

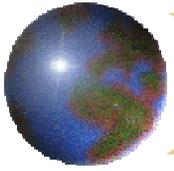


*Chesapeake
Cellulosic
Biofuels
Project*

**Wash COG
Alternative Fuels Workshop**

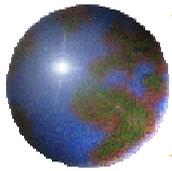
May 27, 2008

Ann Swanson,
Executive Director

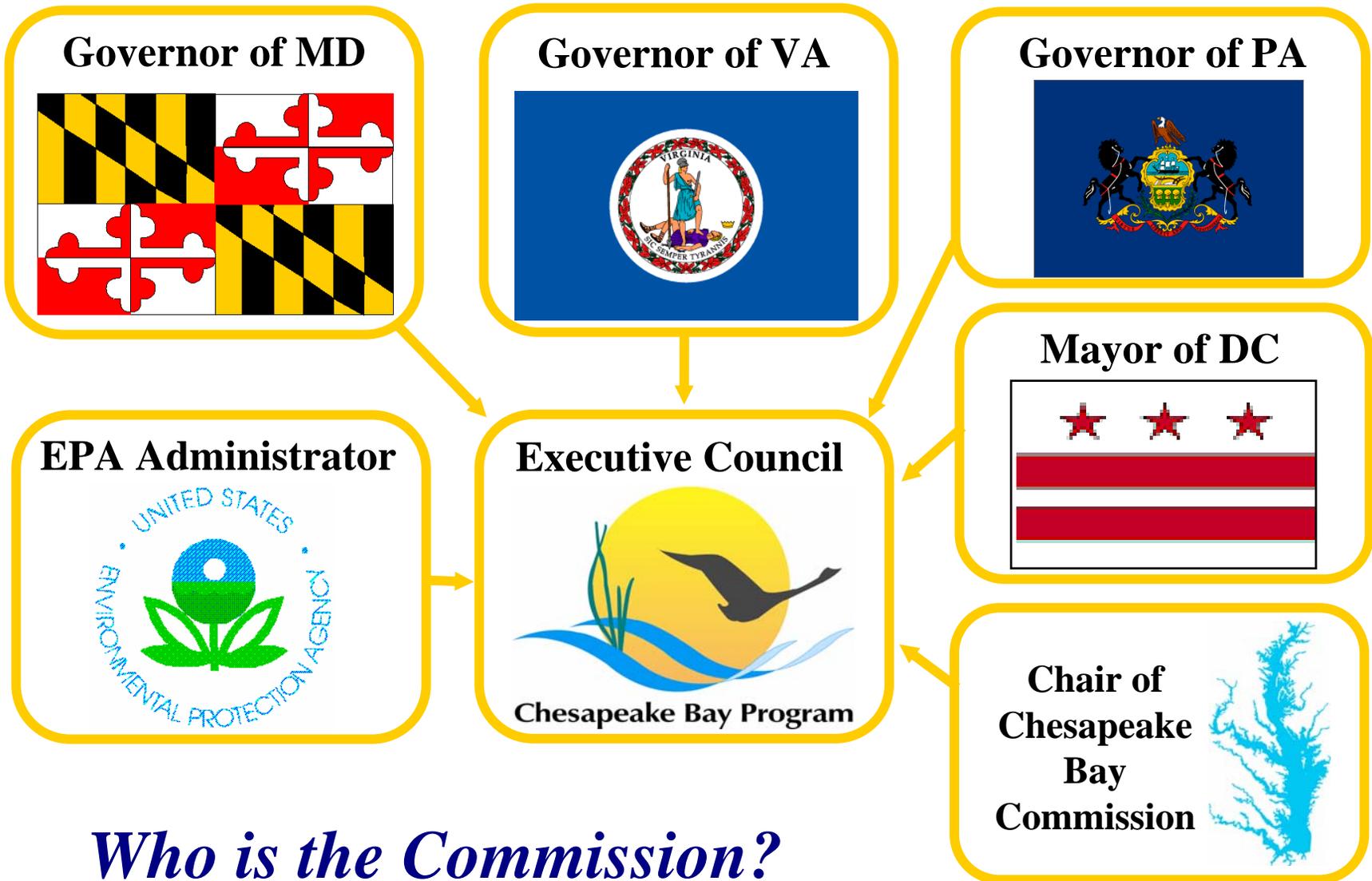


This Presentation

- Who is the Commission?
- How does the Commission come at this issue?
- What are the current activities?
- What can we expect in the near future?



Chesapeake Bay Program



Who is the Commission?

Biofuels And the Bay

Getting It Right
To Benefit Farms,
Forests and the
Chesapeake



A Report of the
Chesapeake Bay Commission
September 2007



What Are Biofuels?



Commonly discussed biofuels include:



Grain-based ethanol



Biodiesel



Cellulosic Ethanol



Next Generation Biofuels: biobutanol, renewable diesel, biogasoline



The National Significance of Biofuels

- ✿ 2005 Congressional goal for 2012 – 7.5b gallons
 - Will be met this year (2008)
- ✿ 2006 production – 5b gallons
- ✿ 2007 Energy Bill – 36b gallons by 2022
- ✿ Long-term potential – 3 studies:
 - 87b gallons by 2025 – U of Tennessee
 - 100b gallons – Aspen Institute
 - 50b gallons – Battelle Memorial Institute



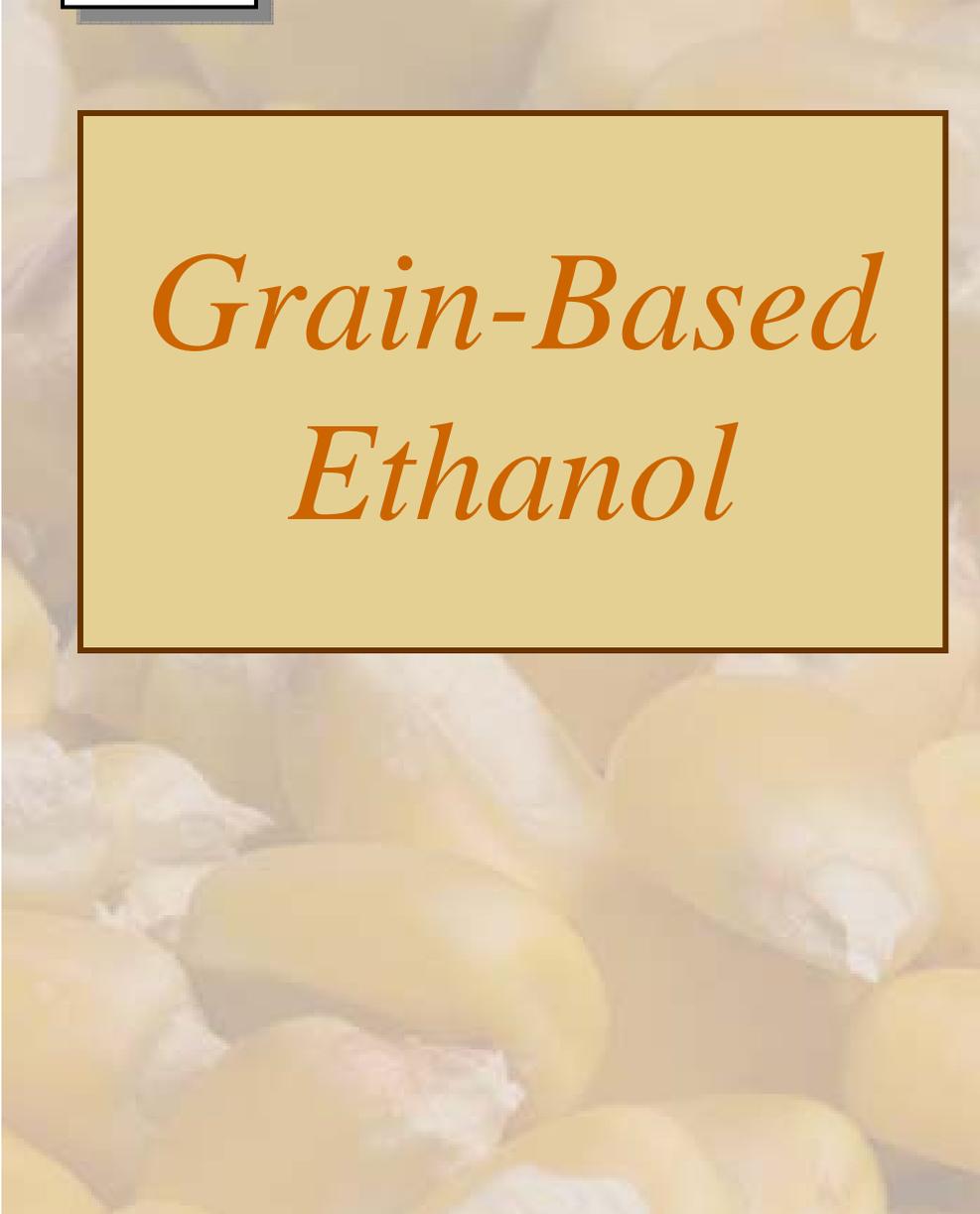
What is the “Bottom-line” on Biofuels and the Chesapeake Bay?



- ❖ **Handled right**, biofuels can be a source of substantial permanent new income for farmers and foresters, can help reduce greenhouse gases, and can reduce nutrient pollution to the Bay.
- ❖ **Handled wrong**, biofuels can bring economic uncertainty, do little for greenhouse gasses, increase the cost of animal feed, and exacerbate nutrient pollution.



*Grain-Based
Ethanol*





Summary of Findings: *Grain-Based Ethanol*

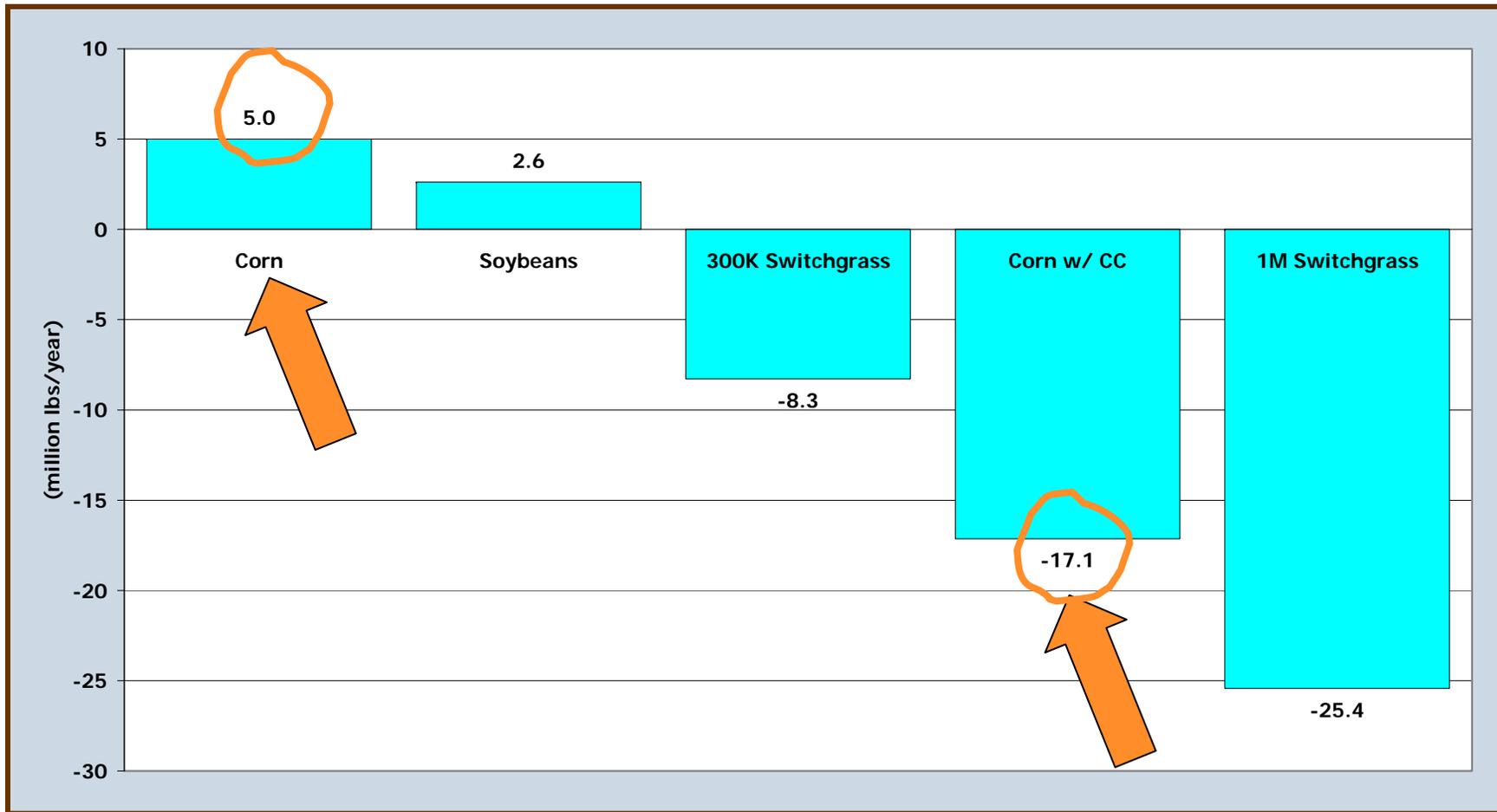


- ➊ MAJOR POTENTIAL SOURCES:
Mostly corn and some hull-less barley.
- ➋ CBC projects corn acres could increase up to 300K in 3-5 years.
- ➌ POSITIVES: Benefits include more viable farming, preservation of farmlands from development, and opportunity to expand cover crops and other conservation practices.
- ➍ NEGATIVES: Increased nutrient loads due to increased fertilizer runoff, relatively poor nutrient uptake by corn, condition of new acres, and possible loss of CRP lands.



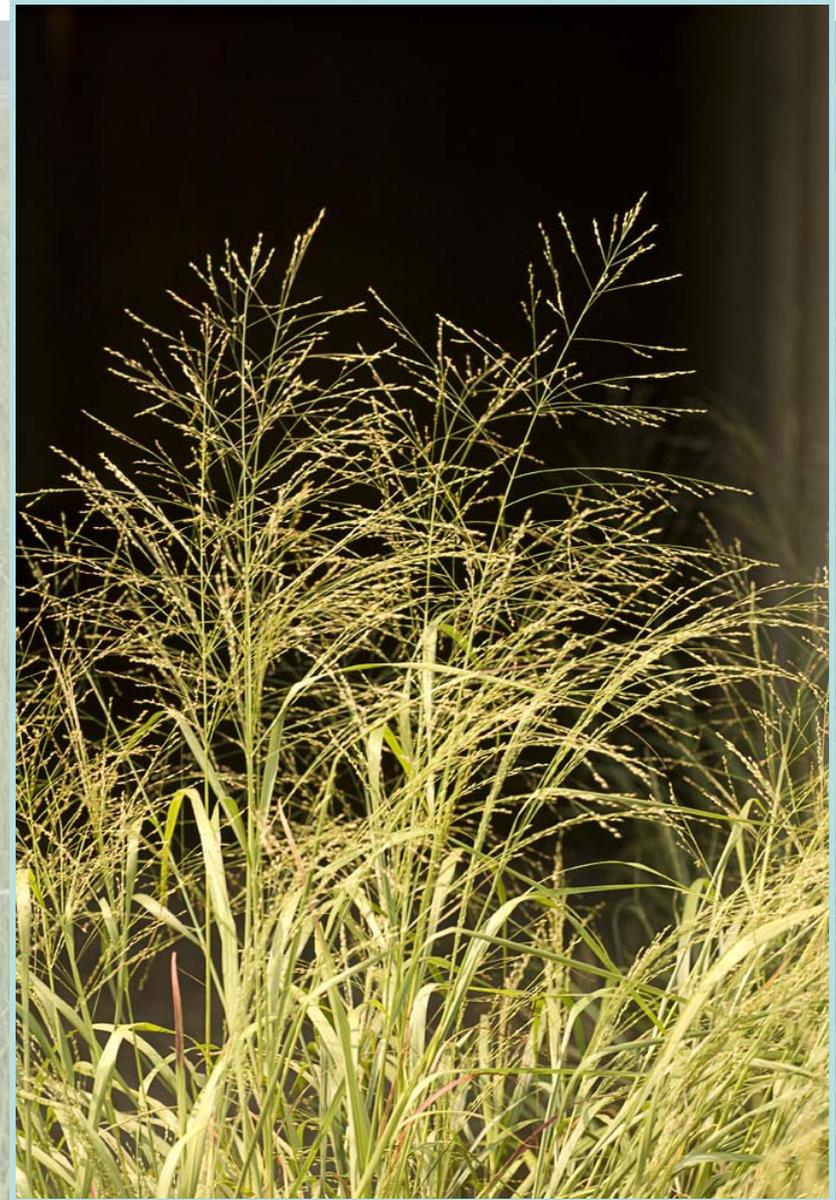
Impacts of Alternative Biofuels Scenarios

Watershed Delivered Load, Million lbs. N per year





Cellulosic Ethanol





Summary of Findings: Cellulose-Based Ethanol



❖ MAJOR POTENTIAL SOURCES: Corn stover, woody biomass, Perennial grass

❖ ADVANTAGES:

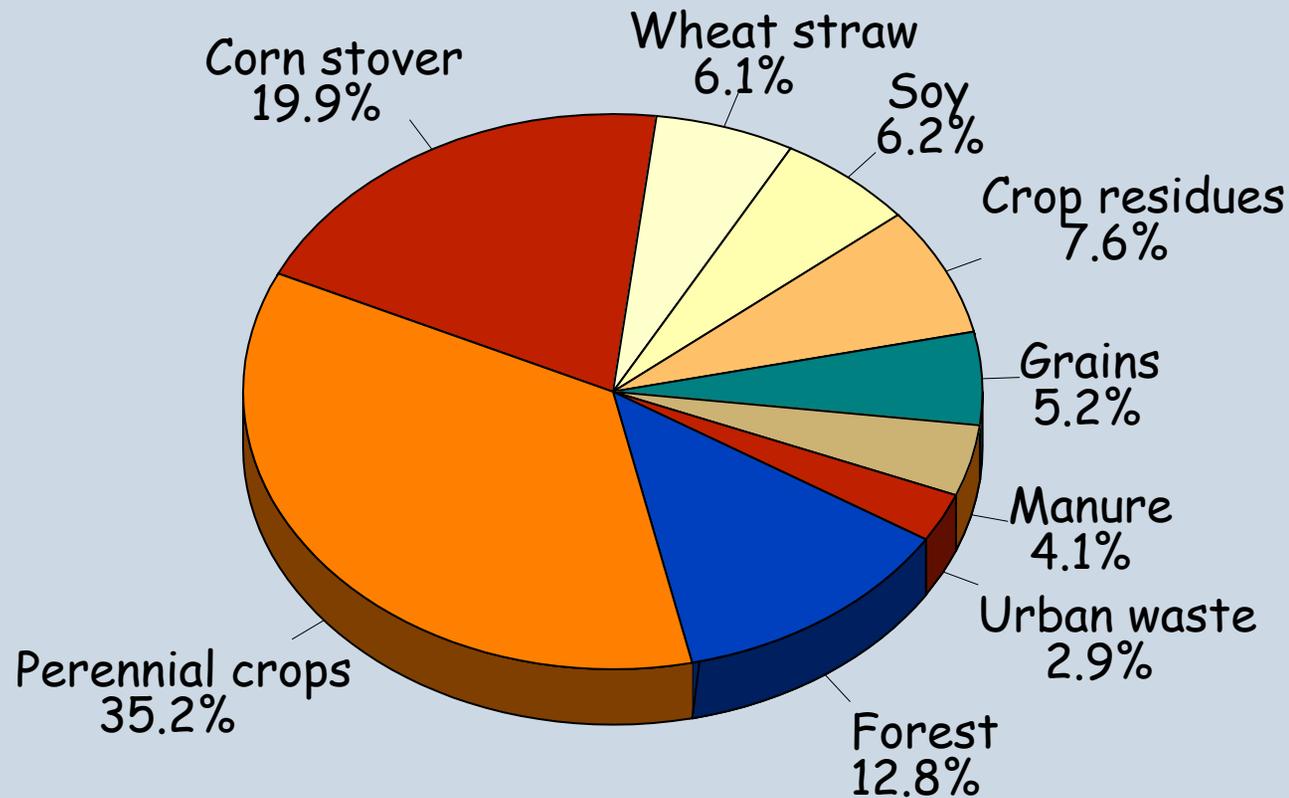
❑ greenhouse gas and nutrient retention, erosion control, energy savings.

❑ Overall, a promising source of sustainable income for farms and forests beginning 2012 to 2015, can be managed to help reduce nutrient overloads to the Bay.

❖ DISADVANTAGE: Technology not ready yet.



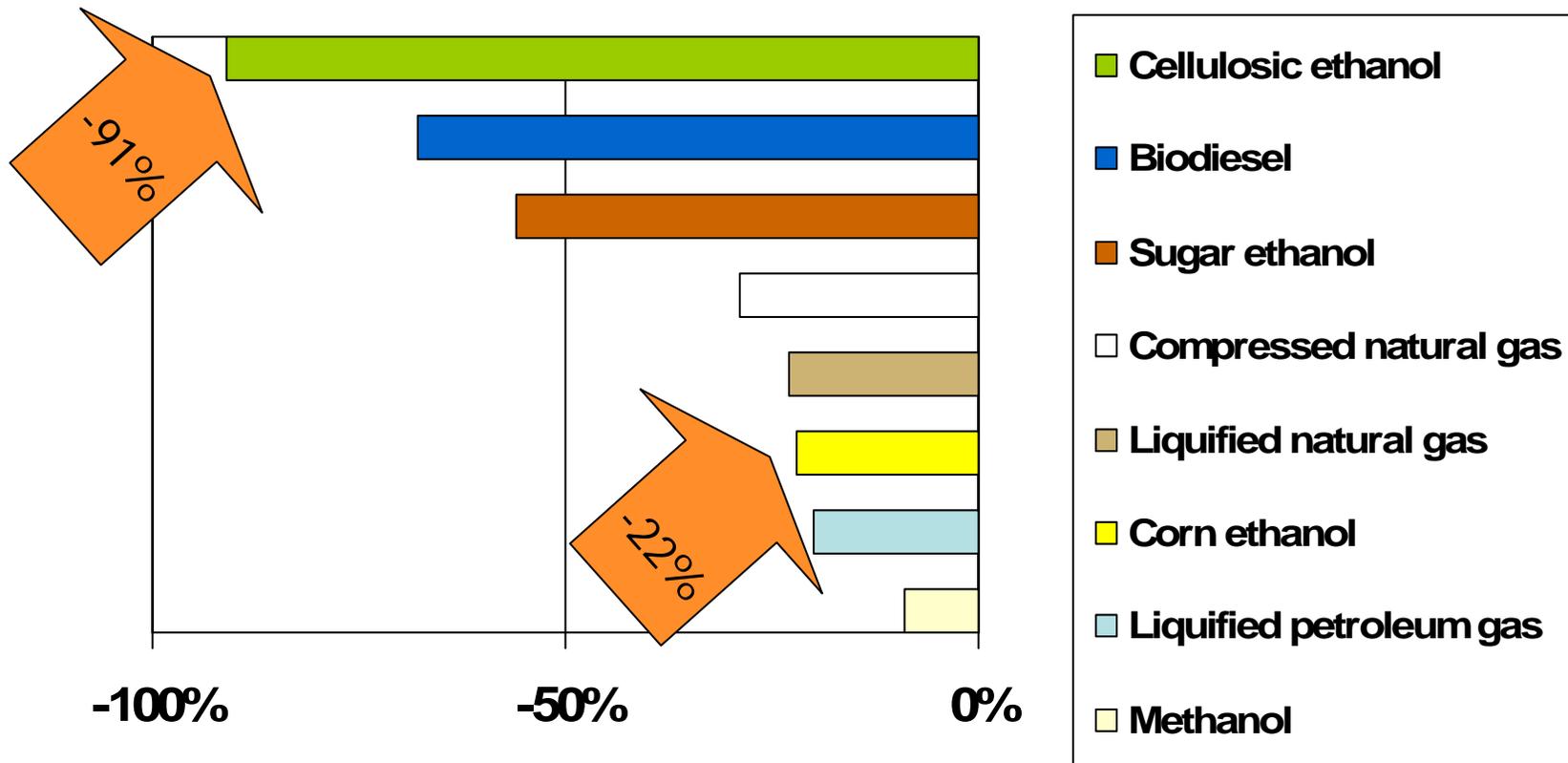
Huge Potential for Cellulosic & Manure-based Biofuels



*US Biomass inventory = 1.3 billion tons
(USDOE projections to 2030)*



Comparing Fuels:

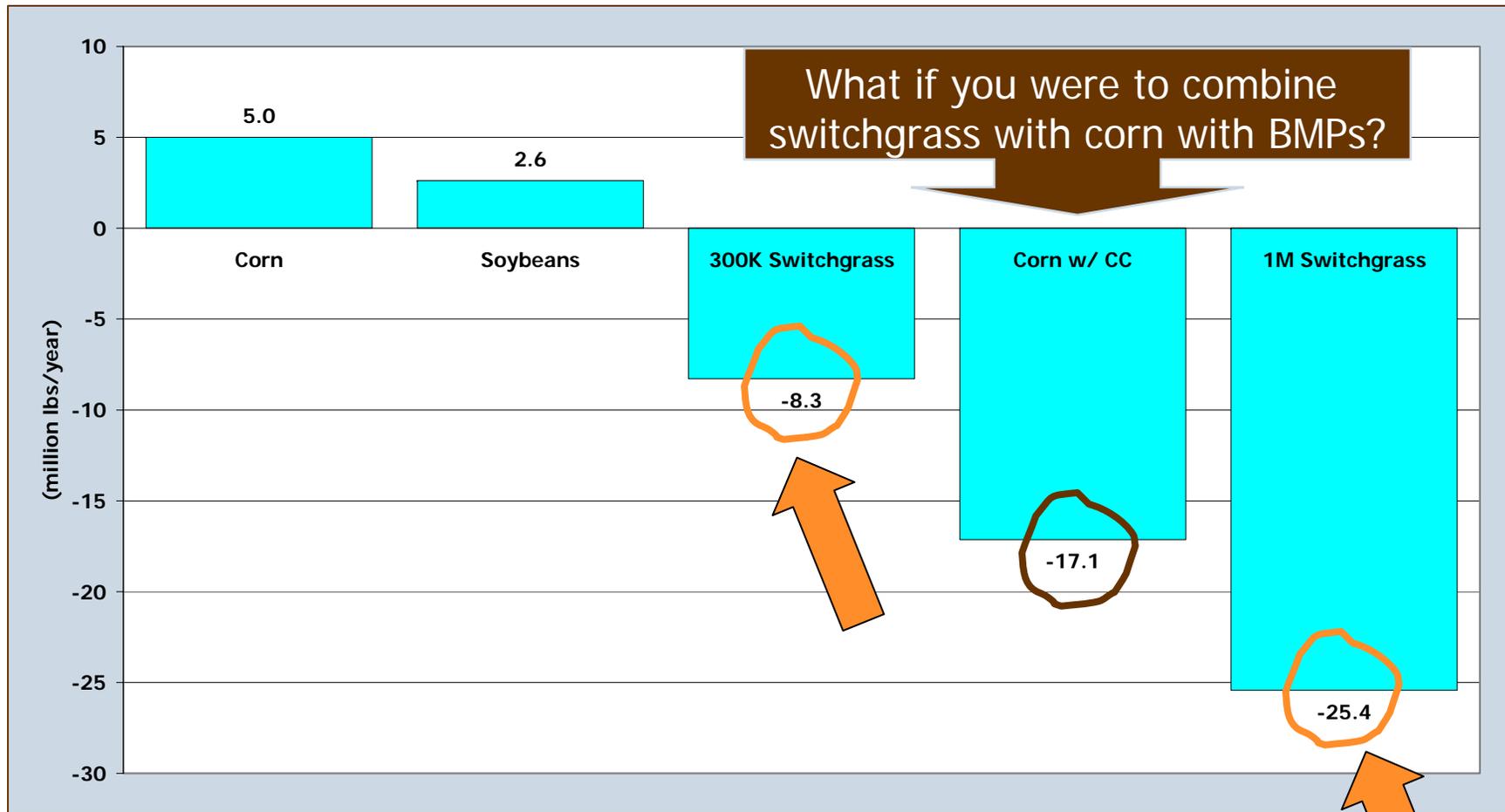


Estimated change in greenhouse gas emissions if petroleum fuel is replaced by one of these alternatives



Impacts of Alternative Biofuels Scenarios

Watershed Delivered Load, Million lbs. N per year





Recommendations to Executive Council:

HERE & NOW

- ➊ Create long-term, sustainable funding programs for Ag BMP's in every watershed state.
- ➋ Provide adequate delivery mechanisms through technical assistance and outreach.

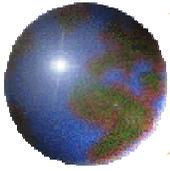
NEAR-TERM FUTURE

- ➌ Position the Chesapeake region as a national leader in an emerging cellulosic biofuels industry.
- ➍ Identify dedicated funds to research and develop the needed technology.
- ➎ Hold Cellulosic Biofuels Summit.



2008 Update

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- 
- Chesapeake Agriculture Caucus (6 watershed state Ag secretaries) endorses recommendations, 9/07.
 - Chesapeake Executive Council endorses recommendations, 12/07.
 - Gov. Rendell of Pennsylvania and the Chesapeake Bay Commission propose a Cellulosic summit:
 - Set for 9/4/08 in Harrisburg;
 - Biofuels Advisory Panel of 25 Experts;
 - Focus: Cellulosic Feedstocks for Next Generation Biofuels.



What are the Feedstocks for our region?



- Natural Oils- animal fat, yellow grease, restaurant waste, algae, and oilseed crops like soy and palm oil.



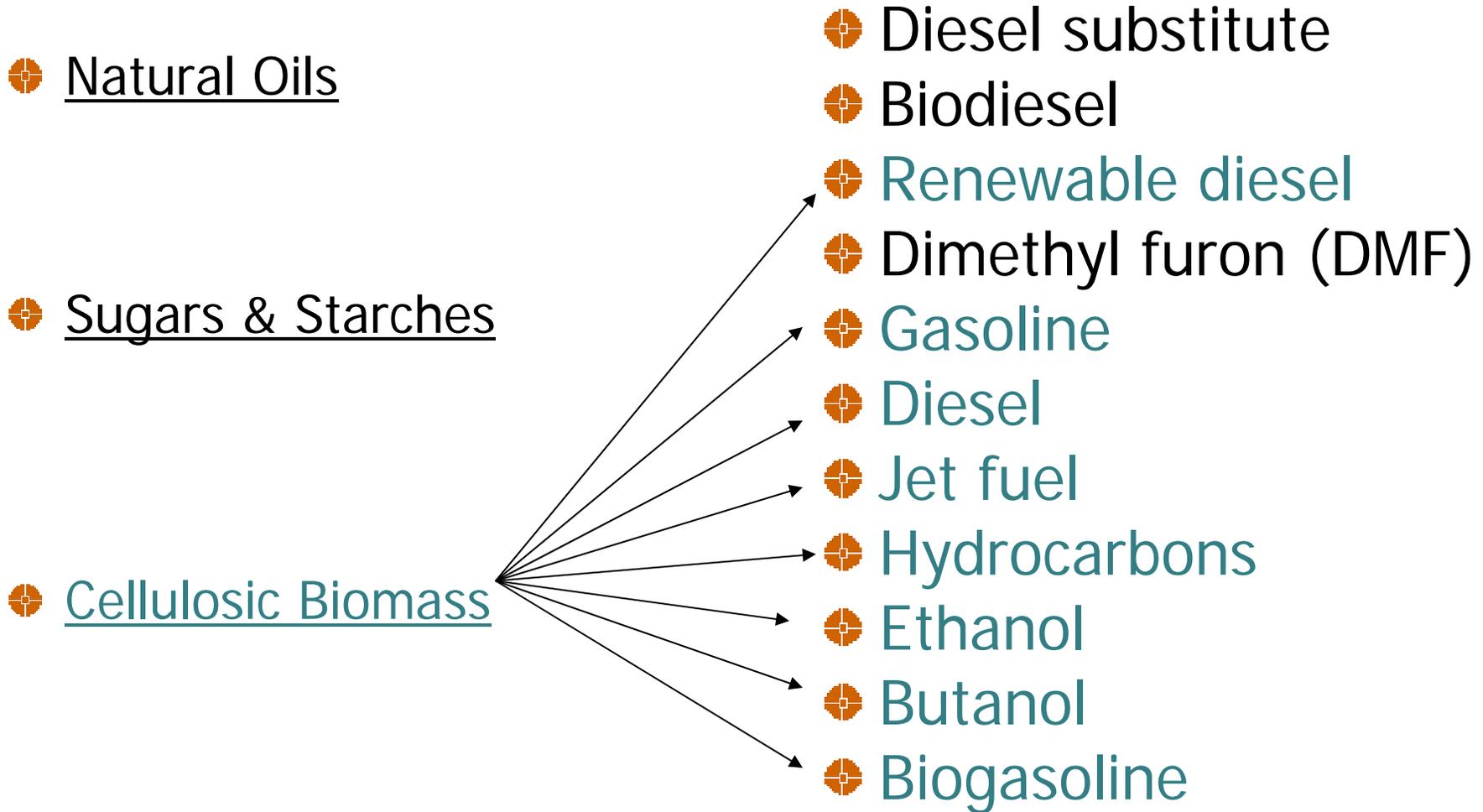
- Sugars/Starches- corn, sorghum, sugar cane and beets, hull-less barley.

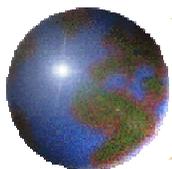


- Cellulosic Biomass- perennial grasses, woody biomass, corn stover, wheat and rice straw. What else?



Transforming Feedstocks into Renewable Fuels

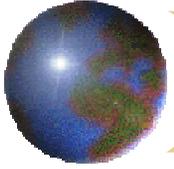




The Panel's Issue Papers

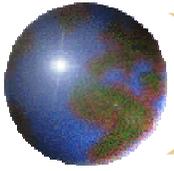
1. Summary & Analysis of State and Regional Biofuels Strategies
2. Summary & Analysis of State and Local Biofuels Legislation
3. Second Generation Biofuel Feedstocks
4. Environmental Issues with Biofuel Feedstocks
5. Land, Marketing & Infrastructure Issues
6. Goals & Incentives
7. Research & Development

Papers completed



Key Questions for the Panel

- *What is your vision for biofuel development in the watershed?*
- *What principles should guide the production of feedstocks and fuels?*
- *What challenges must we overcome?*
- *What opportunities/advantages can we draw on?*
- *For what areas/issues should goals and objectives be established?*
- *What are the priority issues we must examine?*



Your Questions of Me:

- Describe how rapid biofuels development is adversely affecting the Chesapeake Bay (nutrient levels, water quality standards, etc.).
- What biotechnologies are most likely viable in this region?
- The Chesapeake region is the largest corn-growing in the country without an operational ethanol plant. Explain how this impacts the region.
- Explain why corn-based ethanol is considered, by some experts, not an economically sustainable technology.
- What role can the Chesapeake region play in the production of cellulosic ethanol?



Chesapeake Bay Commission

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