Coal: A Key Player in Expanded U.S. Energy Exports

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The International Energy Agency predicts that the United States will be nearly energy self-sufficient by the year 2025.

- Reports of declining oil consumption
- The unlocking of natural gas resources through new technologies
- Overall increases in U.S. energy production

Coal plays a key role in the U.S. trade balance and in its future energy self-sufficiency.
The Basics: Two Types of Coal

- **Steam**
  - The majority of U.S. coal production consists of thermal or steam coal.
  - Electricity generation

- **Metallurgical**
  - Metallurgical or coking coal is primarily used in making iron and steel.
  - Nearly 70 percent of global steel production depends on metallurgical coal.
Facts About Coal You May Not Know

- Approximately 40% of world electricity generation is fueled by coal.
  - Coal has been the largest source of electricity generation for over 60 years.
- Coal is second only to oil in meeting the energy needs of the world.
- Coal is expected to remain one of the largest fuel sources in worldwide consumption for at least the next two decades.
Facts About Coal You May Not Know

- The United States holds the world's largest estimated recoverable reserves of coal.
- Coal is the only major energy source for which the United States consistently demonstrates a trade surplus.
- In 2011, our nation's coal mines produced more than a billion short tons of coal, and more than 90% of this coal was used by U.S. power plants to generate electricity.
Recent Growth in Coal Exports

- Most of the coal produced in the U.S. is consumed domestically.
- The proportion of coal production going toward exports doubled between 2009 and 2011.
  - 2009 – 5%
  - 2011 – 10%
- In 2012, the proportion of production exported stood at 12%.
Recent Growth in Coal Exports

Why the doubling from 2009 to 2011?

- Partly due to flooding in Australia, historically the world's largest coal exporter.
- Metallurgical coal dominated U.S. coal exports in 2011 with Europe the largest importer, followed by Asia.
Metallurgical Coal Exports

- Metallurgical coal exports accounted for 83% of the growth in 2010 export volumes.
- In 2011, metallurgical coal exports accounted for 77% of U.S. coal exports in terms of trade dollars and 65% in terms of volume.
World Coal Consumption

World coal consumption by region, 1980-2010

- Europe: 1.4 billion short tons
- Former Soviet Union: 0.8 billion short tons
- Asia: 1.0 billion short tons
- Africa: 0.1 billion short tons
- Central & South America: 0.0 billion short tons

North America: 0.7 billion short tons

1980


BLS
U.S. Coal Exports by Type and Region

U.S. regional coal exports by coal type, first eight months of 2012

- North America: 4 million
- Europe: 42 million
- Middle East: 5 million
- Asia: 23 million
- South and Central America: 6 million
- Africa: 3 million

Legend:
- Met
- Steam
Export Coal Prices

Price index and volumes for U.S. coal exports, January 2010–December 2012

(Index value Jan. 2010=100)

Volume of U.S. coal exports
U.S. coals and related fuels export index

Export Coal Prices

Up 51.8% during the first 6 months of 2010
5.9% increase over previous 24 months

Export Coal Prices

Price Index and Volumes for U.S. Coal Exports, Jan 2010 - Dec 2012

(Index value Jan. 2010=100)

Volume of U.S. coal exports
U.S. coals and related fuels export index
Metallurgical grade coal

71.3% increase over same period

Export Coal Prices

Price Index and Volumes for U.S. Coal Exports, Jan 2010 - Dec 2012

[Index value Jan. 2010=100]

- Volume of U.S. coal exports
- U.S. coals and related fuels export index
- Metallurgical grade coal


51.6%
68.2%
U.S. Export Coal 2010

- U.S. coal producers were able to increase both export volumes and prices in 2010.
  - Reduced world coal
  - China and India

- Asia
  - Exports up 176% from 2009
    - Metallurgical coal to China, Japan, and South Korea
    - Metallurgical coal exports accounted for 83 percent of the growth in 2010 export volumes.
Export Coal Prices

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Export Coal Prices

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Export Coal Market Factors - 2011

- The volume of U.S. coal exports was 31.3% higher than in 2010.
- Both China and India brought new coal-fired plants on-line.
- Competition from natural gas prices limited domestic demand.
- U.S. coal exporters diverted the highest proportion of coal production to exports since 1992.
U.S. Export Coal Trade Dollar Values

U.S. export coal trade dollar values in billions of dollars for Asia, Europe, and all other regions, 2002–2011

Source: U.S. Census Bureau.
From 2002 to 2011, the dollar value of exports to only China and India increased by more than $1.8 billion.

Overall, the increase was almost $15 billion dollars.

In 2011 coal was the fastest growing form of energy outside renewables.
2012 – A Reversal in Prices

Price Index and Volumes for U.S. Coal Exports, January 2010 - December 2012

(Index value Jan. 2010=100)

- Volume of U.S. coal exports
- U.S. coals and related fuels export index
- Metallurgical grade coal

U.S. Export Coal - 2012

- Declining Export Prices
  - Decreased domestic demand
  - Slowdown in economic growth in both China and India
  - Continuing weakness seen in European economies
Although U.S. coal production was down, export volumes grew to record levels.

While the U.S. was transitioning away from coal usage, certain European nations were relying more heavily on coal.

- Oil and natural gas prices still relatively strong in Europe
- Prices for carbon emissions permits in the European Union had fallen
U.S. Export Coal - 2012

- Exports to Europe and Asia were way up from 2011 levels.
  - **Europe**
    - United Kingdom
    - Italy
  - **Asia**
    - China doubled amount of coal imported from the U.S.
Recent Developments in U.S. Coal Exports

Price Index and Volumes for U.S. Coal Exports, January 2010 - July 2013

(Index value Jan. 2010=100)

- Volume of U.S. coal exports
- U.S. coals and related fuels export index
- Metallurgical grade coal export index

Recent Developments in U.S. Coal Exports
Recent Developments in U.S. Coal Exports

- U.S. coal exports set new volume record.
  - March 2013 – 13.6 million short tons
    - Old record June 2012 was nearly 0.9 million short tons less.
  - More than half the growth came from increased Asian demand.
  - Approximately 46% steam coal and 54% metallurgical coal

- Energy Information Administration is projecting a 3rd straight year of exports over 100 million short tons.
Recent Developments in U.S. Coal Exports

- Domestic use has increased.
  - Power plant inventories in April were below the monthly five-year average – burning through stockpiles.
  - Coal burn increased across much of the nation due to a winter that was colder than the previous winter.
  - Rising natural gas prices prompted some power plants to use more coal.
Recent Developments in U.S. Coal Exports

- Exports to China of U.S. metallurgical coal during the first quarter of 2013 were more than double their 2012 level.
  - Higher demand
  - Decreased supply from Mongolia to China resulting from contract disputes
Recent Developments in U.S. Coal Exports

- China, South Korea, India, and Japan
  - Metallurgical coal export growth fairly even
  - Steam coal export growth driven mostly by South Korea and China.

- Despite recent growth, U.S. coal exports remain a relatively small source of supply to the Asian coal markets.
  - 25% of all U.S. coal exports
  - <4% of Asia’s coal imports
  - Competition
EIA Projects Energy Consumption will Increase 56% by 2040
China – Coal Consumption

Coal consumption: China rivals the world
billion tons

Global consumption excluding China

China


3.8 4.3

1.5 3.8
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