

	Mass-based Approaches			Rate-based Approaches		
	Utility Budget	Full Budget Trading at Unit Level	Utility Budget w/Optional Trading	Utility Rate	Full Rate-based Trading at Unit Level	Utility Rate w/Optional Trading
How is the EPA-goal applied and to whom?	State allocates share of state emissions budget to each utility or other unit-owning entity.	State issues allowances, one for each ton in the state emissions budget.	Same as Utility Budget, except state allows utility or other entity to opt into trading to provide another way of managing its obligation. State issues allowances and utility submits one allowance to cover each ton emitted in the compliance period.	State applies the EPA-prescribed state rate to each Utility. State either provides a mechanism—a credits desk—for issuing utilities credit for certain measures, such as EE and RE, or the state prescribes other method for adjusting utilities' rates.	State applies the EPA-prescribed rate to each electric generation unit. State provides a mechanism—a credits desk—for issuing credit for creditable measures such as EE and RE. State issues credits automatically to fossil units that generate at below the prescribed rate.	Same as Utility Rate, except a credits desk for issuing credits is clearly the best option.
What does the regulated entity have to do?	Measure, monitor and report its CO ₂ emissions from all of the entity's covered units; Submit a compliance statement at the end of the compliance period demonstrating that the entire portfolio remained within emissions budget.	Measure, monitor and report its CO ₂ emissions from all of the entity's covered units; Each unit must submit one allowance for each ton of CO ₂ emitted in the compliance period. Entities can use allowances acquired from other entities to demonstrate compliance.	Measure, monitor and report its CO ₂ emissions from all of the entity's covered units; Entities that have not opted into trading file a compliance statement at the end of the compliance period demonstrating that the entire portfolio remained within emissions budget; and Entities that opt into trading must submit one allowance for each ton of CO ₂ emitted in the compliance period on a unit-by-unit basis.	Measure, monitor and report its CO ₂ emissions and generation from all of the entity's covered units; The entity submits a compliance statement at the end of each compliance period to demonstrate that it meets the prescribed rate across its portfolio, after adjusting for creditable activities. Utility can adjust its rate with credits issued by the state or otherwise in accordance with state-established methods for adjusting rate for creditable activities.	Measure, monitor and report its CO ₂ emissions and generation from all of the entity's covered units; Each unit must either demonstrate that it <u>actually</u> met the prescribed emissions rate or submit enough credits to allow its actual emissions rate to be <u>adjusted</u> to meet the prescribed emissions rate. Units that generate below the rate earn credits.	Measure, monitor and report its CO ₂ emissions and generation from all of the entity's covered units; Entities that choose to manage the rate across their portfolio without trading submits a compliance statement at the end of each compliance period to demonstrate that they meet the prescribed rate across a utility portfolio, after adjusting for creditable activities; Entities that opt into trading can use credits purchased from other entities to demonstrate compliance.
Does the Approach Lend Itself to Multistate Collaboration?	Where a utility operates in more than one state, as long as all of the participating states undertake a mass-based approach, the state plans could provide for the movement of tons within the utility's portfolio but from one state to another. The state plans of any involved states would have to recognize and allow for such an interstate transfer and include procedures to avoid double counting.	Collaboration between states straightforward: each state would allow its units to use allowances from another state for compliance purposes; acceptance of allowances could occur at any time; coordination limited to emissions and allowance tracking.	When trading is optional, two or more states could collaborate as described under Utility Budget or under Full Budget Trading, or both. With trading, there is a need for a tracking system. Entities that opt into trading can use allowances acquired from other entities.	Where a utility operates in more than one state, in order for the utility to manage its portfolio across multiple states all of the states would have to average their emissions rate goals to arrive at one multi-state goal. Then the states would have to permit the averaging of the utility's adjusted emissions rate across the utility's portfolio irrespective of state boundaries.	Full Rate-Based Trading between states requires the states to first average their state emission rates to arrive at one multi-state goal. Then each state would allow their units to use credits from the other state(s) for compliance purposes. An emissions, generation, and credit tracking system would be necessary.	When trading is optional in the rate-based context, the states that wish to "link" must first average their emissions rate goals to arrive at one multi-state goal. Linking two states could then take the form of the approach described under Utility Rate or the approach described under Full Rate-Based Trading, or both. With trading, there is a need for a tracking system.

	Mass-based Approaches			Rate-based Approaches		
	Utility Budget	Full Budget Trading	Utility Budget w/Optional Trading	Utility Rate	Full Rate-based Trading	Utility Rate w/Optional Trading
BENEFITS OF THE APPROACH	<p>Fairly straightforward to administer for the state.</p> <p>Good for larger utilities that have options on their systems.</p> <p>CO₂ emissions are already measured, monitored and reported.</p>	<p>Most likely to result in least-cost outcome because of full flexibility.</p> <p>Well-established approach in use for SO₂, NO_x, and CO₂.</p> <p>CO₂ emissions are already measured, monitored and reported.</p> <p>Allowances have value and that value can be used to accomplish specific ends.</p> <p>Allows for smooth interaction with wholesale electricity markets because allowance price is simply added to the generator's bid.</p> <p>Easily implemented across states.</p>	<p>Can provide many or all of the benefits of Full Budget Trading while leaving the decision whether to trade up to the utility or other unit-owning entity.</p>	<p>The utility rate approach allows limited flexibility for utilities to manage their emissions rates across all of their affected units.</p>	<p>Most likely to result in least-cost outcome among the rate-based approaches because it allows units to find lowest cost credits.</p> <p>Allows for smooth interaction with wholesale electricity markets because credit price is simply subtracted or added to the generator's bid.</p> <p>Credit trading makes multistate collaboration easier than with the Utility Rate approach.</p>	<p>Can provide many or all of the benefits of Full Rate-Based Trading while leaving the decision whether to trade up to the utility or other unit-owning entity.</p>
CHALLENGES OF THE APPROACH	<p>Because this approach does not allow trading of excess allowances, it probably would not result in least-cost outcome.</p> <p>Presents challenges for small utilities or coops, and for merchant generators that have less to work with on their systems.</p> <p>State must allocate shares of the state budget to utilities.</p> <p>Multistate collaboration is more cumbersome than it is with Full Budget Trading.</p>	<p>State must distribute or allocate the allowances.</p> <p>State must overcome any reluctance to use a mass-based compliance metric and to allow trading.</p>	<p>By making trading optional, the state must administer two kinds of compliance.</p> <p>State must allocate shares of the state budget to utilities.</p> <p>Need to consider the market impacts of some utilities not opting for trading—for example, does not opting in to trading change the interaction with the wholesale electricity market?</p>	<p>Crediting for energy efficiency, renewables and other activities makes this approach more complex than its mass-based counterpart.</p> <p>Without the flexibility to leverage the lowest cost emission reductions regardless of where they are located, this approach is not likely to result in the least-cost outcome.</p> <p>Presents challenges for small utilities or coops, and for merchant generators that have less to work with on their systems.</p> <p>Multistate collaboration more cumbersome than full trading and requires state goals to be averaged together.</p>	<p>Crediting for energy efficiency, renewables and other activities makes this approach more complex than its mass-based counterpart.</p> <p>Multistate collaboration more complex than mass-based counterpart because it requires that state goals be averaged together; and crediting mechanisms will differ substantially from state to state unless there is coordination on the development.</p> <p>No experience with this approach.</p> <p>Timing of credits issuance and availability a concern.</p>	<p>By making trading optional, the state must administer two kinds of compliance.</p> <p>Crediting for energy efficiency, renewables and other activities makes this approach more complex than its mass-based counterpart.</p> <p>Multistate collaboration more complex than mass-based counterpart because: requires state goals to be averaged together; and crediting mechanisms will differ substantially from state to state unless there is coordination on the development.</p>