



Clipper[®]
W i n d p o w e r

Wind Developer's Perspective on Incorporating Wind in Cap & Trade Programs

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Kevin Rackstraw

Clipper Windpower, Inc.

301/263-0028

krackstraw@clipperwind.com



About Clipper Windpower

- Founded by James Dehlsen, a wind energy pioneer and recognized world leader in the wind industry, and founder of the company that is now GE Wind
- Team is one of the most experienced in the business
- Both a developer of wind projects and manufacturer of large wind turbines
- Over \$1.5 billion of wind projects developed
- Another \$4 billion of wind projects in the development pipeline



Motivations

- Emissions reduction claims:
 - In cap and trade states, neither we nor our marketers can state that we reduce capped emissions w/out allowances or explicit recognition of wind lowering the cap
 - This goes to our core value to consumers, that we are an emissions-free technology
 - Most buyers want to know that they have made the air cleaner, and today's regulatory environment does not allow us on the "playing field" in most states as an emissions reduction option



Motivations

- Alternative revenue streams:
 - Incentives comes and go; tax credits are not forever
 - A diversity of revenue streams creates healthier projects
 - Helps provide some solidity to the uncertain value that is the “green” quality of windpower (REC value)
 - May not be a true incentive unless properly structured (more on this later)



Motivations

- Helps prices reflect environmental costs/benefits
 - In free markets, prices should reflect true costs as much as possible
 - Currently, wind helps lower demand for allowances, and emitters capture this value from market thru lower costs
 - Allocating allowances to wind transfers that value to wind from emitting sources both directly and through effective lowering of the cap



Actions to Date

- Maryland does have a set-aside under which renewables could be granted allowances as part of NOx trading program (5%);
- Clipper “applied” to Maryland Dept of the Environment for allowances in May 2003 for a western Maryland 100 MW wind project (“Criterion”)
- Reviewed by MDE advisory panel on which sits a major recipient of MD’s NOx allowances who historically has claimed those unclaimed set-aside allowances
- Numerous discussions over following 2 years on getting approval
- MDE diverted by SIP Call and other pressing issues
- Application has never been acted on by MDE but may be waiting for resolution of our on-line date, which has been delayed



Actions to Date

- No rules or forms existed, so Clipper filed a letter outlining the predicted level and timing of output from wind plant in western Maryland justification of proposed amount of NOx allowances
- Also provided a study utilizing a “dispatch” methodology to determine likely sources that would be backed down in PJM West where project was located
- Three approaches presented to MDE:
 1. EPA suggested award rate: 1.5 lbs/MWh
 2. System average mix based on available data at time: 5.916 lbs/MWh (ECAR)
 3. ERT/RSG Dispatch Methodology: 5.72 lbs/MWh
- In interim, MDE accepted request from Montgomery Co. to include wind in NOx SIP
 - ERT/RSG team provided analysis and advocacy to state, EPA
 - Montgomer County provided political and staff leadership to make it happen



Other Wind Generator Concerns

- How allowances are granted to wind is important to determining financial impact on projects:
 - Award “conversion rate” is important if input based
 - EPA guidance’s 1.5 lbs/MWh is not a strong incentive unless NOx prices are high, and is weak basis for emissions reduction claims
 - Certainty prior to financing: if we don’t know whether we will get allowances or what the rules are prior to financing, then the value will be ignored
 - the deal will have to work even without the allowances
 - Long-term allocations: allowance allocations for a single year or two may be of limited value
 - If there is any significant uncertainty about whether the project will not continue to receive allowances, the value ascribed will be zero
 - Timing of “earning” season: if limited to summer ozone season, wind projects least productive in summer in east



What's the Value*?

	lbs/MWh NO _x	May-Sept Ozone Season “Earning” Period	12-month “Earning” Period
EPA Rate	1.5	\$0.73	\$2.79/MWh
ECAR Rate	5.7	\$2.63	\$9.98/MWh

* Assumptions: \$3500/ton NO_x price; \$/MWh figures are for a given year for which allowances are earned and apply only to that year. Based on projected numbers, not actual. Differences between ozone season and 12-month period assumes eastern US project, where wind production during ozone season is typically about 25-35% of total annual production.



Summary

- Awarding of allowances to wind helps align emissions market with reality of dispatch and offset in market
 - Wind is a (virtually) zero variable cost energy source (typically bids zero) and is therefore usually dispatched first (w/ hydro) if available
- Helps align emissions markets with consumer expectation of emissions free wind reducing emissions of important pollutants
- Allows wind to make marketing claims based on emissions reductions
- If properly structured, provides incentives for financing of new wind capacity