2015 TLC Project Presentation

COAL COMMUNICATIONS KIT
Introduction to 2015 TLC Project

• Purpose of the Coal Communications Kit – Develop simple, useful facts and information to assist the coal industry in sharing the importance, value and benefits of coal as well as counter public misinformation.

• TLC Project Divided Three Parts
  – Development of short case studies related to key aspects of coal and coal generation
  – Development of social media tools
  – Presentation of key elements of case studies to the ACC

• Presentation to follow focuses on messages to inform the public on the benefits of coal, strides made related to emission reductions, and combating misinformation

“In my opinion, the time for debate is certainly not over because the vast majority of us don’t even know what the debate is about — let alone what has been proven and what hasn’t, let alone what action implications all of this has.”
~ Alex Epstein
Public Perception of Industry

“If somebody wants to build a coal-fired power plant, they can. It’s just that it will bankrupt them,”
~ President Barak Obama

“Coal is my worst nightmare”
~ Former Secretary of Energy Steven Chu

“We know in the U.S. that we are transitioning away from coal because coal is no longer marketable. We have cleaner natural gas, and we have opportunities for low-carbon sources like renewables and using energy efficiency to lower energy demand.” ~ EPA Administrator Gina McCarthy
The Energy Effect

- The expansion of inexpensive, reliable and sustainable energy is essential to the quality of life of the developed and undeveloped world
- Coal has an opportunity to bring the undeveloped world to the same standards we take for granted today

- Opposition views fossil fuels as an inefficient and expensive alternative to renewables
- Research proves access to reliable and inexpensive energy resource dramatically increases access to clean water, transportation, food production, technology and overall quality of life
Energy Affordability

- Elimination of coal and other fossil fuels from the US energy mix will have a significant financial impact on all Americans but the lowest income Americans will be impacted the most.

- In Europe and the European Union electricity prices continue to impact their economy.

- The policies of the Obama Administration are in sync with European policies.

![2013 U.S. Average Electricity Retail Prices](image)

![Electricity Prices Europe 2014](image)
Grid Reliability

- Reliable bulk power grid provides power despite various disturbances
- Gas, Solar, and Wind serve fuel in real-time
  - These fuel types are restricted by daily intermittent supply and weather conditions
- NERC divides reliability into two categories
  - Adequacy
  - Security
- Coal provides secure fuel stored on the power plant site
  - Disruptions due to weather or transportation issues are reduced with long term fuel storage on-site
- Fuel diversity is pivotal to maintain grid reliability and coal will remain the critical ingredient
Energy Reality

- Coal is the most abundant fossil fuel on earth.
- Improved quality of life, clean drinking water and rising GDP have occurred over the last 200 years as a direct benefit of the use of fossil fuels.
- Access to health services, food production, transportation, employment and technology.
- Improve living conditions and life expectancy.
- Reliability is a key aspect of providing adequate electric supply.
- Fossil fuels, hydropower and nuclear provide energy around the clock.
- Renewables require backup by other sources as fossil fuels.
- Are renewable energy resources up to the task as a reliable and inexpensive means of generation?
Resource Depletion Vs. Resource Creation

“We will run out of Coal Soon”

- It is not possible to know exactly how much coal exists because it is buried underground.
- Reserve estimate is based on practical amount of what is easily extracted and feasible through current conventional methods.
- Neglects technologies that are continually being developed.

“We are inventors”

- New technologies are continually being developed to access and retrieve resources from the earth that previously were either financially or geologically difficult to obtain.
- Shifting from vertical drilling to horizontal drilling, gas production were quadrupled.
- In March 2014, scientists used data from oil and gas exploration to discover huge coal deposits under the North Sea that could power Britain for centuries.
“Renewables can meet the world energy demand without the need for coal”

Renewables

- Unlike coal plants that produce large supply of power, renewable sources can’t produce that much of energy in short span of time
- Large areas of land is needed to produce massive amount of energy on large scale
- Supply do not necessarily mirrors areas of demand (where the wind blows and the sun shines) – connection issues
- Intermittent availability and lack of storage complicate using them on a large scale

Coal

- Abundant coal reserves available
  Known global reserves of 860+ billion tons
- Versatile forms of generation and industrial uses
- Unlike wind, solar or hydro, coal generation does not dependent on existing climatic conditions
- The US and world transportation infrastructure (rail, barge etc.) allows coal to be a reliable and economic fuel source
Using surface/mountaintop removal as a form of mining, you are destroying the land

- Since 1977, federal law has required the restoring of landscape to the original or better contour, re-vegetating the area with native plants, and monitoring the numbers of wildlife that inhabit the reclaimed lands.
- Reclaimed sites are returned to many productive uses, ranging from recreation areas, parks, farms, golf courses and housing developments to wildlife areas and wetlands.
Mining Impact – Surface/Mountain top

- Surface/Mountaintop mining is cost effective, provides a high recovery rate, produces thousands of jobs directly and indirectly, adds tax payments to governments, and is the safest method of mining.

- These types of mining methods make up about 70% of U.S. coal

- Surface mining operations alone provide enough energy to power more than 25 million American homes

- The National Mining Association estimates the direct value of surface mining activity at more than $5 billion

- For every coal mining job, an additional 3.5 jobs are created elsewhere in the economy
EPA Regulations of Airborne Emissions

• The U.S. Environmental Protection Agency (EPA) regulations
• Emission guidelines for states to follow in developing plans to reduce greenhouse gas emissions from fossil fuel-fired electric generation units (EGU)
• Standards of Performance for Greenhouse Gas Emissions for New, Modified and Reconstructed sources
  – Clean Act (CAA) section 111 (b) establish standards for CO2 emission rates for new and modified EGUs.
• Carbon Pollution Emission Guidelines for Existing Stationary Sources
  – Clean Air Act (CAA) section 111 (d) establish requirement for each state for performance for carbon dioxide (CO2) for existing fossil fuel fired electric generating units (EGUs)
Clean Power Plan

- The Clean Power Plan has one main objective, to reduce carbon dioxide.
- CO2 is being reduced in three different ways
  - Make coal-fired power plants more efficient
  - Shift existing plants to natural gas combined cycle plant
  - Increase use more renewable power sources.
- The CAA incentivizes renewable energy and demand size energy efficiency.
- This rule discourages the use of natural gas as an alternative to meet the stringent 32% reduction target of 2030.
- The rule is designed to target zero carbon renewable energy and energy efficiency.
- Per the EPA ruling, states are allowed to create their own plans to meet the new requirement and have until 2016 to submit these plans with final version due by 2018.
- Each state has a state-specific carbon pollution reduction goal.
- Compliance begins in 2022, though EPA has instituted a new “Clean Energy Incentive Program” that rewards states with emissions credits for taking actions prior to 2022.
Clean Power Plan Timeline

- **Summer 2015**
  - August 3, 2015 - Final Clean Power Plan

- **1 Year**
  - September 6, 2016 - States make initial submittal with extension request or submit Final Plan

- **3 Years**
  - September 6, 2018 - States with extensions submit Final Plan

- **7 Years**
  - January 1, 2022 - Compliance period begins

- **15 Years**
  - January 1, 2030 - CO₂ Emission Goals met
International Trade

“Coal Exports from the PRB Means More Emissions”

- Developing countries like China and India will be burning a lot of coal regardless of where it comes from.
- U.S. coal exports have a negligible environmental impact because Asian power plants will continue to burn coal regardless of what U.S. policymakers do.
- U.S. coal exports have the potential to displace dirtier coal from countries such as Indonesia and Russia.
- Exporting U.S. coal to power plants in South Korea could lead to a 21 percent drop in greenhouse gas emissions due to their newer efficient power plants – according to Duke University study.
- By 2040, global trade in coal will grow by 40% due to rising coal imports in China and India.
- International trade will play an increasingly important role in world energy economics since many countries are not energy self sufficient.
- International coal trade brings affordable energy to countries who need it for economic development and to improve their standard of living.
Bad Pollution: Airborne Emissions in China

• China added 39 giga watts of coal fired generation in 2014
  – Represents 1,000 megawatt units every four weeks
• Projecting to add 600 megawatt power plant every 10 days for the next 10 years.
• Ultra-Supercritical boilers-lower emissions, less solid waste to dispose of, reduced water use and lower operating cost
• China is refusing to give up their coal source of reliable generation and is able to meet their emission goals using newer, cleaner coal technologies.
Carbon Dioxide C02

• Carbon Dioxide is sold as the driver for global climate warming
• Research shows a slight temperature increase of 0.3°C not 0.6°C that was predicted by 2013.
• Temperatures of the Medieval period during the 1400’s were warmer than our experience today.
• Clean Power Plan section 111 regulation reduces carbon dioxide emissions.
• Main stream marketing to Increase renewable energy to reduce carbon dioxide.
• Benefits associated with climate change.
  – Increased carbon dioxide is proven to provide more food and medicine through increased plant growth
  – decreased deaths from natural disasters
This chart is meant to illustrate that temperatures across the globe have increased exponentially in the last 100 years.
Climate Change and CO2

- Only 13% of the total potential temperature change from carbon dioxide emissions can be mitigated with future de-carbonization policies.
- 24 billion dollars of tax payer money was spent on renewable energy initiatives in 2011.
Thanks to technology, since 1970 coal used for U.S. power rose 170% while key emission rates decreased 90%

Today’s coal plants using advanced technologies provides Reliable, Affordable and Clean power

Airborne Emissions Progress
Coal Ash, Water Impact & Related EPA

• Coal ash – solid by-product from the combustion of coal. Used in the production of concrete products, structural fill.

• Coal ash is NOT a hazardous waste – US EPA. Chemically similar to common soils.


• CCR sets guidelines for state to follow and enforce storage and water monitoring. Does not make it easier to market ash.
Closing

• Grid reliability is all about fuel diversity. Coal is a vital component of our nation’s generation mix to maintain reliable power system as it represents 39%.
• Clean coal technologies is the answer to the maintaining cheap, reliable energy in the US and abroad. China is leading the initiative using ultra supercritical technology.
• Clean Power Plan will reduce 500,000 American jobs while only creating approximately 273,000 leaving a projected loss of 223,000 jobs.
• 45.5 million Americans lived in poverty according to the 2013 U.S. Census Bureau.
• Energy affordability now becomes energy poverty created by increased energy bills for households and business in coal powered states.
• CO2 should not be confused with criteria air pollutants or HAP’s.
  – These emissions have decreased by approximately 90% while coal use has increased by more than 170% since the 1970s.
• What constitutes “climate leadership” and at what cost?