Audience Discussion Questions

• If the State of Iowa were to submit comments, what should they focus on?
• What are your thoughts on the proposed allowance set-asides?
• What are your thoughts on how retirements are proposed to be treated?

<<OPEN DISCUSSION>>

• Scenarios
• What are some of the characteristics of a rate-based plan that would drive you towards rate?
• What are some of the characteristics of a mass-based plan that would drive you towards mass?
Follow-up From September: Using Existing Wind to Comply in a Rate-based Plan

Hypothetical Example:
A coal-fired unit emits 230,000,000 pounds of CO$_2$ during the compliance period, generates 100,000 MWh of net electricity and needs to meet an emission standard of 1,150 lbs/MWh.

• The EGU’s operating rate $= \frac{(230,000,000 \text{ lbs.})}{(100,000 \text{ MWh})} = 2,300$

$$ERCs = \frac{(EGU \text{ Standard} - EGU \text{ Operating Rate})}{EGU \text{ Standard}} \times EGU \text{ Generation}$$

$$ERCs = \frac{(1,150 - 2,300)}{1,150} \times 100,000$$

ERCs = -100,000

The unit needs 100,000 ERCs to comply with the 1,150 lbs./MWh standard.
Using ERCs to Achieve Compliance

What if our hypothetical EGU had added 20% wind in 2007?

- 20% wind = 6 MW * 8760 hrs/yr * 0.38 capacity factor = approx. 20,000 MWh
- Assume that the wind displaced generation and emissions from coal.

- The EGU’s operating rate = \[ \frac{(230,000,000 \text{ lbs} \times 0.80)}{(100,000 \text{ MW} \times 0.80)} = 2,300 \]

\[ ERCs = \frac{(1,150 - 2,300)}{1,150} \times 80,000 \]

\[ ERCs = -80,000 \]

The unit needs 80,000 ERCs to comply with the 1,150 lbs./MWh standard, where it would have needed 100,000 ERCs if it hadn’t added the wind in 2007.
Coal Unit A Scenario

\[ \text{CO2 MASS (LBS)} \div \text{GENERATION} = \text{CO2 RATE} \]

\[ 1,880,000,000 \text{ lbs.} \div 900,000 \text{ MWh} = 2,089 \text{ lbs./MWh} \]

Option 1: Subcategory
Steam Rate:
\[ 1,305 \text{ lbs./MWh} \]

Unit A must use ERCs to adjust its emission rate down.
\[ \text{ERCs} = \left(\frac{1,305 - 2,089}{1,305}\right) \times 900,000 \]
\[ = -540,690 \]
\[ = 540,690 \text{ ERCs needed} \]

Option 2: State Rate for Iowa:
\[ 1,283 \text{ lbs./MWh} \]

Unit A must use ERCs to adjust its emission rate down.
\[ \text{ERCs} = \left(\frac{1,283 - 2,089}{1,283}\right) \times 900,000 \]
\[ = -565,394 \]
\[ = 565,394 \text{ ERCs needed} \]

Option 3: Mass Goal
Unit A must hold 1 allowance for every 1 ton of CO2 emitted.
\[ 1,880,000,000 \text{ lbs.} \div 2000 = 940,000 \text{ tons} \]
\[ = 940,000 \text{ allowances needed} \]