

# 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<sub>2</sub> 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 =  $\frac{(230,000,000 \text{ lbs.})}{(100,000 \text{ MWh})} = 2,300$

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

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

$$ERCs = -100,000$$

*If the answer to the equation is a negative number, that indicates that ERCs will need to be acquired to comply.*

**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 =  $\frac{(230,000,000 \text{ lbs.} * 0.80)}{(100,000 \text{ MWh} * 0.80)} = 2,300$

$$ERCs = \frac{(1,150 - 2,300)}{1,150} * 80,000$$

$$ERCs = -80,000$$

**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

$$\text{CO}_2 \text{ MASS (LBS)} \div \text{GENERATION} = \text{CO}_2 \text{ RATE}$$

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

Option 1: Subcategory  
Steam Rate:

1,305 lbs./MWh

Unit A must use ERCs to adjust its  
emission rate down.

$$\text{ERCs} = \frac{(1,305 - 2,089) \times 900,000}{1,305}$$

$$= -540,690$$

= 540,690 ERCs needed

Option 2: State Rate  
for Iowa:

1,283 lbs./MWh

Unit A must use ERCs to adjust its  
emission rate down.

$$\text{ERCs} = \frac{(1,283 - 2,089) \times 900,000}{1,283}$$

$$= -565,394$$

= 565,394 ERCs needed

Option 3: Mass Goal

Unit A must hold 1 allowance  
for every 1 ton of CO<sub>2</sub>  
emitted.

$$1,880,000,000 \text{ lbs.} \div 2000 =$$

$$= 940,000 \text{ tons}$$

= 940,000 allowances needed