Accounting for Air Credits in the Phase II WIPs

Water Quality Goal Implementation Team

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Decision Rules in Air Reduction Credits in the Phase I WIPS

Background

Progress has been made in the coordination of water and air programs through ongoing meetings in 2010-2011 with active and engaged air directors from the Bay Program States. A key motivation of the air directors is learning how nitrogen emission reductions brought about by their programs can contribute to the Bay Program nitrogen reductions in the WIPs. We want to encourage the continued air-water program interaction and make the way smooth for air credits going forward through:

1) improving the air credit decision rules we already have in place for the Phase I WIPs;
2) providing a clear path forward for legitimate air reduction credits in the Phase II WIPs in order to reduce frustration and difficulty of Bay Program States to get credit for real measurable reductions in nitrogen emissions; and
3) encouraging coordination of air and water protection in the watershed by allowing progress in atmospheric deposition nitrogen reductions to be appropriately credited in the Phase II WIPs.

Background *(continued)*

Most of the reductions in atmospheric deposition have already been captured by the 2020 CMAQ Scenario which set the watershed and tidal Bay allocations. The 2020 CMAQ Scenario included, On-Road Light Duty Mobile Sources - Tier 2, On-Road Heavy Duty Diesel Rule - Tier 4, Clean Air Non-Road Diesel Rule, Off-road large spark ignition engine rules, CAIR second phase in place (in coordination with earlier NOx SIP call), Regional Haze Rule and guidelines for Best Available retrofit Technology (BART), Clean Air Mercury Rule (CAMR), and Hospital/Medical Waste Incinerator Rules (*Appendix L. Setting the Chesapeake Bay Atmospheric Nitrogen Deposition Allocations*).

Background *(continued)*

Air credits are for the particular case of management actions resulting in "nitrogen reductions realized through more stringent controls at the jurisdictional level, beyond minimal federal requirements". Air credits generally cover management actions, usually initiated after the 2020 CMAQ Scenario was run in 2008, whose emission reductions were unaccounted for in the CMAQ 2020 Scenario.

The overall contribution the air credit will make on the WIPs is small due to the discounting of attenuation at every step from emissions, to partial deposition on the watershed, to deposition to attenuation on the land and in rivers as shown in the figure below. Generally, the air credit of delivered loads to the Bay is about 1 percent of the emission loads.

The discounting that takes place in the delivered load to the Bay – <u>The 1% Credit</u>

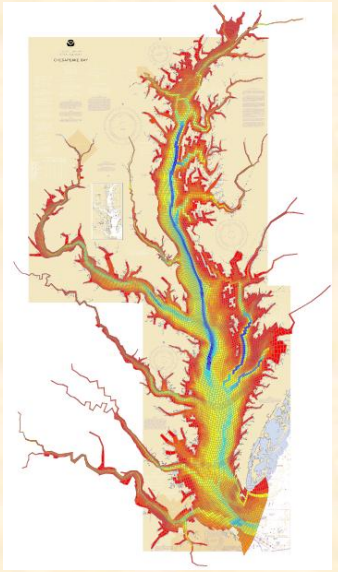
Atmo Dep

About 30% of the emission NOx load is lost in conversion of NO_2 to units of N.

About 50% of NOx atmo dep emitted in the CB watershed Is deposited in the CB watershed.

Forest Land Use

The 1% Credit



About 10% of NOx atmo dep deposited to forest land use (~60% of area) is exported to rivers and streams.

Rivers and Streams

On average about 50% of NOx atmo dep exported to rivers and streams is delivered to the Bay

The Phase I WIP Decision Rules:

1) Determine whether the emission source for which the state is seeking credit already assessed credit for reductions in the State's State Implementation Plan (SIP) for achieving the State's air quality standards).

2) Determine whether the emission reduction is a state-wide emission or point source.

3) Determine if the emission controls will impact NOx and/or NH3 emissions.

4) Determine the annual average emission reduction.

5) Only the State requesting air credit gets deposition credit for delivered load to Bay (an operational rule not explicitly stated in Appendix L).

In: Appendix L. Setting the Chesapeake Bay Atmospheric Nitrogen Deposition Allocations

http://www.epa.gov/reg3wapd/pdf/pdf_chesbay/FinalBayTMDL/AppendixLAtmosNDepositionAllocations_final.pdf

Recommended Changes in Decision Rules for Air Reduction Credits in the Phase II WIPS

Why changing Decision Rule 1 to a "into or out of the Allocation Air Scenario" criteria is a modification under consideration:

- **Still a *bright line* in a fungible exchange system of "what's allowed to be counted" in the achievement of the allocation loads if we can confirm what's in or out of the Allocation Air Scenario. Need a single POC in Region 3 Air Protection Division to review approve proposed air credits.**
- **Changing the decision rule in this way requires *claw backs* when updated CMAQ scenarios include the emission reduction counted in the exchange.**

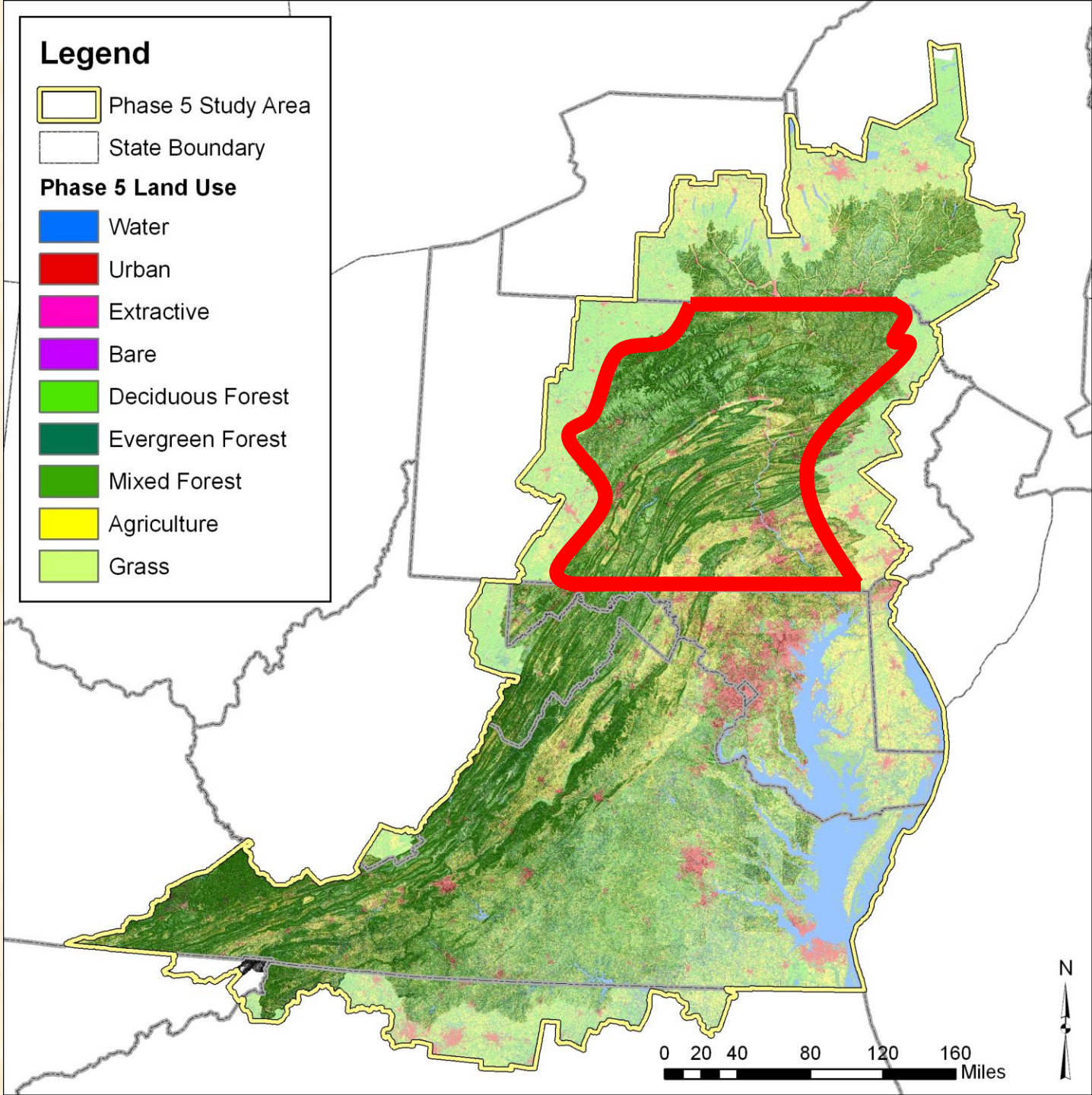
Note: If the proposed reduction in the air reduction credit is already in the Allocation Air Scenario then it's disallowed due to double counting.

Decision Rule 5: The credit for the air-water exchange would be only the deposition loads in the watershed of the State requesting the exchange.

Why:

- **Operationally difficult to remove loads from other State-Basins which in some operational schemes would require multiple model runs.**

Only the emission State requesting the air-water exchange for N is considered in exchange using the CMAQ State-Sector analysis. The Bay-State is the smallest unit of calculation.



Why changing Decision Rule 5 to allow air reduction credits for deposition loads in the entire watershed to accrue to the State requesting the exchange.

Why:

- **Can preserve the "assess with the models and test with the monitoring approach" if we take the delivered load of nitrogen deposition load from other states in the watershed from the atmo. dep. loads to the tidal Bay.**
- **Provides more incentive for air credits.**
- **This would have no influence on the accounting of the EPA Nitrogen Allocation to tidal water, but would just be an operationally possible method to preserve mass balance on the CBP Models.**

Why changing Decision Rule 5 to allow air reduction credits for deposition loads in the entire watershed to accrue to the State requesting the exchange *(continued)*

An approach to appropriately allow air credits for deposition loads in the entire watershed as they actually occur in an operationally efficient way is to take the nitrogen deposition load from other states in the watershed from the atmospheric deposition loads to the tidal Bay when making scenario runs of the WIPs. This would have no influence on the accounting of EPA's nitrogen allocation to tidal water, but would be an operationally efficient method to preserve mass balance on the CBP models while allowing full and appropriate air credits in the watershed to the state requesting the air credit.

Conclusions:

Making the process for obtaining air credits clear in the Phase II WIPs and making the recommended changes to the decision rules will provide more incentive for air credits. It's expected that a wider application of air credits will be made in the Phase II WIPs.

Nevertheless, the nitrogen credits that can be obtained are small. In the Phase I WIPs Pennsylvania with its Diesel Idling Management Action applied for and received an air credit. This credit was small, only 2,600 pounds of total nitrogen delivered to Bay for 736 tons of NO_2 emissions reduced.

Conclusions *(continued):*

For efficient review of proposed air credits, a single POC in Region 3 Air Protection Division will be established. The POC will service the Phase II WIPs and future air credits developed in milestone accounting.

Air credits are considered to be “trim” applied late in the WIP II process because air credits are not a major reduction of nitrogen.

We’ll need to test the system of air credit reviews with test cases in the early fall 2011 timeframe.

The approach recommended here will be presented at the Region 3 Air Directors Meeting on June 2nd.