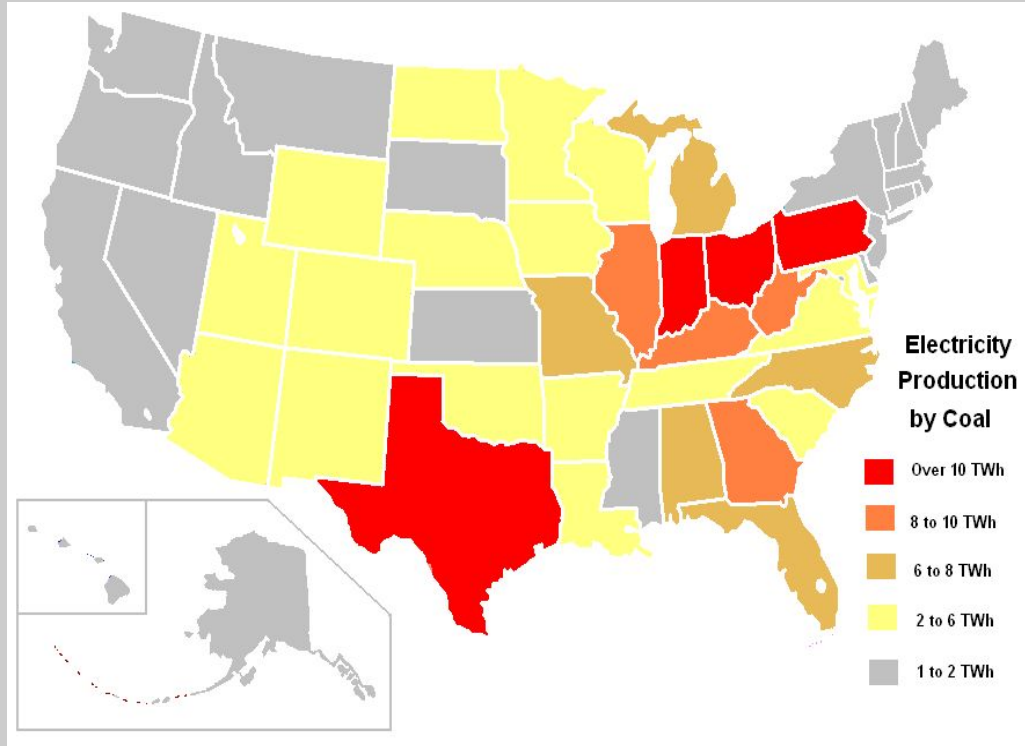




Coal Energy Presentation

By: Mirna Elaasar, Charlotte
Strasburg and Jennifer Marinov

Local Production and Use of Coal



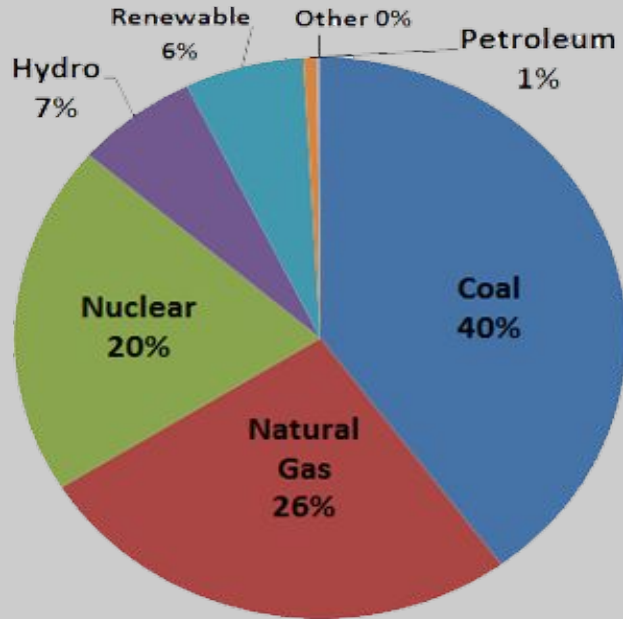
Strict emission laws, allows only few small coal-fired power plants to operate in California

National and Global Production/Use

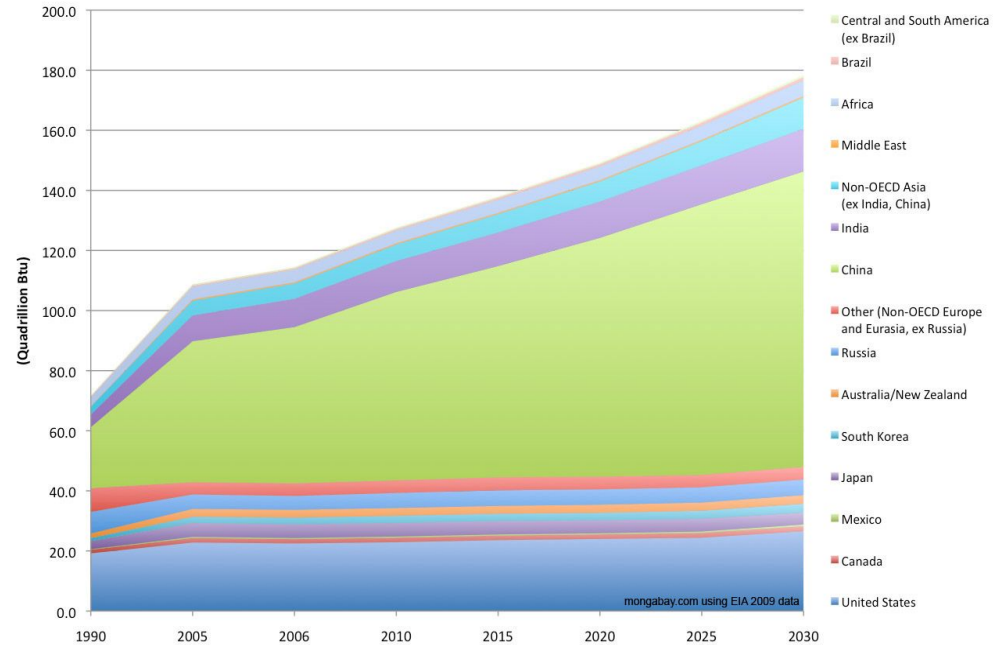
- Essential to U.S. economy
- More than $\frac{1}{4}$ of reserves are in U.S.
- U.S. Demand increase by 21% between now and 2030;
technology
 - Most from western states
- China → biggest coal produce over last three decades

National and Global Production

U.S. Power Sector Generation by Source – 2014

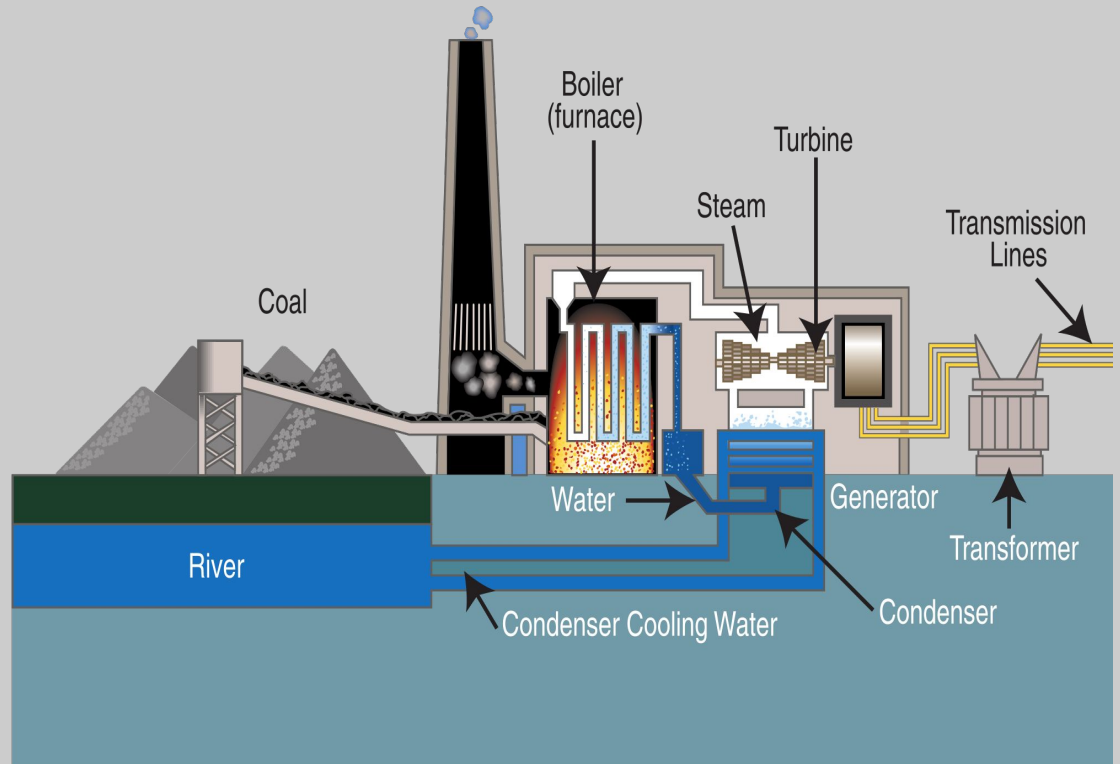


World Coal Consumption by Region, Reference Case, 1990-2030



Model

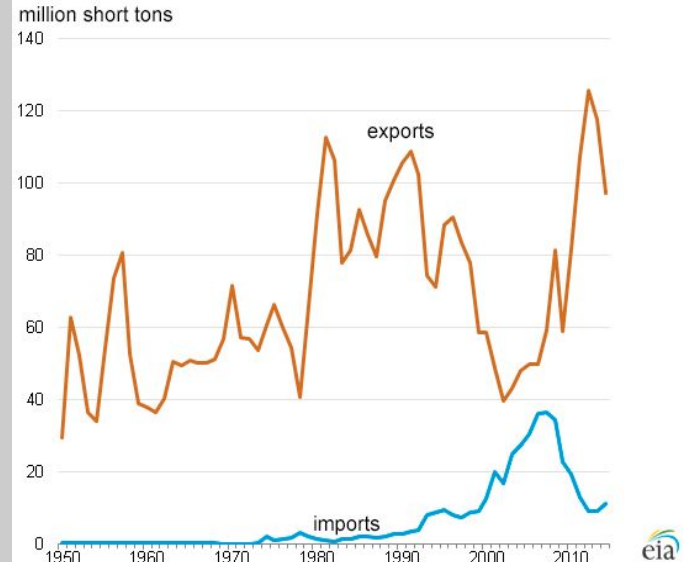
1. Gathering the coal
2. Heat is created
3. Water turns to steam
5. Steam turns back into water
6. Electricity is distributed



Imported/Exported

- The United States is a net exporter of coal
- Some U.S. power plants find it cheaper to access coal from offshore exporting countries than they from the U.S. interior

U.S. coal exports and imports, 1950–2014



Why is Coal Effective?

- Cheap
- Abundant supply
- Existing infrastructure; mature industry
- Can be burned cleaner
 - converted into liquid
 - converted into gas



Effects on Environment/Earth's Climate

- Disturbs land and modifies chemistry of rainwater runoff
- Emissions include oxides of nitrogen, sulfur dioxide etc
- Greater risk for energy-water collisions
- Temperatures too warm for cooling.
- Mining causes sediment/waste to become valley fill

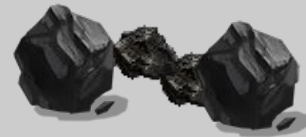


Effects on Environment



Shortcomings of Source

- Coal is a dirty energy source
- America's most expensive plants need repairing
- Burning coal wastes money
- Investing in coal does not economically make sense
- Coal emits dangerous gases for the human body

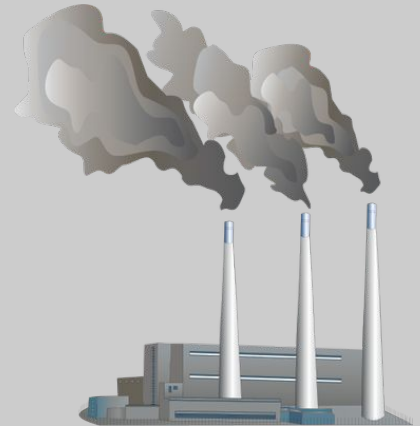


Possible Solutions

- Laws of have been put in place to limit transmissions
- Field test kits have been created to gauge the amount of arsenic and fluorine
- Development of low carbon technologies will help

Fun Facts

- Coal used to produce 40% of world's electricity
- Flammable black or brown sedimentary rock that is mostly made of organic carbon
- About 110 years left of coal in the world
- Produces 39% of world's CO₂ emissions



Bibliography

- "Coal." *Center for Climate and Energy Solutions*. Strategies for the Global Environment, n.d. Web. 04 Nov. 2015.
- "Coal." *Our Energy Sources, Coal*. The National Academy of Sciences, 2015. Web. 03 Nov. 2015.
- "How Do Coal-Fired Plants Work?" *Duke Energy*. Duke Energy Corporation, n.d. Web. 04 Nov. 2015.
- Kable. "Coal Giants: The World's Biggest Coal Producing Countries." *Mining Technology*. Kable, 4 Mar. 2014. Web. 04 Nov. 2015.
- Koch, Wendy. "U.S. Coal Imports Surge While Exports Plummet." *USA Today*. Gannet Company, 2 Aug. 2014. Web. 2 Nov. 2015.
- Open University. "Energy Resources: Coal." *Open Learn*. The Open University, 2015. Web. 1 Nov. 2015.
- Siegel, RP. "Clean Coal: Pros and Cons." *Triple Pundit People Planet Profit*. Triple Pundit, 9 Apr. 2012. Web. 04 Nov. 2015.
- "Smart Energy Solutions: Decrease Coal Use." *Union of Concerned Scientists*. Union of Concerned Scientists, n.d. Web. 04 Nov. 2015.
- "Thermal Power Stations." *BBC News*. BBC, 2014. Web. 02 Nov. 2015.
- "What Is Coal?" *What Is Coal? - Origin Energy*. Origin Energy Limited, 9 Feb. 2015. Web. 04 Nov. 2015.