

We call this paper “Coal Facts” because it provides basic factual information and data related to coal-fueled electricity. Most of the data are taken from independent third party sources, such as the Energy Information Administration. The paper is based on the most current information available as of March 20, 2015.

ELECTRICITY SOURCES

- ✓ Coal was responsible for 39 percent of electricity generated in the U.S. during 2014, more than any other source of electricity.¹ Coal-fueled electricity generation increased by 0.3 percent in 2014 compared to 2013.²
- ✓ Coal generation is projected to provide 37.2 percent of U.S. electricity in 2015 and 36.6 percent in 2016.³ Natural gas is projected to generate 29.1 percent of U.S. electricity in 2015 and 29.5 percent in 2016.⁴
- ✓ During 2014, natural gas was responsible for 27.4 percent of electricity generation, nuclear power 19.5 percent, and renewable energy 13.2 percent.⁵ Non-hydroelectric renewables (wind, solar, geothermal, and biomass) were responsible for 6.9 percent.⁶
- ✓ Coal is projected to remain the dominant fuel for electricity generation in the U.S. through 2030.⁷ (EIA’s projections do not take into account the effects of future environmental regulations or regulations that have been proposed but not finalized, such as EPA’s Clean Power Plan.)

U.S. COAL FLEET

- ✓ By the end of 2012, there were 557 coal-fueled power plants in the U.S.⁸ As of January 2015, there were 1,236 individual coal-fueled electric generating units representing approximately 300,000 megawatts (MW) of electric generating capacity.⁹

- ✓ Since the beginning of 2011, 15 new coal units (totaling 8,952 MW) have begun operation.¹⁰
- ✓ Owners of coal plants have announced that a total of 72,000 MW of coal-fueled generating capacity will be shutting down by 2025, with the majority of the capacity shutting down by the end of 2016. Of this total, EPA policies have been cited as a factor in the closure of 61,000 MW (389 coal units) in 36 states.¹¹ Ohio, Pennsylvania, Alabama, Kentucky, Indiana, and Georgia have the most closures due to EPA policies.

ELECTRICITY PRICES

- ✓ The U.S. average retail price for electricity was 10.45 cents per kilowatt-hour (kWh) in 2014.¹² The average family spent \$110 per month on electricity in 2013.¹³
- ✓ Nineteen states that generate, on average, less than nine percent of their electricity from coal pay an average of 13.7 cents per kWh for their electricity, which is 31 percent *more* than the national average price of electricity.¹⁴
- ✓ Thirty-one states that, on average, generate more than 55 percent their electricity from coal pay an average of 9.27 cents per kWh, which is 11 percent *less* than the national average.¹⁵

COAL AND NATURAL GAS PRICES

- ✓ The table below compares the most recent (March 2015) EIA actual and projected coal and natural gas prices (\$ per MMBtu) delivered to the electric power sector:¹⁶

	2014	2015	2016
Natural gas	\$5.08	\$3.99	\$4.29
Coal	\$2.36	\$2.31	\$2.34

- ✓ EIA projects that natural gas prices for electric power generation will increase by nearly 30 percent between 2014 and 2025. Coal prices are projected to rise 19 percent over the same period.¹⁷

CLEANER COAL

- ✓ Emissions per kWh of sulfur dioxide (SO₂), nitrogen oxides (NO_x), and particulate matter (PM) from coal-fueled power plants have been reduced by approximately 90 percent over the period 1970-2014.¹⁸
- ✓ Approximately \$118 billion will be invested through 2013 to achieve these emission reductions. The coal fleet will spend an additional \$26 billion for emission controls between 2014 and 2016.¹⁹
- ✓ By 2015, over 90 percent of U.S. coal-fueled electric generating capacity will have installed clean coal technologies and other advanced emission controls to reduce emissions of SO₂, NO_x, PM, mercury, acid gases, and non-mercury metals.²⁰
- ✓ At least 15 clean coal technologies are being used today by the U.S. coal fleet.²¹

STATES

- ✓ Coal is used to generate electricity in 48 states. Only Rhode Island (mostly natural gas) and Vermont (mostly nuclear) do not generate any electricity from coal.²² Coal provides at least half the electricity in 18 states and at least one quarter of the electricity in 30 states.²³
- ✓ During 2014, the ten states that generated the most electricity from coal were Texas, Indiana, Ohio, Illinois, Kentucky, Pennsylvania, West Virginia, Missouri, Michigan, and Florida.²⁴
- ✓ During 2014, the ten states with the highest percentage of coal generation were West Virginia (96 percent), Kentucky (92 percent), Wyoming (89

percent), Indiana (85 percent), Missouri (83 percent), Utah (76 percent), North Dakota (75 percent), Ohio (67 percent), New Mexico (63 percent), and Nebraska (63 percent).²⁵

U.S. COAL

- ✓ According to EIA, the U.S. has the largest recoverable coal reserves in the world.²⁶ The U.S. is capable of meeting domestic demand for coal for roughly 280 years (260 billion tons total/925 million tons of coal consumed in 2013).²⁷
- ✓ Ninety-three percent of the coal consumed in the U.S. is used to generate electricity.²⁸ Coal is also used in the steel, paper, cement, and plastics industries, and to produce activated carbon (for water purification) and carbon fibers (for fuel cells and electronics).²⁹
- ✓ Coal is mined in 25 states and is responsible for over 700,000 U.S. jobs.³⁰ Wyoming is the largest coal-producing state, followed by West Virginia, Kentucky, Pennsylvania, and Illinois.³¹
- ✓ Of the nearly 983 million tons of coal mined in the U.S. in 2013, nearly 578 million tons were mined West of the Mississippi River and over 405 million tons were mined in the East.³²
- ✓ According to EIA, domestic coal production was 917 million tons in 2014, and is projected to fall slightly to 897 million tons in 2015 and 894 million tons in 2016.³³ (EIA's projections do not take into account the impacts of future environmental regulations or regulations that have been proposed but not finalized, such as EPA's Clean Power Plan.)

GLOBAL COAL

- ✓ Globally, coal was responsible for 39 percent of electricity produced in 2012, followed by natural gas at 23 percent, renewable energy at 21 percent, nuclear power at 11 percent, and petroleum liquids at 4 percent.³⁴

- ✓ For 2012 and 2013, U.S. coal demand represented about 12 percent of total global coal consumption. Asia consumes over six times as much coal as the U.S. and represents 70 percent of global consumption.³⁵
- ✓ By 2035, global coal consumption is projected to increase by about 40 percent, with non-OECD Asia's demand growing by 58 percent.³⁶
- ✓ As of late 2012, more than 65,000 MW of new coal generating capacity in Europe had been announced or planned.³⁷
- ✓ U.S. coal exports totaled approximately 97 million tons in 2014, a drop from 118 million tons in 2013 and record exports of 126 million tons in 2012. 2014 exports remained historically high, and were 57 percent above average export volumes of 2002-2011.³⁸
- ✓ EIA projects U.S. coal exports will reach 80 million tons in 2015 and 81 million tons in 2016.³⁹

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¹ U.S. Energy Information Administration (EIA), *Electric Power Monthly*, February 2015 edition, with data for December 2014.

² *Ibid.*

³ EIA, *Short Term Energy Outlook*, March 2015.

⁴ *Ibid.*

⁵ EIA, *Electric Power Monthly*, February 2015.

⁶ *Ibid.*

⁷ EIA, *Annual Energy Outlook 2014*, May 7, 2014.

⁸ EIA, Count of Electric Power Industry Power Plants By Sector, by Predominant Energy Sources Within Plant, *Electric Power Annual 2012*, December 2013.

⁹ *Ibid* and EIA *Electric Power Monthly*, February 2013, 2014, and 2015.

¹⁰ EIA, *Electric Power Monthly*, February 2012, 2013, 2014, and 2015.

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- ¹¹ Sources: EIA, SNL Energy, and company announcements.
- ¹² EIA, *Electric Power Monthly*, February 2015.
- ¹³ EIA, "How much electricity does an American home use?" Table 5A, "2013 Average Monthly Bill - Residential," February 20, 2015.
- ¹⁴ EIA, *Electric Power Monthly*, February 2015.
- ¹⁵ *Ibid.*
- ¹⁶ EIA, *Short Term Energy Outlook*, March 2015.
- ¹⁷ EIA, *Annual Energy Outlook 2014*, May 7, 2014.
- ¹⁸ EIA, *Monthly Energy Review*, February 2015, Table 7.1; *Electric Power Monthly*, March 2015; U.S. EPA, *National Emissions Inventory*, Air Pollutant Emissions Trends Data, 1970-2014, Fuel Combustion Electric Utilities (for PM); and (for SO₂ and NO_x) EPA Air Markets Program data.
- ¹⁹ Energy Ventures Analysis, "Coal-Fired Power Investment in Emission Controls," October 2013.
- ²⁰ NERA analysis of U.S. EPA, "IPM Analysis of the Final Mercury and Air Toxics Standards (MATS)."
- ²¹ Clean coal technologies include several types of flue gas desulfurization systems for SO₂ control; control technologies to reduce NO_x emissions; advanced particulate matter control systems; emission control technologies to reduce mercury, non-mercury metals, and acid gas emissions; supercritical and ultrasupercritical steam generators; and integrated gasification combined cycle technology.
- ²² EIA, *Electric Power Monthly*, February 2015.
- ²³ *Ibid.*
- ²⁴ *Ibid.*
- ²⁵ *Ibid.*
- ²⁶ EIA, *International Energy Outlook 2013*.
- ²⁷ *Ibid.*; coal consumption of 925 million tons in 2013 from EIA *Quarterly Coal Report*, March 2014. (2013 is last full year available as of March 2015.)
- ²⁸ EIA, *Monthly Energy Review*, February 2015.
- ²⁹ EIA, *EnergyKids*. World Coal Association, "Uses of Coal."
- ³⁰ EIA, *Annual Coal Report: Coal Production and Number of Mines by State and Mine Type: 2013 and 2012*, January 2015; National Mining Association, *The Economic Contributions of U.S. Mining (2012)*, September 2014.
- ³¹ EIA, *Annual Coal Report: Coal Production and Number of Mines by State and Mine Type: 2013, 2012*, January 2015.
- ³² *Ibid.*
- ³³ EIA, *Short Term Energy Outlook*, March 2015.
- ³⁴ EIA, *International Energy Outlook 2013*.
- ³⁵ *Ibid.*
- ³⁶ *Ibid.*
- ³⁷ World Resources Institute, "Global Coal Risk Assessment: Data Analysis and Market Research," November 2012.
- ³⁸ EIA and the U.S. Department of Commerce, Bureau of the Census, *Monthly Report EM 545*, <http://www.eia.gov/coal/data.cfm#imports>, accessed March 19, 2015.
- ³⁹ EIA, *Short Term Energy Outlook*, March 2015.