

GLOBAL WARMING DIKTAT: YES, HE CAN

During Obama's first term, the Administration aggressively pushed for "cap and trade" legislation to control greenhouse gas (GHG) emissions. Under this pressure, the Democratic House passed "Waxman-Markey" in 2009, but it died in the Senate when coal state Democrats supported a Republican-led filibuster. Many analysts have assumed that the issue was dead, especially after Republicans gained control of the House in the 2010 elections. This assumption is wrong, and if investors do not quickly assume the opposite, they will learn the hard way the wisdom of Will Rogers' aphorism: "It ain't what a man does not know that gets him in trouble. It is what he knows that ain't so."

Obama will get his way on mandatory GHG emissions in his second term. He will use EPA's regulatory powers to do so, and there is nothing Republicans can do to stop him. He has already started with little attention. Before Obama leaves office, EPA unilaterally will require electric utilities to retire 25 percent of existing coal-fired generation which will be replaced mostly by green field natural gas plants and associated newly-built natural gas pipelines. The added cost: \$180 billion by 2020. This is good news for engineering and construction companies, natural gas producers, and pipeline companies. It is bad news for coal companies, railroads which rely on coal shipments for 20 percent of their revenues, and coal-fired utilities

The Supreme Court created this opportunity for Obama. On April 2, 2007, it ruled 5-4 in *Massachusetts v EPA* that the Environment Protection Agency must regulate greenhouse gases under the Clean Air Act if it found these emissions dangerous to human health. Under the Bush Administration, the EPA did not issue a greenhouse gas (GHG) "endangerment finding." However, Obama's EPA did, so it is therefore legally required to analyze the problem and to implement a cost-effective long-term program solution. It has already started, drawing little attention, following the timetable below:

- On December 15, 2009, EPA finalized an endangerment finding for greenhouse gas emissions from new motor vehicles, triggering the requirement that it follow up with a rule to limit them.
- On May 7, 2010, EPA issued an unprecedented joint rule with the National Highway Transportation Safety Administration. NHTSA raises fuel efficiency standards on cars while the EPA requires autos in 2012 to emit no more than 263 grams of CO₂ gas equivalent per mile, falling to 225 in 2016 ([2012-2016 EPA GHG rules on cars](#)).
- On September 15, 2011, EPA and NHTSA issue final GHG emission rules and fuel economy standards for medium and heavy duty truck for model years 2014-2016.
- On March 27, 2012, EPA issues proposed emissions requirements for newly-built electric utilities. No plant with capacity greater than 25 megawatts would be built unless it emit 1,000 pounds of CO₂ or less per megawatt-hour ([new power plant EPA GHG rules](#)).
- On October 15, 2012, EPA and NHTSA finalize rules for GHG emissions and fuel efficiency for passenger cars for model years 2017-2021, falling from 212 to 143 grams per mile ([2017-2025 EPA GHG rules on cars](#)).

Step One: Tougher Rules for New Emitters

EPA focused first on new motor vehicles and new electric utilities because vehicles and power plants generate 58 percent of U.S. GHG emissions. If new vehicles and utilities entering service are cleaner than the ones they replace, then EPA can "bend the curve" over time.

Emissions (Teragrams of CO₂ Equivalent)	2005	2007	2009	2011	Percent Change 2005-2011
Total	7,195.3	7,263.2	6,586.6	6,702.3	-6.9%
Carbon Dioxide	6,109.3	6,128.6	5,517.9	5,612.9	-8.1%
Fossil Fuel Combustion	5,748.7	5,767.7	5,222.4	5,277.2	-8.2%
Electricity Generation	2,402.1	2,412.8	2,146.4	2,158.5	-10.1%
Transportation	1,891.7	1,904.7	1,749.2	1,745.0	-7.8%
Industrial	823.4	844.4	722.6	773.2	-6.1%
Residential	357.9	341.6	337.0	328.8	-8.1%
Commercial	223.5	218.9	223.4	222.1	-0.6%
Other	360.6	360.9	295.5	335.7	-6.9%
Methane	593.6	618.6	603.8	587.2	-1.1%
Other GHGs	492.4	516.1	464.9	502.3	2.0%

Source: [EPA Greenhouse Gas Emissions](#)

Step Two: Obama Turns Up the Heat on Coal-Fired Electric Utilities

President Obama, however, is in a hurry. According to scientists he respects, the planet cannot wait. Previously, he has confirmed a goal to reduce by 2020 U.S. GHG emissions to 17 percent below the amount released in 2005. He wrote a [memorandum](#) to the EPA on June 25, 2013 tasking EPA to finalize GHG standards for *future* electric utilities *and* to control CO₂ emissions from *existing* power plants by June 1, 2015.

Taken together, these two actions are decisive developments for coal-fired utilities. Somehow, the U.S. will need to lower its GHG emissions by another 10 percent in 7 years. Perhaps 5 percent will come from more fuel-efficient motor vehicles and industrial sources. This places coal-fired utilities in the EPA's crosshairs because they are highly concentrated CO₂ emitters, releasing 30 percent of America's GHG's annually. There is no choice; coal-fired plants will have to be replaced by much less CO₂ emission-intensive natural gas-fired plants or, where realistic, by virtually CO₂ emissions-free nuclear power, wind, and hydro power, or by demand reduction.

Math is math. If *one-sixth* of coal-fired production ceases and is replaced by emissions-free generation, then GHG emissions would fall by the required 5 percent. Alternatively, *one-third* of coal-fired production must cease to hit the 5 percent target if utilities burn natural gas instead, because natural gas produces half of GHG's per kilowatt hour that coal does. Renewable generation will grow through 2020 due to state mandates for "clean energy." *Consequently, expect coal-fired generation to fall by another 23 to 25 percent by 2020.* It has already fallen sharply, from 50 percent to 37 of generation between 2005 and 2012, according to the Energy Information Agency ([falling coal reliance](#)).

Step Three: Turn Up the Natural Gas

So far, much of the shift from coal to gas has taken place with minimal consequence to utilities; many had excess gas capacity that they brought on stream while ramping down production at coal-fired plants. This "free lunch" period will be ending. Many utilities with coal-fired generation will be scrambling between now and 2020 to build new natural gas systems and retire coal-fired systems throughout this decade as EPA moves forward -- at a stunning cost. In a July 2010 study for the American Public Power Association, the [Aspen Environmental Group](#) estimated required spending at \$735.5 billion, if *all* 335,000 MW of coal-burning capacity were replaced by gas in order to reduce carbon dioxide emissions! Replacing coal-fired plants with combined-cycle natural gas plants at a cost of roughly \$1 million per MW, alone would require \$335 billion in capital spending.

Separately, the pipeline infrastructure to collect and transmit gas from wellheads to utilities would cost \$388 billion. Finally, natural gas storage to provide flexibility and maintain reliability at electric utilities would cost an additional \$12.5 billion. **CAN expects one-fourth of existing coal-fired production to be retired by 2020, creating a new \$180 billion opportunity over the next few years for engineering and construction companies.** Companies that build utilities face an extraordinary growth opportunity because electricity demand typically grows slowly, at 1.2 percent per year ([Dept of Energy, Energy Information Agency](#)). The beneficiary industries include engineering and construction companies and pipeline and storage operators.

CAN estimates that the companies in Table 1 and Table 2 are among the most favorably exposed to the ramp-up in spending by utilities in response to carbon dioxide emissions standards.

Table 1: E&C companies with significant exposure to the power market

Company/Ticker	Market Cap (\$)	Power mkt % of revenues	Description
Argan Inc., AGX	\$236 mil	94	Designs and builds power plants
Matrix Service Co/MTRX	\$428 mil	20	E&C, fabrication, and maintenance
Babcock & Wilcox (BWC)	\$3.5 bn	54	E&C, and boilers
Foster Wheeler (FWLT)	\$2.1 bn	52*	E&C, project management, power equipment supplier for oil/gas industries
Mastec, Inc. (MTZ)	\$2.6 bn	52	Upgrades utility infrastructure
Quanta Services (PWR)	\$5.7 bn	71	Largest U.S. transmission/distribution contractor; largest pipeline contractor in North America
General Electric (GE)	\$251.8 bn	19*	Includes water and international

*Includes international

The Aspen Environmental Group study also projects that natural gas demand would grow by 50 percent if all coal-fired utilities were replaced by those burning natural gas. CAN therefore anticipates that a 25 percent decline in coal-fired generation by 2020 will spark a 10 percent increase in national natural gas usage. These companies seem like good candidates to move the added gas:

Table 2: Gas Pipeline Distribution and Storage Companies

Company/Ticker	Mkt. Cap (\$)	Description
Kinder Morgan (KMI)	40 bn	>75,000 miles of pipelines; largest transporter of natural gas; 180 terminals
Kinder Morgan Energy (KMP)	35.2 bn	Owns or has interests in 51K miles of pipelines
Spectra Energy (SE)	24.3 bn	19,000 miles of transmission capacity; 305 bn cubic feet of storage
Williams Partners (WPZ)	21.9 bn	13,700 miles of pipelines; gathers, processes, transports
Energy Transfer Partners (ETP)	19 bn	47,000 miles of pipelines
El Paso Pipeline (EPB)	9.6 bn	Pipelines and storage
PAA Natural Gas Storage (PNG)	1.6 bn	Provides gas storage to electric utilities

Table 3 lists utilities with above average coal-fired production that face higher risk:

Table 3: Major Utilities With a Large Percentage of Coal-Fired Generation:

Company	Ticker	Coal as Percentage of all Fuel Sources	10-K Link	Page
Allete	ALE	92%	Allete SEC Filing	28
American Electric Power*	AEP	71%	American Electric Power SEC Filing	13
Ameren	AEE	65%	Ameren SEC Filing	17
Wisconsin Energy	WEC	56%	Wisconsin SEC Filing	12
Duke	DUK	46%	Duke SEC Filing	12
DTE Energy	DTE	44%	DTE Website	

*Includes Coal and lignite

"Working in a Coal Mine, Going Down, Down"

Projections for long-term domestic coal demand already were declining, well before the EPA took action to rein in GHG emissions from power plants, as utilities switch from coal to natural gas in response to \$4 natural gas prices. We project that domestic demand for coal will fall from 1,002 million short tons in 2011 to 660 million short tons in 2020. This could be especially troublesome for the highest leveraged coal companies with primary exposure in the eastern United States. This region has been mined for over a century, and eastern coal veins are thinning. Eastern coal also contains high concentrations of mercury, and gives off large amounts of SO₂ and NO_x when burned. These pollutants already have been targeted for aggressive EPA action, and remediation will be costly. James River (**JRCC**), Oxford Resource (**OXF**), Westmoreland Coal (**WLB**), Alpha Natural Resources (**ANR**), and Arch Coal (**AC**) accordingly are in trouble -- before the EPA moves on utility GHG emissions. CAN recommends that investors sell their holdings.

If investors insist on playing in the coal field, they should seek exposure to coal mined in Wyoming and Montana, which produces much lower mercury, sulphur, and nitrous oxide pollutants, or has significant overseas mining operations selling to Asia. These companies include Peabody Coal (**BTU**), Consolidated Energy (**CNX**), PVR Partners (**PVR**), Walter Energy (**WLT**), and Suncoke Energy (**SXC**).

The Railroad Blues

Coal is a major cargo for many railroads. Sharply falling coal ton-miles continues to be bad news for this industry, with volumes down by 10-20 percent in the first quarter of 2013 for many railroad operators. Coal volumes appear to be stabilizing recently, however, the decline will resume when coal plants are retired, due to EPA actions, and new natural gas plants come on line later in the decade. Falling coal consumption by utilities will effect negatively Norfolk Southern (NSU) , Union Pacific (UNP), and CSX Corporation (CSX), whose revenues still are skewed towards coal hauling. There are less risky ways to invest in railroads. Coal shipments account for less than 10 percent of revenues at Kansas City Southern (KSU) and Genesee Wyoming (GWR), both of which have significant international operations.

Table 4: Major Railroad Exposure to Coal Shipments

Company	Coal shipments % of Revenues	Comments
Norfolk Southern (NSU)	23.1%	Significant exposure to Appalachian coal
Union Pacific (UNP)	17.7%	Western coal exposure mitigates somewhat
CSX Corp (CSX)	16.5%	Est. U.S. coal exposure; also exports coal

The EPA Will Win the War on Coal

EPA releases binding rules on GHG power plant emissions in 23 months, so analysts may wonder how dependent the grim coal forecast is on the next presidential election. Would a GOP president elected in 2016 change the coal outlook materially? Probably not. While a President Rubio might task EPA to reverse the Obama Administration's GHG emissions regulations, any GOP president is unlikely to reverse regulations that soon will be binding on reducing SO₂, NO_x, and mercury emissions, and responsibility for burying coal ash. The cost-benefit analysis of the impact on human health of these regulations is robust and therefore legally required. These separate rule makings will be enough to convince many coal-fired utilities that the EPA means business and they must build new green field gas plants.

One study that shows the impact of these separate challenges to coal, [coal's other problems](#) (see page 5), estimates that EPA's GHG program doubles the pressure to convert. This is not a good time to be a coal miner's daughter -- or investor.

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