



**United States Energy Association  
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The World Economy Rebounds with Coal  
Hal Quinn, President & CEO, National Mining Association**

Thank you, Sheila for that introduction, and Barry, thank you for inviting me back to the Annual State of the Energy Industry Forum. Good afternoon everyone.

At this forum last year, we discussed the hazard of making energy forecasts considering the many natural, economic, technological and political variables in play.

However, that did not deter me last year from making the bold observation that coal would surpass oil as the world's primary energy source in 2020, or soon thereafter. Well, today I must admit error. It now appears, according to Wood McKenzie, coal will surpass oil as the world's largest energy source by 2015, if not before.

The International Energy Administration forecasts 2017 as the tipping point, and pegs half of all global energy growth over the past decade to coal. But let's not focus upon the slight difference between these forecasts and instead appreciate the central point of both: the importance of coal in the global energy mix is the highest since 1971.

So, what explains coal's elevation to the global energy throne? Frankly, the fundamental driver we explored last year—namely the steady march of the developing world toward greater energy access—is the same. However, the scale and pace of that march is stunning and without precedent.

Consider that in the space of the last 25 years, China's GDP has grown by a factor of 10. It took Britain 70 years after 1830 to grow by a factor of 4. The developing countries as a whole constitute more than three quarters of global economic growth. By 2050 they should account for almost 80 percent of global GDP.

In short, emerging economies are following the industrialization and urbanization path paved by the West—only faster. And this is no short-term play. Even though developing economies are already responsible for three-quarters of the growth in commodity and energy demand, their per capita metals and energy intensities remain just a fraction of developed economies.

Let me start today with the global context for coal. Then I will describe how U.S. coal fits into the larger framework.

## **Global Coal**

The ongoing build out of humanity will occur for the most part in new and existing urban centers of developing countries. In 2010, China's National Population and Family Planning Commission forecast that half the population would live in urban areas in 2015. China actually passed that threshold in 2011.

China already has more than 160 cities with populations exceeding a million people. With almost an equal number of cities with between a half and one million inhabitants, China is on pace to reach an urban billion by 2030. That is a lot of people plugging into the grid and a tremendous amount of infrastructure that needs to be built to support a massive migration from the countryside to the cities. An infrastructure and lifestyle built and powered by coal for steel, cement and electricity.

Ironically, focusing on the China story actually minimizes the growing coal demand elsewhere in the world. As much as we marvel at the pace of urbanization in China, the growth rates for cities in other countries are equally impressive.

In India, where coal now generates almost 65 percent of electricity – coal will likely generate 80 percent of India's electricity as the country seeks to double its power generation capacity within the next decade.

The reason isn't hard to find. Despite recent investments, 40 percent of Indians today still lack access to the electric grid. Last year's power failure that deprived a population twice the size of ours of electricity for two whole weeks is a graphic reminder of the remaining need. That's, perhaps, about 600 million votes for new coal generation in India.

India's per capita electricity consumption today is only 700 kilowatt hours per year—a mere 10 percent of the average in the developed world. Just bringing the city of Mumbai to our level of cooling would equal the air conditioning needs of the entire U.S. With India on course to become the second largest coal consumer and the largest coal importer, you can begin to appreciate the enormous opportunities for coal beyond even China.

For the developing world, coal is the driving force behind the world's most transformative action---lifting humanity out of poverty.

All of this explains why emerging economies dominate headlines and energy demand. But the increasing appetite for coal is not confined to the developing world. Japan is expected to increase its coal imports to replace part of its nuclear capacity.

Germany is also turning to more coal, in part to offset abandonment of part of its nuclear fleet but also in response to expensive gas across Europe—three times more expensive than U.S. gas last summer.

Earlier this month, Deutsche Bank estimated coal prices would have to rise by \$80 a ton for gas to become competitive with coal. According to Bloomberg New Energy Finance, German utilities this past November were set to lose on average more than \$15 per megawatt hour when they burned gas, but earn almost \$19 when they used coal. This may explain why another 16 GW of new coal power will be coming on line in Europe over the next several years.

The emerging world's growing coal appetite and the coal renaissance in Europe all point to 1.2 billion tons of coal demand growth within five years:

- An additional 200 million tons of metallurgical coal for steel production to support tremendous infrastructure requirements.
- About 1 billion tons of additional thermal coal to feed a 395 GW build-out of new coal generation.

## **U. S. Coal**

Let's now turn to the U.S.

The U.S. coal industry will be adjusting, restructuring and realigning over the next several years. All of this is dictated by global trends and domestic realities.

On the export side of the coal franchise, 124 million tons shipped abroad last year is twice the level exported three years ago. And the planned expansion of U.S. coal export infrastructure will support doubling that tonnage again. The U.S. coal industry is happy to contribute to the president's National Export Initiative by:

- Adding an \$18 billion positive contribution to our balance of trade;
- Sustaining and creating high-wage jobs. According to the International Trade Administration, every \$1 billion in exports supports more than 5,000 jobs—so coal exports are sustaining 90,000 jobs and poised to increase that substantially over the next 5 years; and
- Powering the growth of the developing world, raising their standard of living and per capita incomes—in turn, creating new and stronger markets for all U.S. products and services.

Unlike the current debate over natural gas exports, there is no need for our domestic coal customers to fret about growing exports. We have the most of what the rest of the world wants---almost one third of global coal reserves. If I was unsuccessful last year, let me again spike the myth that the U.S. is the Saudi Arabia of coal. The "Treasure State" of Montana alone has more coal than Saudi Arabia has oil. U.S. proven coal reserves are equal to the proven oil of the entire Middle East, Russia and Africa. With

250 years of proven reserves, we have plenty to go around—for us and global consumers. End of story.

Coal exports will not entirely off-set the reductions in coal consumption here in the U.S. We have experienced a 200 million ton drop-off in the utility market since 2008 as three factors converged:

- A deep recession and balky recovery that has reduced electricity demand;
- Persistent and unsustainably low natural gas prices that have cut into coal's share, as coal and gas are the only fuels that actually compete on the grid in terms of economic dispatch; and
- Poor public policies that have accelerated retirements of coal power plants and pose threats to system diversity, reliability and costs.

We expect the first two economic factors to self-correct; and we will strive for a change in policy before U.S. businesses and consumers experience the full consequences that inevitably follow bad policy.

Looking beyond today's headlines, we believe coal's resilience in the U.S. utility market will be underpinned by two factors. First, the recent and remaining build-out of 17 GW of new coal will be comprised of advanced high-efficiency units that will pay both economic and environmental dividends through low cost stable power and lower emissions. Recent additions to the fleet include:

- Prairie State's Energy Campus (1,600 MW) super-critical coal plant that became fully operational last year.
- AEP's [600 MW] ultra-supercritical coal plant in Arkansas came on line last month
- Duke's Cliffside new unit 6 (825 MW) facility came into service at year end.

Following close behind:

- Duke Energy's (618 MW) integrated gas combined cycle (IGCC) plant in Edwardsport, Indiana scheduled to come on line in the middle of this year
- Mississippi Power's (582 MW) IGCC plant in Kemper County—with CO2 emissions 65 percent lower than older plants—is on track to achieve commercial operation mid-2014
- Power4Georgian's (850 MW) super critical pulverized coal plant in Washington County, Ga. slated to start construction in April of this year.

Second, the remaining fleet of base load coal plants will be on average larger, more efficient and running at higher capacity factors. When we view the landscape of coal plant retirements forced by a combination of low gas prices and EPA policies, most of them are on average older, smaller and less efficient. A post-2018 coal fleet comprised of approximately 280 GW of larger more efficient plants operating at pre-recession capacity factors of 72 percent can recover at least 100 million tons of lost coal consumption.

The realignment of coal will be broad, but its recovery uneven. As natural gas prices increase incrementally, the benefits for coal will be seen first in the Powder River Basin as gas passes \$2.75 mmBtu, the Illinois Basin at a range of \$3.25-\$3.50. Central Appalachian will require north of \$4.50 to experience relief. While Central Appalachian coal faces the stiffest headwinds in the domestic utility market, it will remain a strong player in domestic steel production and in the global metallurgical and thermal export markets.

This is scant consolation for the 6,000 coal miners who have lost their jobs since last April, and it is a severe blow to their communities that depend upon those high-wage jobs to support families and build businesses.

### **Forecasts and Public Policy**

This brings me to my final point. Recent history should remind us to remain humble when making big bets on future outcomes. The Fed did not see the collapse of the housing market. Nor, apparently, did Wall Street anticipate the financial industry's meltdown. Energy experts may not see tomorrow's energy picture any more clearly.

It wasn't too long ago that investors poured money into natural gas plants only to regret it when prices shot up from \$1.26 to \$10.79. Experts did envision strong natural gas exports—only not from the U.S.

Now we are debating whether to share our nation's natural gas wealth globally. Does this debate signal a "no confidence" vote in supply and price forecasts that have served as the basis for so many recent policy actions? After rolling up potential gas demand for a manufacturing renaissance, a transportation fleet transformation and electric power, one might reasonably ask whether so many saddle bags will buckle the knees of the natural gas mule. Before we see new LNG export terminals are built, we may confront an emerging gap between the net domestic supply increment and growing demand for just the gas that will be necessary to replace the electricity generation from retiring coal plants.

To be clear, this is not a suggestion that we build a natural gas island here in the U.S. It would be counter-productive and short sighted to deny ourselves and the world the benefits of our good fortune. Rather, businesses and policy makers betting on stable and competitively priced gas should consider the ultimate hedge—policies that ensure

we retain our historic advantage through a balanced and diverse energy mix—including coal with its proven record as the reliable and stable backbone for electricity generation.

Let me be more specific. We are not well served by policies such as EPA's proposed greenhouse gas standards for new coal plants. This proposal is a textbook example of making a prediction and then ensuring its outcome by policy. EPA forecasts that no new coal plants would be built without carbon capture and sequestration and then proposes a standard that can only be achieved by a plant with CCS. Hence, making a prediction is easy when you believe you can dictate the future.

Now, if we adopt policies that deliberately halt building new advanced coal plants in the U.S. today, we slow development and deployment of cleaner coal technologies around the world tomorrow. This represents a failure of ambition and a failure of policy.

The rest of the world is growing with coal. If we intend to compete with the fastest growing economies that will comprise 80 percent of global GDP in the not too distant future, we better keep all of our energy players on the field.