California held its first cap-and-trade auction for greenhouse gas (GHG) allowances yesterday. The California Air Resources Board (CARB) will announce the results from that auction on Monday, Nov. 19. What happens if not all the allowances are purchased at the auction?

The short answer is that unsold allowances will be withheld from the market and eventually offered for sale in a subsequent auction. And the "market clearing price" for the auction would likely be $10, because even the lowest bidders would be awarded allowances.

The November auction offered approximately 23 million vintage-2013 allowances ("current") and approximately 39 million vintage-2015 allowances ("advance"). In effect, there are two auctions, one for each vintage year.

Auction participants place one or more bids indicating the number of allowances they would purchase at a given price. Each bid unit is for 1,000 allowances. So Chevron might submit the following bids for current allowances:

- 10 units (10,000 allowances) at $15 = $150,000
- 50 units (50,000 allowances) at $12 = $600,000
- 40 units (40,000 allowances) at $10 = $400,000

CARB awards bids starting with the highest price and moving lower, until all available allowances are accounted for. The last bid to be awarded sets the "market price."

So if CARB had only 60 units and no one else bid, then Chevron would be awarded 60 units at $12 and would be required to pay $720,000 (60,000 allowances * $12). If CARB had 120 units and no one else bid, Chevron would be awarded 100 units at $10, for a total payment of $1 million, and CARB would be left with 20 units (20,000 allowances). Chevron may not bid below the price floor of $10.

Because the market price is set by the lowest winning bid, it makes strategic sense for a participant to bid at least 1 unit at the price floor ($10). Thus, in a scenario where not all allowances have been sold, we would expect the clearing price to be the price floor.

If ~~either~~ current ~~or advance~~ allowances remain unsold, then CARB regulations require the unsold allowances to be withheld until two consecutive auctions result in an clearing price that exceeds the price floor. [Edit: A recent change in the regs requires unsold advance allowances to be withheld until their vintage year. In other words, until the advance allowances become current allowances.] And CARB cannot add an unlimited number of unsold allowances to a subsequent auction; it is restricted to offering only 25% of the total allowances already designated for that subsequent auction. In other words, the regulations prevent CARB from flooding the market with unsold allowances.

Because unsold allowances are withheld until the market price responds, this provides upward pressure on the market price by restricting supply. So if not all allowances are sold at this first auction, we would still expect to see the market price move upwards over time, above the $10 price floor.

Why might not all allowances be sold at the first auction? One reason would be simply that some participants are cautiously waiting to see how the auction plays out. Another reason is that they are unprepared to bid in the first auction. A third reason would be that regulated entities believe they can make changes to their production processes that would result in emissions reductions at a much lower cost (under $10 / ton).