



The Role of Nutrient Trading in the Chesapeake Bay TMDL

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Chesapeake Bay Policy Committee

Metropolitan Washington Council of Governments

November 19, 2010

Outline

- 1. Role of Nutrient Trading in the Chesapeake Bay TMDL**
- 2. Where Will Nutrient Credits Come From?
Will Agriculture Be the Primary Generator of Credits?**
- 3. Does government have a role to play, beyond policy development, in making the market work?**
- 4. Policy Recommendations**



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Role of Nutrient Trading in the TMDL

- 1. Growth Accommodation**
- 2. Affordability and Cost-effectiveness**
- 3. Enabling Backstop Provisions**



Role of Nutrient Trading in the TMDL Growth Accommodation

State TMDL Choice:

Set Aside Specific Allocation for Growth

or

Rely on Nutrient Offsets to Accommodate Growth



Role of Nutrient Trading in the TMDL Growth Accommodation

State TMDL Choice:

No State Chose Growth Allocation



Role of Nutrient Trading in the TMDL

State TMDL Choice:

No State Chose Growth Allocation



New or Expanding WWTPS get no allocation for N or P discharges



Land conversion impacts will have to be offset



Role of Nutrient Trading in the TMDL Growth Accommodation

In the long run...

**Continued Growth and
Economic Development
Will Depend on Trading**



Role of Nutrient Trading in the TMDL Affordability and Cost-Effectiveness



An Extra \$13 Billion Needed in 2002 for All Tributary Strategies by 2010



The Cost of a Clean Bay

The Big Picture

Total projected cost	\$18.7 billion
Total projected income	\$5.9 billion
Unfunded gap	\$12.8 billion


Unfunded Gap by State

Maryland	\$2.9 billion
Pennsylvania	\$4.8 billion
Virginia	\$5.1 billion

Source: Chesapeake Bay Commission. The Cost of a Clean Bay; Assessing Funding Needs Throughout the Watershed. January 2003. <http://www.chesbay.state.va.us/Publications/C2Kfunding.pdf>



An Extra \$13 Billion Needed in 2002 for All Tributary Strategies by 2010



The Cost of a Clean Bay

The Big Picture

Total projected cost	\$18.7 billion
Total projected income	\$12.0 billion
Unfunded gap	\$7.2 billion

Unfunded Gap by State

Maryland	\$2.9 billion
Pennsylvania	\$4.8 billion
Virginia	\$5.1 billion



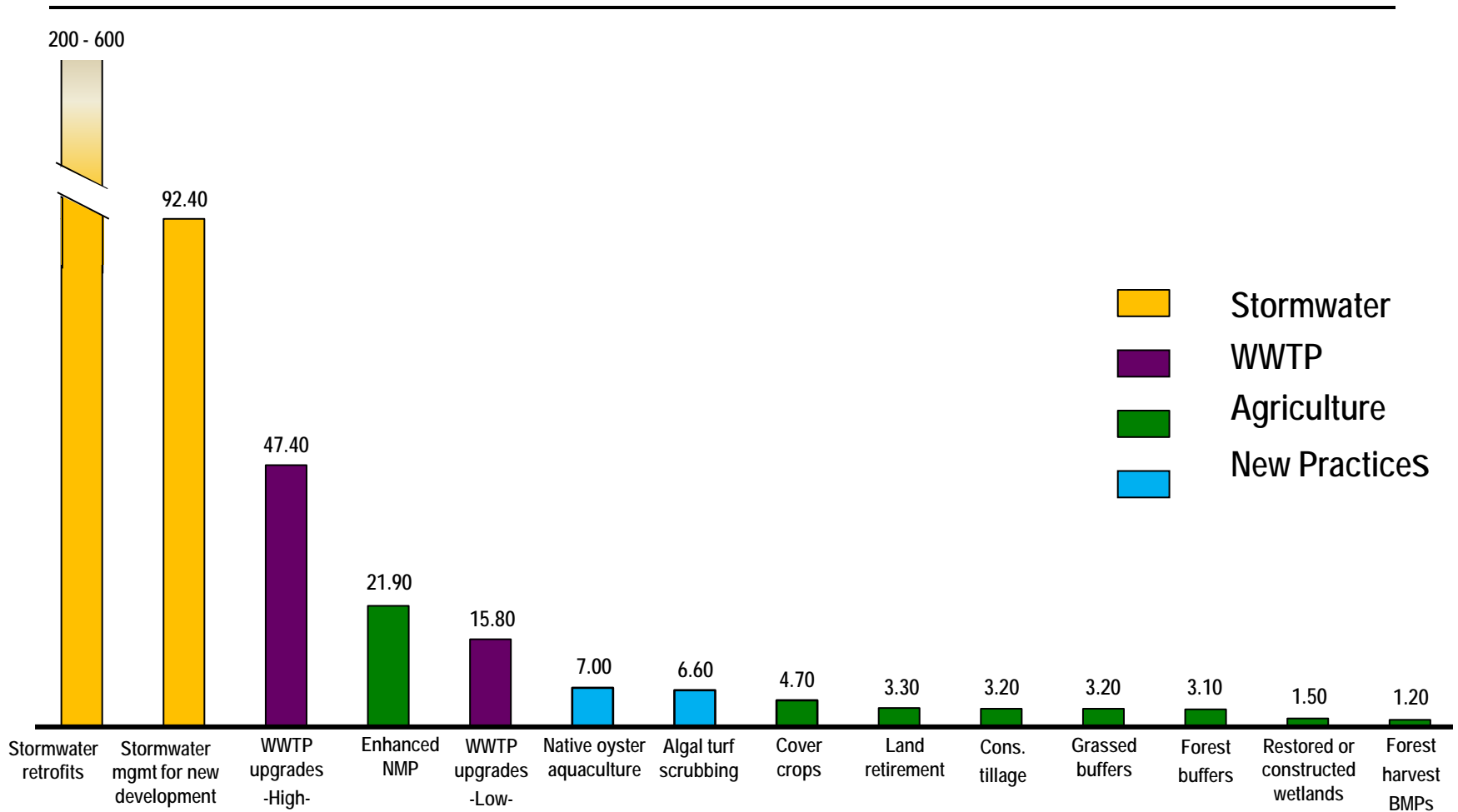
**Blue Ribbon
Finance Panel, 2003
\$28 Billion**

2010 - ????????

Source: Chesapeake Bay Commission. The Cost of a Clean Bay; Assessing Funding Needs Throughout the Watershed. January 2003. <http://www.chesbay.state.va.us/Publications/C2Kfunding.pdf>



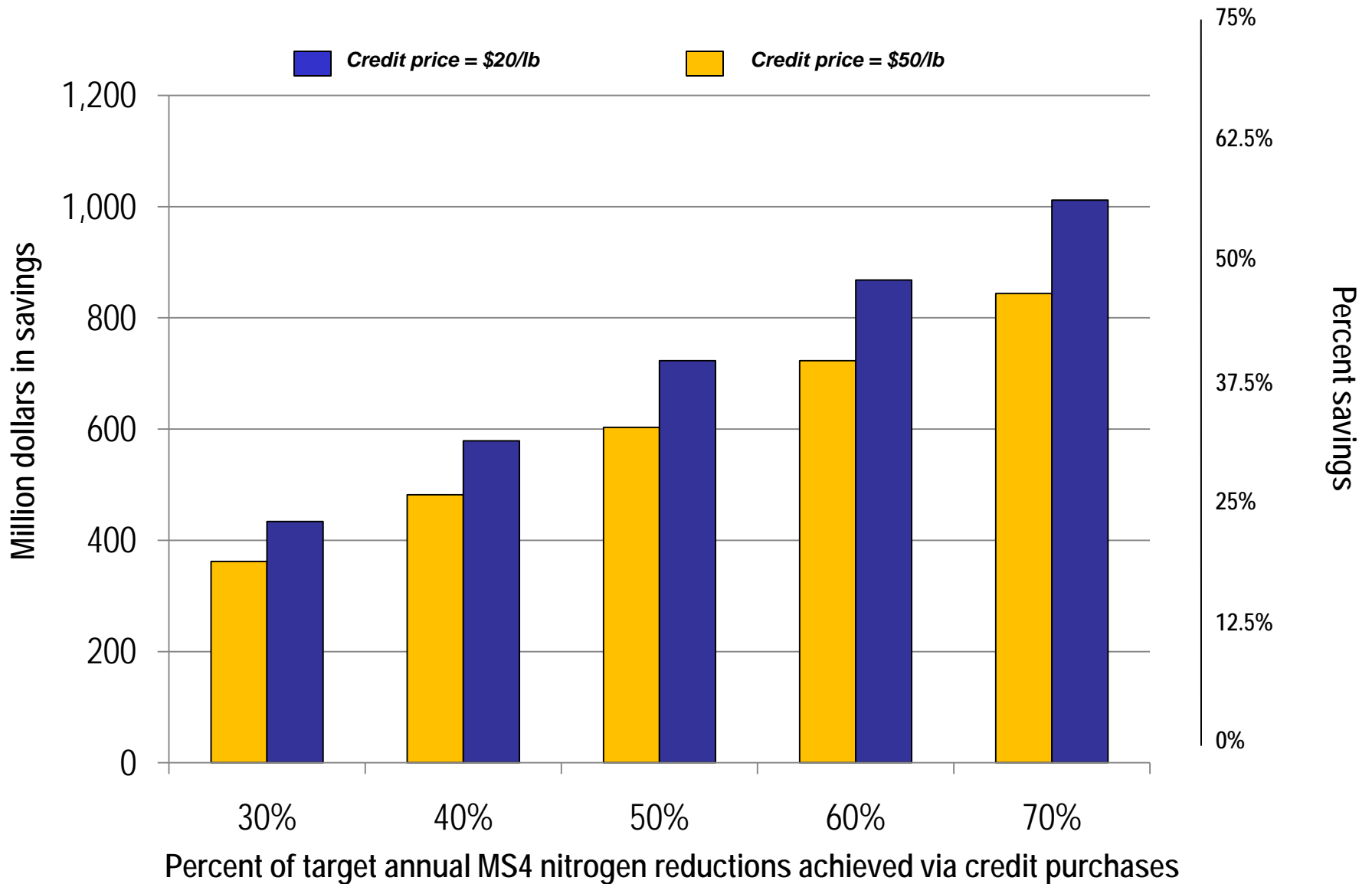
Control Cost Differentials



Average Cost of Selected Nitrogen Reduction Measures (*Dollars per pound of annual nitrogen reduction*)



Potential Savings are Immense if MS4s Can Buy N Credits



Role of Nutrient Trading in the TMDL Enabling Backstop Provisions



Role of Nutrient Trading in the TMDL Enabling Backstop Provisions

**Reduce Point Source Allocations
in Order To
Increase Nonpoint Source Allocations**



Role of Nutrient Trading in the TMDL Enabling Backstop Provisions

**Reduce Point Source Allocations
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Sewer Moratoria



Role of Nutrient Trading in the TMDL Enabling Backstop Provisions

**Reduce Point Source Allocations
in Order To
Increase Nonpoint Source Allocations
Increased Sprawl and Growth in Septic Loads**



Role of Nutrient Trading in the TMDL Enabling Backstop Provisions

**Reduce Point Source Allocations
in Order To
Increase Nonpoint Source Allocations**

Or

**Reliance on Trading Program and
Availability of Nutrient Credits**



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4. Policy Recommendations

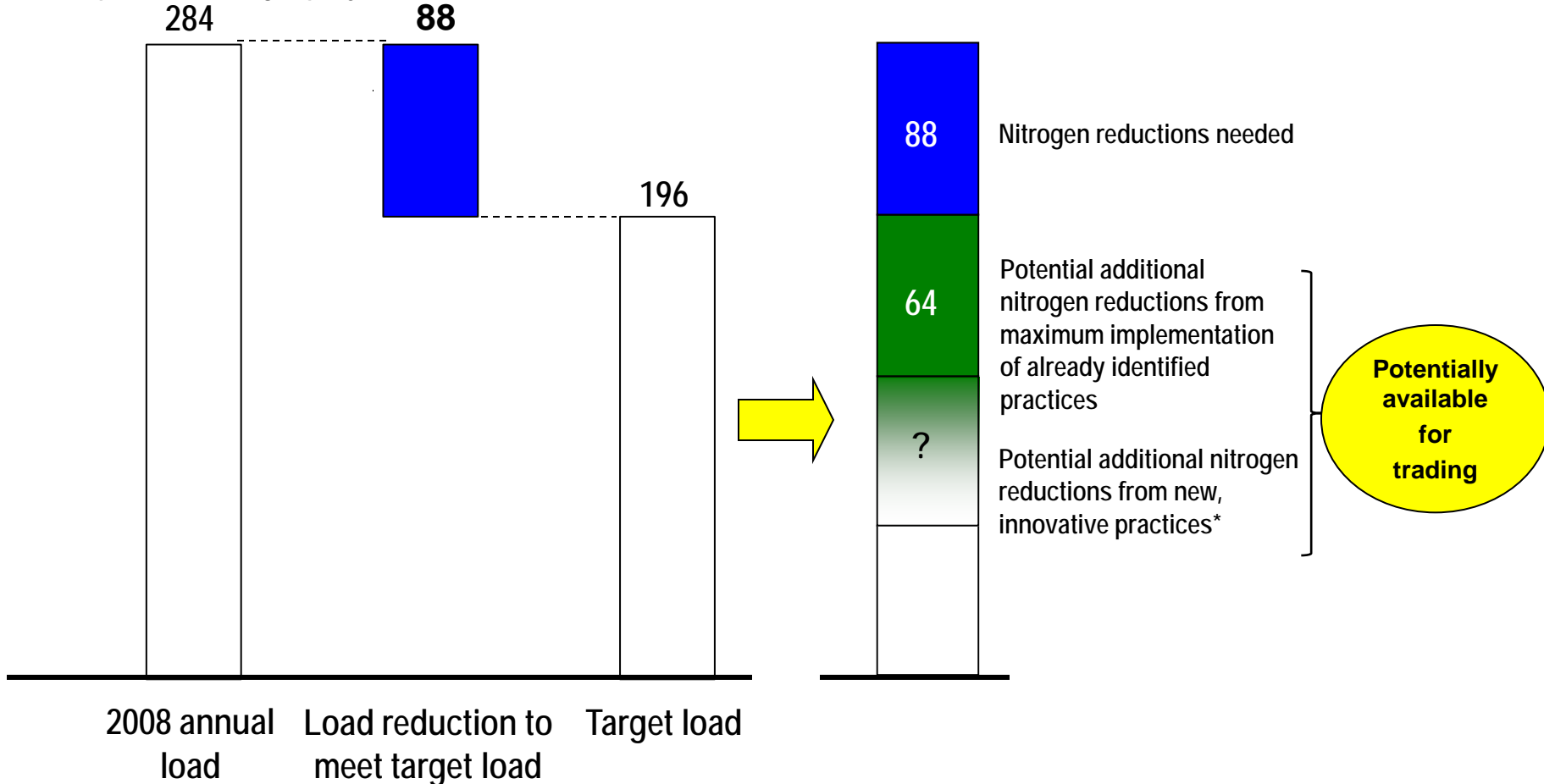


Issues of Concern

Is there really anything to trade?

Nitrogen Load Reduction; Potential Chesapeake Bay Watershed Model Version 5.2

Million pounds of nitrogen per year



Could farmers profit from trading?

Farmers have to meet “baseline” requirements before generating credits

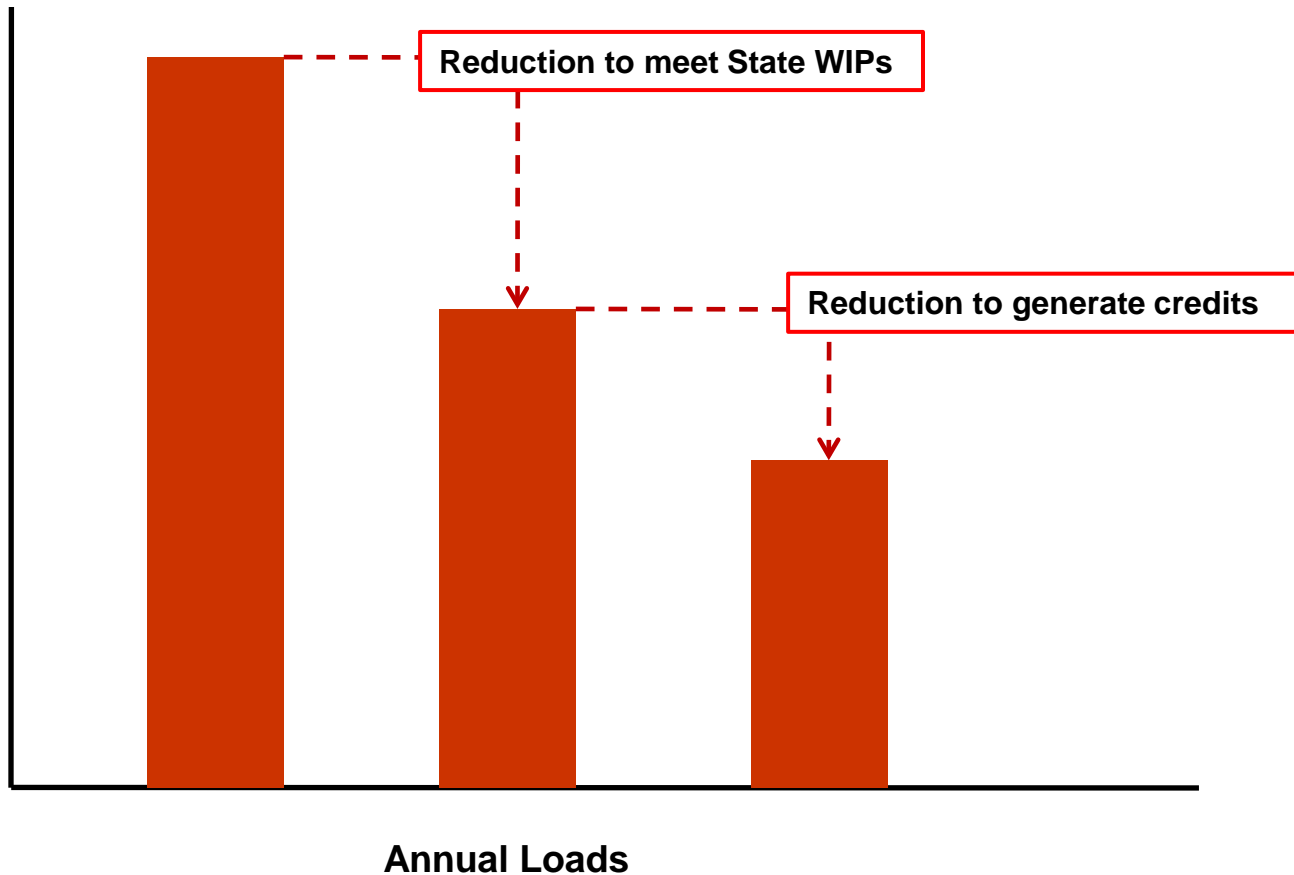


Figure 3. Status of Current and Potential Nitrogen Reductions from Agriculture

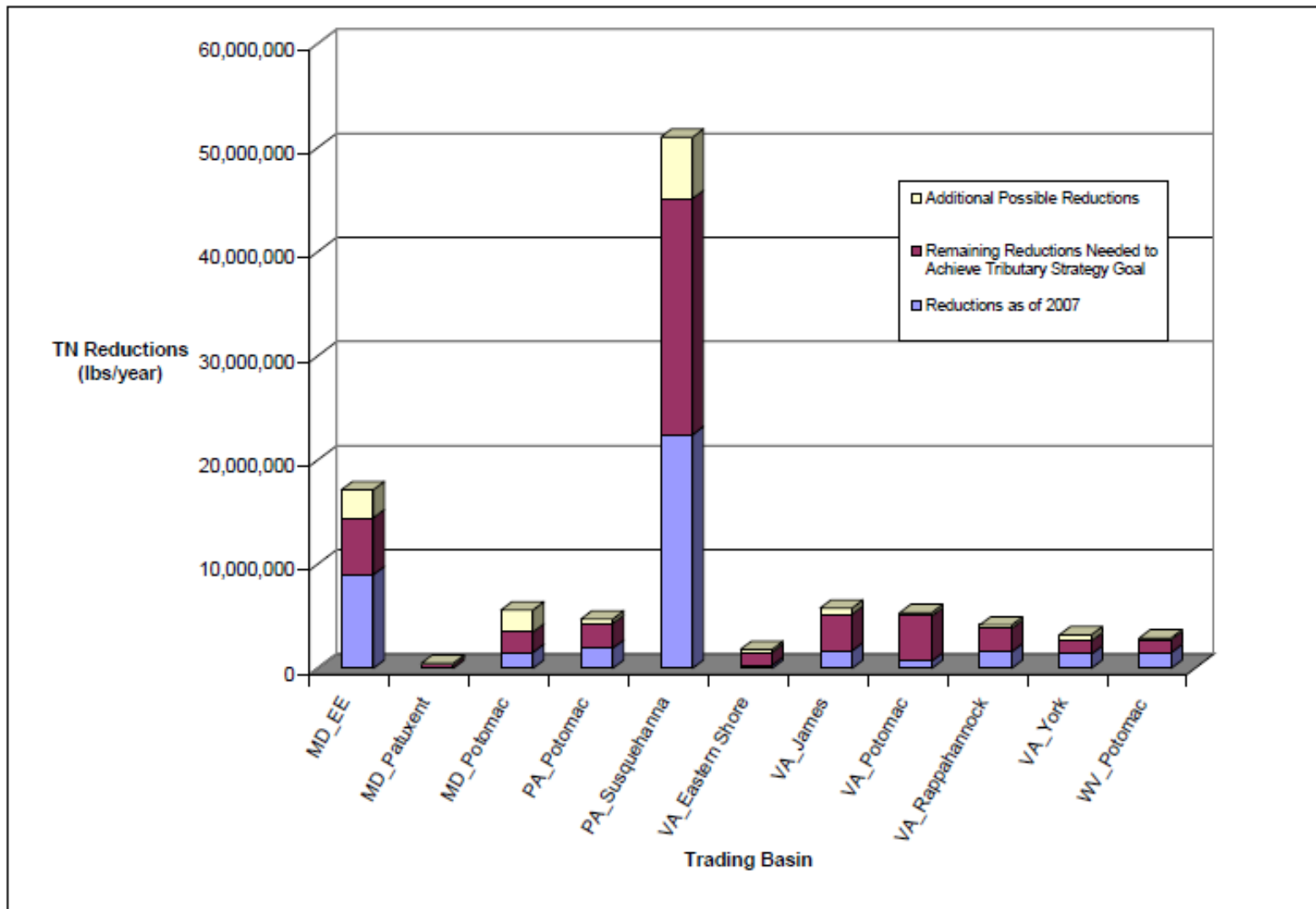
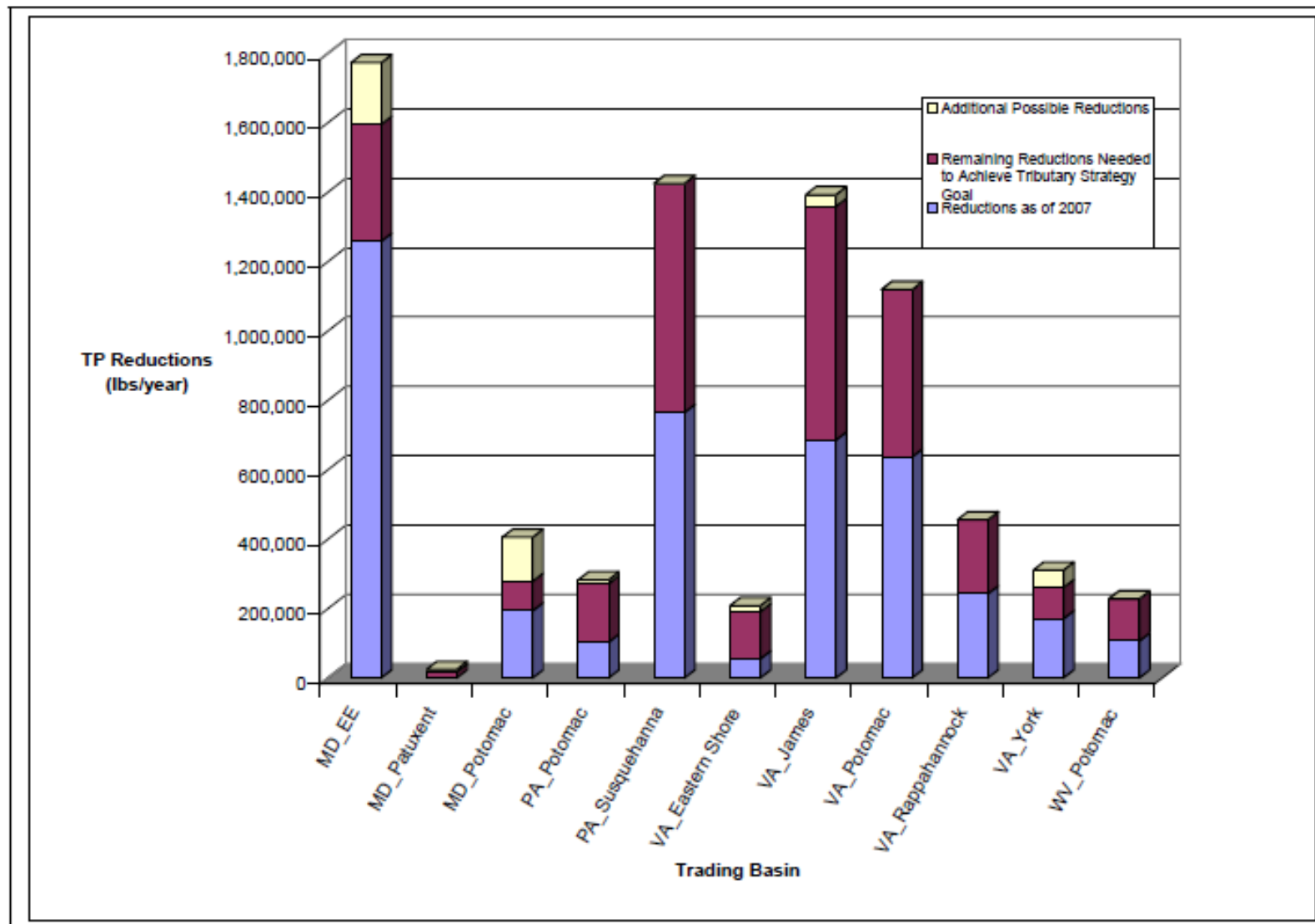


Figure 4. Status of Current and Potential Phosphorus Reductions from Agriculture



Where Will Credits Come From

Agriculture

Manure

Nutrient Harvesting

Oyster Aquaculture

Algae Turf Scrubbing



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Government Role

State versus Federal

Market rules and infrastructure

Science

“Jump-starting” the Market?



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Implement Interstate Trading



4 State Trading Programs in Chesapeake Bay

11 Separate Trading Areas:

Maryland	3
Pennsylvania	2
Virginia	5
West Virginia	1



Data sources: Watershed basins (USGS, 2006), administrative boundaries (ESRI Data and Maps 9.3.1, ESRI, 2008).

0 20 40 80 120 160 Miles

One Market

- Match credit supply to credit demand more efficiently
- Make cheapest credits in Bay available to all buyers
- Increased competition among credit sellers lowers prices
- Preclude credit monopolies or artificially-restricted supplies
- Stimulates technology innovation to generate credits
- Produces a more stable and reliable supply of credits



Data sources: Watershed basins (USGS, 2006), administrative boundaries (ESRI Data and Maps 9.3.1, ESRI, 2008).

0 20 40 80 120 160 Miles



One Market

Avoid Geographic Mismatches between Supply and Demand



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0 20 40 80 120 160 Miles



Sooner Rather than Later



Make MS4 Trading a High Priority



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