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CORNHUSKER ECONOMICS

EPA to Regulate Power Plant Carbon Emissions

In 2013, President Obama directed the Environmental Protection Agency (EPA) to begin developing rules limiting carbon emissions from coal and natural gas power plants. Proposed EPA rules to limit carbon emissions from *existing* power plants are due in June 2014, with final rules issued a year later. At the same time, EPA will issue proposed guidelines for states to regulate carbon emissions from existing power plants, with final guidelines issued in 2015. State power plant carbon rules will be due in 2016. This ambitious schedule, if achieved, will significantly reduce United States greenhouse gas (GHG) emissions. This newsletter examines the proposed utility carbon rules and explores how the state of Nebraska might comply with them.

Background. Limiting GHG emissions has been a controversial political issue in the U.S. for almost two decades. In 1997, the U.S. refused to join the rest of the industrialized world in reducing GHG emissions when the Senate unanimously opposed ratifying the Kyoto Climate Treaty. Treaty opponents contended that because it would not impose carbon limits on India or China, the treaty would give them an unfair economic advantage in international trade.

In 2007, the U.S. Supreme Court ruled 5-4 that GHG emissions legally constituted “air pollutants” under the Federal Clean Air Act (CAA). This historic decision broke the U.S. climate policy logjam, establishing that the EPA is legally authorized to regulate motor vehicle GHG emissions. A comprehensive cap-and-trade bill to more broadly limit U.S. GHG emissions was adopted in the House of Representatives in 2009, but died in the Senate. This meant any federal GHG emission limits would likely come from the EPA acting through the CAA.

In 2011, the U.S. Supreme Court ruled unanimously that the CAA authorized the EPA to regulate GHG

Market Report	Yr Ago	4 Wks Ago	3/28/14
<u>Livestock and Products,</u>			
<u>Weekly Average</u>			
Nebraska Slaughter Steers, 35-65% Choice, Live Weight.....	\$128.58	\$151.27	\$153.81
Nebraska Feeder Steers, Med. & Large Frame, 550-600 lb.....	159.12	222.50	223.70
Nebraska Feeder Steers, Med. & Large Frame 750-800 lb.....	139.74	176.11	182.59
Choice Boxed Beef, 600-750 lb. Carcass.....	189.82	219.60	239.57
Western Corn Belt Base Hog Price Carcass, Negotiated.....	77.03	100.63	129.57
Pork Carcass Cutout, 185 lb. Carcass, 51-52% Lean.....	77.43	100.75	130.49
Slaughter Lambs, Ch. & Pr., Heavy, Woolled, South Dakota, Direct.....	99.25	159.25	158.75
National Carcass Lamb Cutout, FOB.....	289.51	366.03	374.28
<u>Crops,</u>			
<u>Daily Spot Prices</u>			
Wheat, No. 1, H.W. Imperial, bu.....	6.59	6.36	7.06
Corn, No. 2, Yellow Nebraska City, bu.....	6.54	4.41	4.62
Soybeans, No. 1, Yellow Nebraska City, bu.....	14.13	13.85	14.17
Grain Sorghum, No. 2, Yellow Dorchester, cwt.....	11.07	7.73	8.07
Oats, No. 2, Heavy Minneapolis, MN , bu.....	4.06	4.97	4.59
<u>Feed</u>			
Alfalfa, Large Square Bales, Good to Premium, RFV 160-185 Northeast Nebraska, ton.....	+	162.50	195.00
Alfalfa, Large Rounds, Good Platte Valley, ton.....	227.50	127.50	127.50
Grass Hay, Large Rounds, Good Nebraska, ton.....	217.50	107.50	107.50
Dried Distillers Grains, 10% Moisture, Nebraska Average.....	264.00	222.50	235.00
Wet Distillers Grains, 65-70% Moisture, Nebraska Average.....	100.50	66.50	69.00
+ No Market			

emissions from new and existing power plants. This important ruling clarified that the EPA could establish GHG emission limits for “stationary sources” of air pollution such as power plants and factories, as well as for cars and trucks. In 2012, the EPA and the U.S. Department of Transportation issued fuel efficiency requirements for passenger cars and light trucks of 54.5 miles per gallon by 2025. This represents an over 50 percent improvement in U.S. motor vehicle fuel efficiency. As motor vehicles emit 28 percent of U.S. GHG emissions, the 2012 “tailpipe” fuel efficiency rule will significantly reduce GHG emissions.

Proposed Utility Carbon Rule. In 2013, the EPA proposed a Utility Carbon Rule requiring new coal-fired power plants to reduce carbon emissions by 40 percent. This will be expensive and complicated. New natural gas power plants – which have much lower carbon emissions than coal plants – would not be required to lower their emissions if they used the most modern technology (which most new natural gas power plants already do). As a practical matter the EPA proposal means that most new fossil fuel power plants will be natural gas, not coal. Because of the recent fracking boom, natural gas is currently in good supply and relatively economical. But the proposed EPA Utility Carbon Rule has been fiercely opposed by coal interests and some power utilities.

State Utility Carbon Rule guidelines. The June 2014 EPA guidelines for State Utility Carbon rules will likely require existing coal-fired power plants to reduce carbon emissions significantly, perhaps 20 percent or more. This will be challenging, as in-plant coal efficiency can be improved only up to five percent, at best. Most observers expect the EPA to encourage states to meet utility carbon limits through end-user energy efficiency programs and carbon offset projects. Power utilities could also begin shifting some electricity generation away from coal to wind, solar, natural gas and nuclear.

How might this work? End user energy efficiency improvements lower electricity consumption, which reduces electricity-related GHG emissions. Lincoln Electric System (LES), Omaha Public Power District (OPPD) and Nebraska Public Power District (NPPD), Nebraska’s three largest electricity generators, all provide cash incentives to customers to improve energy efficiency – such as rebates on installing high-efficiency furnaces, air conditioners and water heaters. Similarly, the increased use of lower-carbon or zero-carbon energy sources such as wind, solar, natural gas or nuclear reduces the amount of electricity generated from coal. LES and OPPD both have goals of obtaining 20 percent of their electricity from renewable energy sources (wind, solar), while NPPD has a ten percent renewable energy goal.

Carbon offsets. States are also likely to encourage electric utilities to offset part of their carbon emissions through carbon offset projects that reduce GHG emissions.

Examples include: (1) carbon “sequestration” (storage) in soil through improved rangeland management or reforestation; and (2) capturing methane (another GHG) from livestock waste or landfills and converting the methane into usable energy. Through 2012, the Chicago Climate Exchange (CCX) sold “carbon credits” for carbon storage ag land management practices bundled by the National Farmers Union. Nebraska farmers participated in this national carbon offset market. If the Obama EPA utility carbon program stays on track, the CCX program would likely be restarted. In addition, some dairies currently capture methane emissions from livestock manure and generate electricity, which may be sold back to the grid. Since 2006, a Dodge county swine producer has converted methane from livestock waste into electricity, which is sold to NPPD. Since 2011, Lincoln has sold power generated from captured landfill methane to LES.

Other states have already started down this low-carbon energy path. Twenty-nine have renewable energy standards requiring increased wind and solar energy use, while eight more have renewable energy goals. Twenty states have energy efficiency standards requiring utilities to increase customer energy efficiency, while seven more have energy efficiency goals. These programs will, over time, reduce electricity-related GHG emissions. Since 2005, Minnesota has reduced carbon emissions 18 percent. Since 2011, the nine New England and Atlantic coast states in the Regional Greenhouse Gas Initiative have reduced their carbon emissions 36 percent. Since 2012, California has reduced utility carbon emissions 16 percent. By 2018, Colorado expects to reduce utility carbon emissions by 29 percent. So reducing electricity sector GHG emissions is possible.

Limiting utility carbon emissions will be a significant change for Nebraska’s power system. If emission limits are sufficiently flexible and realistic, consumers should face only modest increases in their monthly electricity bill. In time, shifting some electricity generation away from coal could lead to Nebraska becoming a major wind energy producer, similar to Iowa. This means we might be seeing more wind turbines and power transmission lines on the Nebraska horizon. Reducing our electricity carbon footprint is a big challenge, but one we can meet if we all work together.

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