date April 2014

99. Renewable Energy Generation by Fuel

02 - Florida Reliability Coordinating Council

Capacity, Generation, and Consumption	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2012-2040
Electric Power Sector 1/																															
Generating Capacity																															
(gigawatts)																															
Conventional Hydropower	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0%
Geothermal 2/	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	- -
Municipal Waste 3/	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.0%
Wood and Other Biomass	0.17	0.17	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	1.7%
Solar Thermal	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	- -
Solar Photovoltaic 4/	0.07	0.07	0.07	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.13	0.17	0.20	0.24	0.24	0.30	0.36	0.42	0.42	0.42	0.42	0.42	0.42	6.9%
Wind	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	- -
Offshore Wind	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	- -
Total	**0.73**	**0.72**	**0.82**	**0.86**	**0.86**	**0.86**	**0.86**	**0.86**	**0.86**	**0.86**	**0.86**	**0.86**	**0.86**	**0.86**	**0.86**	**0.86**	**0.86**	**0.89**	**0.93**	**0.95**	**0.99**	**0.99**	**1.06**	**1.12**	**1.18**	**1.18**	**1.18**	**1.18**	**1.18**	**1.18**	**2%**
Electricity Generation																															
(billion kilowatthours)																															
Conventional Hydropower	0.01	0.01	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	7.0%
Geothermal 2/	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	- -
Biogenic Municipal Waste 5/	2.01	1.94	2.51	2.51	2.51	2.10	2.10	2.10	2.10	2.10	2.10	2.10	2.10	2.10	2.10	2.10	2.10	2.10	2.10	2.09	2.09	2.09	2.09	2.09	2.09	2.09	2.51	2.51	2.51	2.51	0.9%
Wood and Other Biomass	0.46	0.39	0.85	1.33	1.44	2.19	2.01	2.06	2.06	2.07	2.08	2.10	2.16	2.15	4.29	4.41	4.50	4.51	4.52	4.63	4.68	4.71	4.71	4.71	4.72	4.72	4.71	4.71	4.71	4.71	9.3%
Solar Thermal	0.03	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	- -
Solar Photovoltaic 4/	0.10	0.13	0.12	0.13	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.21	0.29	0.36	0.43	0.47	0.56	0.70	0.83	0.89	0.89	0.89	0.89	0.89	7.2%
Wind	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	- -
Offshore Wind	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	- -
Total	**2.60**	**2.55**	**3.52**	**4.01**	**4.17**	**4.51**	**4.33**	**4.38**	**4.38**	**4.39**	**4.39**	**4.42**	**4.47**	**4.47**	**6.60**	**6.72**	**6.82**	**6.87**	**6.95**	**7.12**	**7.25**	**7.30**	**7.40**	**7.54**	**7.68**	**7.73**	**8.15**	**8.15**	**8.15**	**8.15**	**4%**
Energy Consumption 6/																															
(quadrillion Btu)																															
Conventional Hydropower	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.0%
Geothermal 2/	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	- -
Biogenic Municipal Waste 5/	0.04	0.03	0.05	0.05	0.05	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.05	0.05	0.05	0.05	1.0%
Wood and Other Biomass	0.00	0.00	0.02	0.03	0.03	0.04	0.03	0.03	0.03	0.04	0.04	0.04	0.04	0.04	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	9.8%
Solar Thermal	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	- -
Solar Photovoltaic 4/	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	7.2%
Wind	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	- -
Offshore Wind	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	- -
Total	**0.04**	**0.04**	**0.07**	**0.07**	**0.08**	**0.08**	**0.07**	**0.07**	**0.07**	**0.07**	**0.07**	**0.08**	**0.08**	**0.08**	**0.10**	**0.10**	**0.10**	**0.10**	**0.10**	**0.10**	**0.10**	**0.10**	**0.11**	**0.11**	**0.11**	**0.11**	**0.12**	**0.12**	**0.12**	**0.12**	**4%**
End-Use Generators 7/																															
Generating Capacity																															
(gigawatts)																															
Conventional Hydropower	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	- -
Geothermal 2/	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	- -
Municipal Waste	0.02	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.0%
Wood and Other Biomass	0.20	0.19	0.21	0.21	0.21	0.22	0.23	0.23	0.23	0.24	0.24	0.25	0.25	0.26	0.26	0.27	0.27	0.28	0.28	0.28	0.29	0.29	0.30	0.30	0.31	0.31	0.32	0.32	0.33	0.33	1.9%
Solar Photovoltaic 4/	0.05	0.11	0.19	0.30	0.44	0.58	0.58	0.59	0.60	0.61	0.63	0.65	0.67	0.69	0.71	0.74	0.76	0.79	0.82	0.85	0.88	0.92	0.95	1.01	1.07	1.13	1.19	1.25	1.32	1.39	9.6%
Wind	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.2%
Total	**0.28**	**0.33**	**0.43**	**0.53**	**0.68**	**0.83**	**0.83**	**0.84**	**0.85**	**0.87**	**0.90**	**0.92**	**0.95**	**0.97**	**1.00**	**1.03**	**1.06**	**1.09**	**1.12**	**1.16**	**1.20**	**1.24**	**1.28**	**1.34**	**1.40**	**1.46**	**1.53**	**1.60**	**1.67**	**1.75**	**6%**
Electricity Generation																															
(billion kilowatthours)																															
Conventional Hydropower	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	- -
Geothermal 2/	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	- -
Municipal Waste	0.36	0.43	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	-2.1%
Wood and Other Biomass	1.15	1.13	1.20	1.21	1.25	1.29	1.31	1.33	1.35	1.38	1.42	1.45	1.48	1.50	1.52	1.56	1.58	1.61	1.63	1.65	1.68	1.70	1.73	1.76	1.79	1.82	1.85	1.88	1.91	1.94	1.9%
Solar Photovoltaic 4/	0.07	0.15	0.28	0.44	0.65	0.87	0.88	0.88	0.90	0.92	0.95	0.97	1.01	1.04	1.08	1.11	1.16	1.20	1.25	1.30	1.35	1.40	1.46	1.55	1.64	1.74	1.84	1.94	2.05	2.16	9.9%
Wind	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.2%
Total	**1.58**	**1.71**	**1.73**	**1.89**	**2.14**	**2.40**	**2.43**	**2.45**	**2.49**	**2.54**	**2.60**	**2.66**	**2.72**	**2.78**	**2.84**	**2.91**	**2.98**	**3.04**	**3.11**	**3.19**	**3.27**	**3.35**	**3.43**	**3.55**	**3.67**	**3.79**	**3.92**	**4.06**	**4.20**	**4.34**	**3%**
Energy Consumption																															
(quadrillion Btu)																															
Conventional Hydropower	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	- -
Geothermal 2/	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	- -
Municipal Waste	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0%
Wood and Other Biomass	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	2.5%
Solar Photovoltaic 4/	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02	9.9%
Wind	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.2%
Total	**0.01**	**0.02**	**0.02**	**0.02**	**0.02**	**0.02**	**0.03**	**0.03**	**0.03**	**0.03**	**0.03**	**0.03**	**0.03**	**0.03**	**0.03**	**0.03**	**0.03**	**0.03**	**0.03**	**0.03**	**0.03**	**0.04**	**0.04**	**0.04**	**0.04**	**0.04**	**0.04**	**0.04**	**0.04**	**0.05**	**4%**
All Sectors																															
Generating Capacity																															
(gigawatts)																															
Conventional Hydropower	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0%
Geothermal 2/	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	- -
Municipal Waste	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.0%
Wood and Other Biomass	0.38	0.36	0.47	0.47	0.48	0.49	0.49	0.49	0.50	0.50	0.51	0.51	0.52	0.52	0.53	0.53	0.54	0.54	0.55	0.55	0.55	0.56	0.56	0.57	0.57	0.58	0.58	0.59	0.59	0.60	1.8%
Solar 4/	0.11	0.17	0.26	0.40	0.54	0.69	0.69	0.69	0.70	0.72	0.73	0.75	0.77	0.79	0.82	0.84	0.87	0.92	0.99	1.05	1.12	1.15	1.26	1.37	1.49	1.55	1.61	1.68	1.74	1.82	8.8%
Wind	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.2%
Total	**1.00**	**1.04**	**1.25**	**1.39**	**1.54**	**1.69**	**1.69**	**1.70**	**1.71**	**1.73**	**1.76**	**1.78**	**1.81**	**1.83**	**1.86**	**1.89**	**1.92**	**1.98**	**2.05**	**2.11**	**2.19**	**2.23**	**2.34**	**2.45**	**2.58**	**2.64**	**2.71**	**2.78**	**2.85**	**2.93**	**4%**
Electricity Generation																															
(billion kilowatthours)																															
Conventional Hydropower	0.01	0.01	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	7.0%
Geothermal 2/	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	- -
Municipal Waste 8/	2.37	2.36	2.75	2.75	2.75	2.34	2.34	2.34	2.34	2.34	2.34	2.34	2.34	2.34	2.34	2.34	2.34	2.34	2.33	2.33	2.33	2.33	2.33	2.33	2.33	2.33	2.75	2.75	2.75	2.75	0.5%
Wood and Other Biomass	1.61	1.52	2.05	2.54	2.69	3.48	3.33	3.39	3.41	3.45	3.49	3.55	3.64	3.65	5.81	5.97	6.08	6.12	6.15	6.28	6.37	6.41	6.44	6.47	6.51	6.53	6.56	6.59	6.62	6.65	5.4%
Solar 4/	0.20	0.37	0.40	0.57	0.83	1.05	1.05	1.06	1.07	1.10	1.12	1.15	1.18	1.22	1.25	1.29	1.33	1.41	1.54	1.65	1.78	1.87	2.02	2.25	2.47	2.62	2.72	2.83	2.94	3.05	7.8%
Wind	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.2%
Total	**4.18**	**4.26**	**5.24**	**5.90**	**6.30**	**6.90**	**6.76**	**6.83**	**6.86**	**6.93**	**6.99**	**7.08**	**7.20**	**7.25**	**9.44**	**9.63**	**9.79**	**9.91**	**10.06**	**10.31**	**10.52**	**10.65**	**10.83**	**11.09**	**11.34**	**11.52**	**12.07**	**12.21**	**12.35**	**12.49**	**4%**
Energy Consumption 6/																															
(quadrillion Btu)																															
Conventional Hydropower	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.0%
Geothermal 2/	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	- -
Municipal Waste 8/	0.04	0.04	0.05	0.05	0.05	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.05	0.05	0.05	0.05	0.9%
Wood and Other Biomass	0.01	0.01	0.03	0.04	0.04	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.07	0.07	0.07	0.07	0.07	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	6.4%
Solar 4/	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.03	0.03	0.03	0.03	0.03	7.8%
Wind	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.2%
Total	**0.05**	**0.06**	**0.08**	**0.09**	**0.10**	**0.10**	**0.10**	**0.10**	**0.10**	**0.10**	**0.10**	**0.10**	**0.10**	**0.10**	**0.12**	**0.13**	**0.13**	**0.13**	**0.13**	**0.14**	**0.14**	**0.14**	**0.14**	**0.14**	**0.15**	**0.15**	**0.16**	**0.16**	**0.16**	**0.16**	**4%**

1/ Includes electricity-only and combined heat and power plants that have a regulatory status.

2/ Includes both hydrothermal resources (hot water and steam) and near-field enhanced geothermal systems (EGS). Near-field EGS potential occurs on known hydrothermal sites, however this potential requires the addition of external fluids for electricity generation and is only available after 2025.

3/ Includes all municipal waste, landfill gas, and municipal sewage sludge. Incremental growth is assumed to be for landfill gas facilities. All municipal waste is included, although a portion of the municipal waste stream contains petroleum-derived plastics and other non-renewable sources.

4/ Does not include off-grid photovoltaics (PV). Based on annual PV shipments from 1989 through 2012, EIA estimates that as much as 274 megawatts of remote electricity generation PV applications (i.e., off-grid power systems) were in service in 2012, plus an additional 573 megawatts in communications, transportation, and assorted other non-grid-connected, specialized applications. See U.S. Energy Information Administration, Annual Energy Review 2011, DOE/EIA-0384(2011) (Washington, DC, September 2012), Table 10.9 (annual PV shipments, 1989-2010), and Table 12 (U.S. photovoltaic module shipments by end use, sector, and type) in U.S. Energy Information Administration, Solar Photovoltaic Cell/Module Shipments Report, 2011 (Washington, DC, September 2012) and U.S. Energy Information Administration, Solar Photovoltaic Cell/Module Cell/Module Shipments Report, 2012 (Washington, DC, December 2013). The approach used to develop the estimate, based on shipment data, provides an upper estimate of the size of the PV stock, including both grid-based and off-grid PV. It will overestimate the size of the stock, because shipments include a substantial number of units that are exported, and each year some of the PV units installed earlier will be retired from service or abandoned.

5/ Includes biogenic municipal waste, landfill gas, and municipal sewage sludge. Incremental growth is assumed to be for landfill gas facilities. Only biogenic municipal waste is included. The U.S. Energy Information Administration estimates that in 2012 approximately 7 billion kilowatthours of electricity were generated from a municipal waste stream containing petroleum-derived plastics and other non-renewable sources. See U.S. Energy Information Administration, Methodology for Allocating Municipal Solid Waste to Biogenic and Non-Biogenic Energy, (Washington, DC, May 2007).

6/ Actual heat rates used to determine fuel consumption for all renewable fuels except hydropower, geothermal, solar, and wind. Consumption at hydroelectric, geothermal, solar, and wind facilities determined by using the fossil fuel equivalent of 9,716 Btu per kilowatthour.

7/ Includes combined heat and power plants and electricity-only plants in the commercial and industrial sectors that have a non-regulatory status; and small on-site generating systems in the residential, commercial, and industrial sectors used primarily for own-use generation, but which may also sell some power to the grid.

8/ Excludes nonbiogenic municipal waste in the electric power sector.

Note: Totals may not equal sum of components due to independent rounding. Data for 2012 are model results and may differ from official EIA EIA data reports.

Sources: 2011 and 2012 generation: EIA, Monthly Energy Review, DOE/EIA-0035