



Chesapeake Bay Program
Science. Restoration. Partnership.

Scenario Base Year

Clean Water Goal Team

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Auston Smith
Chesapeake Bay Program Office, EPA



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Scenario Base Year Summary

- The year that trend analyses are based on to produce base conditions (e.g., Land use, agricultural inputs, and other model parameters) for other years in the effort to create planning targets.
- When data are not available, the CBP backcasts and forecasts these modeled parameters to produce the modeled landscape in other years
- This scenario base year affects the No Action and E3 scenarios (the difference between which sets the controllable load) but not progress year scenarios where their base conditions are determined each year through jurisdictional data submissions.



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Scenario Base Year Options

- Changing Scenario Base Year to 2022 and accounting for growth using method 2022A
- Changing Scenario Base Year to 2022 and accounting for growth using method 2022B
- Keeping Scenario Base Year to 2010



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How is growth accounted for in method 2022A?

- After the partnership determines assimilative capacity, produce two versions of the planning targets for 2010 and 2022
- For each of the 30 state basins, subtract 2022 from 2010 to determine the change in Eutrophication Units (EU). Map and graph the results for comparison
- Add the difference between 2010 and 2022 back to 2022 numbers so they match 2010. Purpose: have the landscape reflect 2010 since that is the year the partnership decided to begin assigning growth in inputs to the jurisdictions where it occurred
 - $2022 \text{ EUs} + (2010 \text{ EUs} - 2022 \text{ EUs}) = 2010 \text{ EUs}$
 - Example for PA Susquehanna: $1087.099 \text{ EUs} + (1101.948 \text{ EUs} - 1087.099) = 1101.948 \text{ EUs}$
- Jurisdictions conduct EU trading between each other and within their jurisdiction as they see fit, provided the overall balance reaches the assimilative capacity determined by the partnership



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How is growth accounted for in method 2022B?

- Identify growth from 2010 to 2022
- Jurisdictions with minimal growth are kept at 2010 levels, remaining jurisdictions negotiate how to distribute loads from growth



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Scenario Base Year Options: Considerations

Criteria	2010	2022a	2022b
Data Confidence	Lower	Higher*	Higher
Growth after 2010 is the responsibility of the jurisdiction where it took place	Yes	Yes	Partially
Level of Risk for E3 Not Meeting WQ Standards	Higher	Higher	Moderate
Simplification of communication to partners	Straightforward	Potential Confusion	Potential Confusion



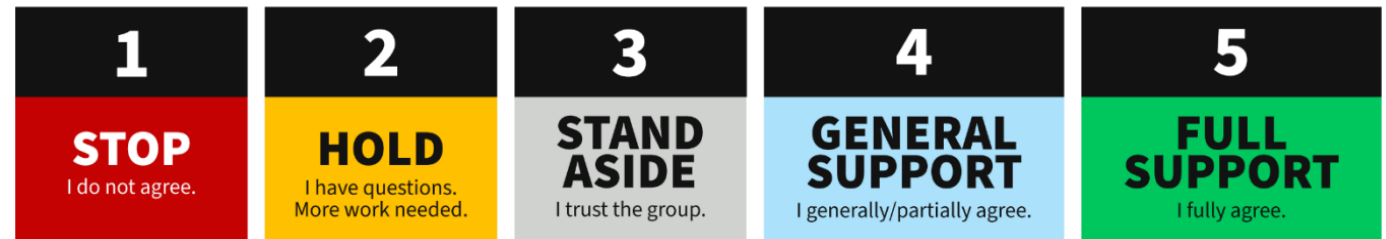
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Decision Requested

After discussion and formulation of a specific proposal, CWGT will be asked to determine which Scenario Base Year and associated method for accounting for growth, if applicable, should be used for calculating controllable loads from No Action and E3 Scenarios in Phase 7. The options to be proposed for support are:

- Changing Scenario Base Year to 2022 and accounting for growth using method 2022A
- Changing Scenario Base Year to 2022 and accounting for growth using method 2022B
- Keeping Scenario Base Year to 2010

Chesapeake Bay Program's Decision-Making Continuum



CONSENT RANGE

The consent range includes Stand Aside, General Support, and Full Support. When all group members fall within this range, consent is reached and implementation may proceed.



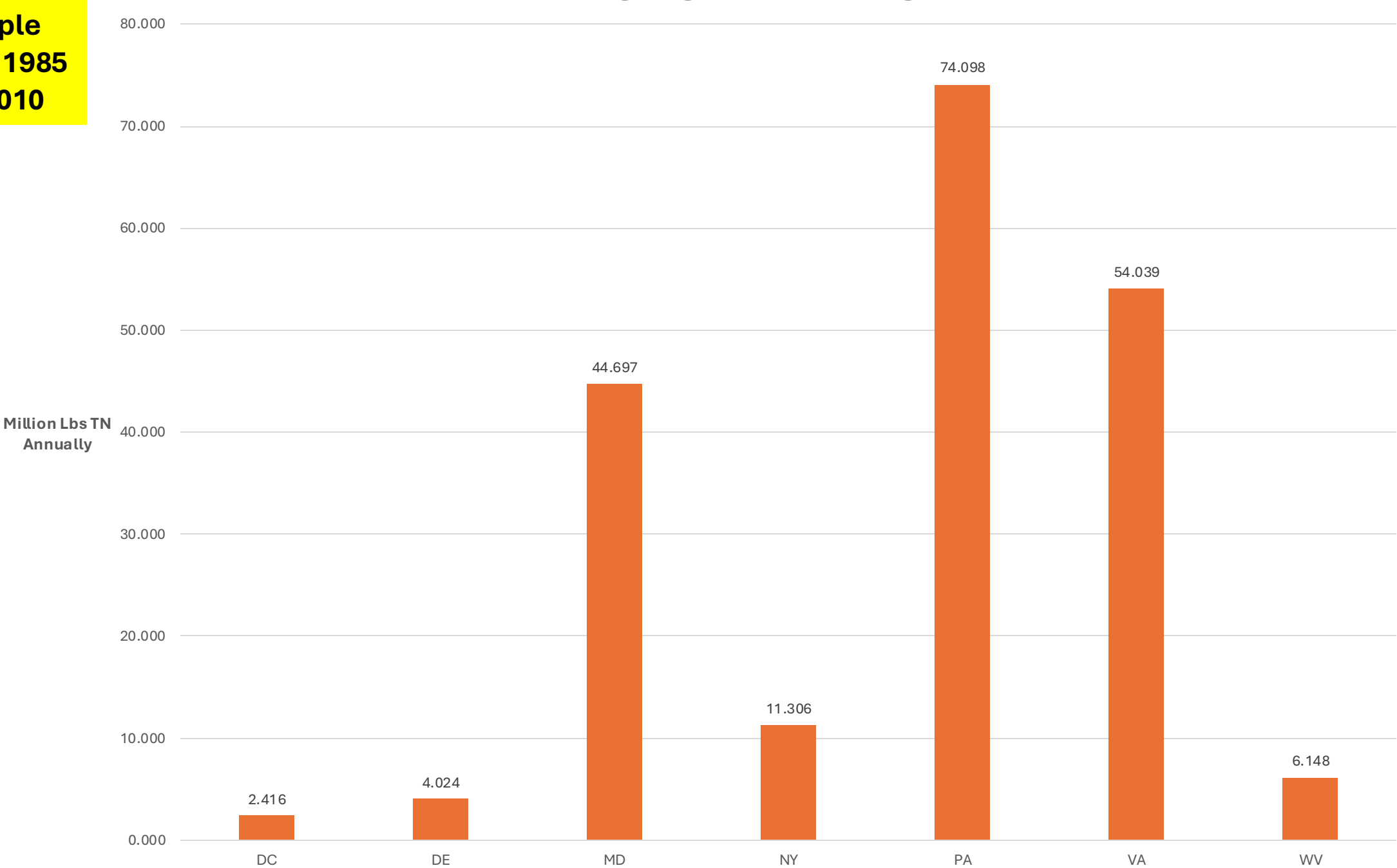
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Reference Slides

Example comparison of 1985 and 2010 as scenario base year options using the Phase 6 suite of models

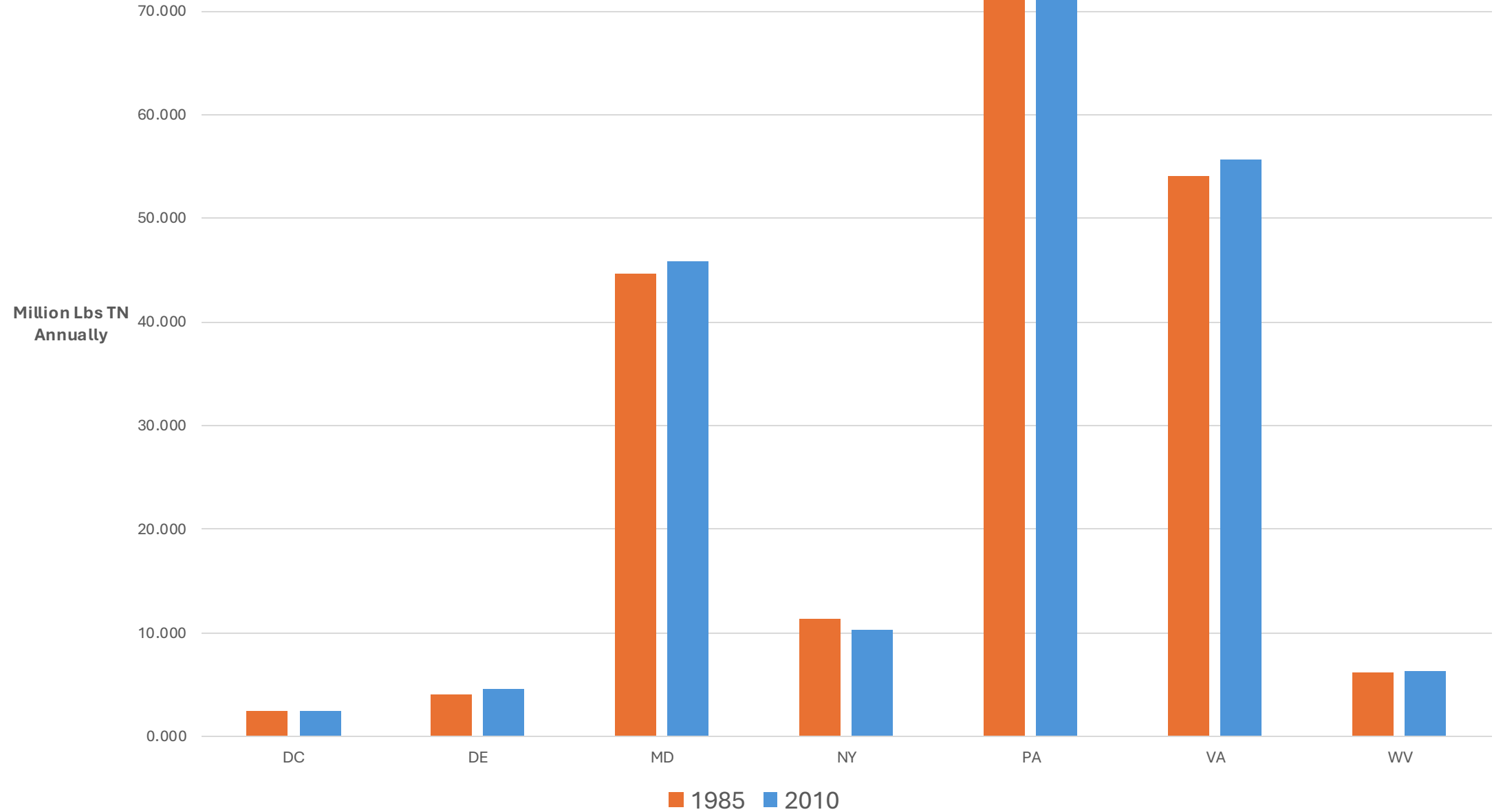
**Example
using 1985
and 2010**

1985 Planning Targets for TN Using P6

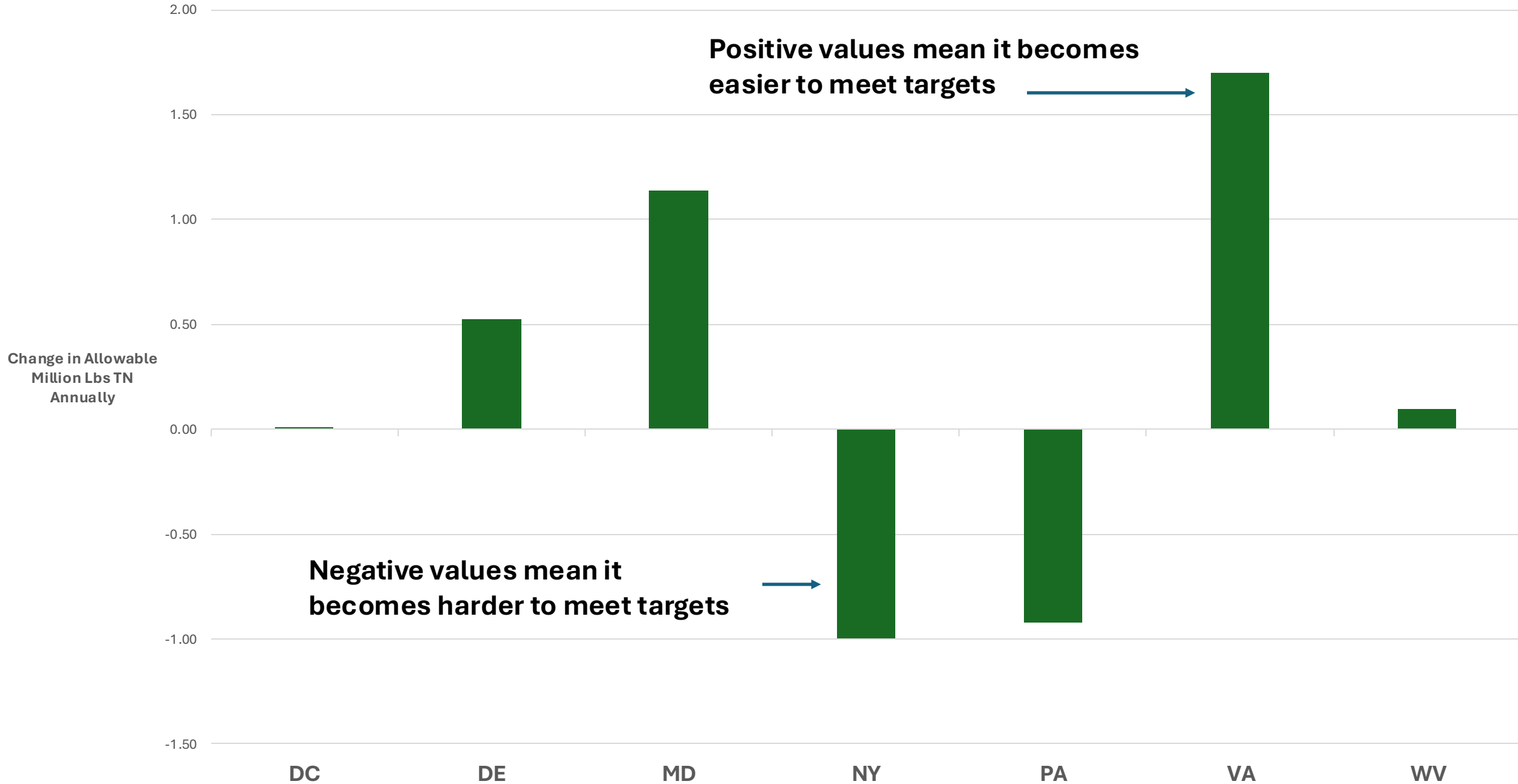


**Example
using 1985
and 2010**

1985 vs 2010 Planning Targets for TN Using P6



**Result of Switch from 1985 to 2010 for Scenario Base Year
On Allowable TN Loads for Planning Targets**



How would a move from 1985 to 2010 Influence Jurisdictions' TN Planning Targets?

- Becomes easier to meet TN planning targets

- VA – can pollute an extra 1.7M lbs TN
- MD – can pollute an extra 1.14M lbs TN
- DE – can pollute an extra 0.53M lbs TN
- WV – can pollute an extra 0.1M lbs TN
- DC – can pollute an extra 0.01M lbs TN



The net effect of moving from 1985 to 2010 is that the overall level effort across the board goes down slightly. Meaning, the intercept for the “All Else” line goes down by 0.001.

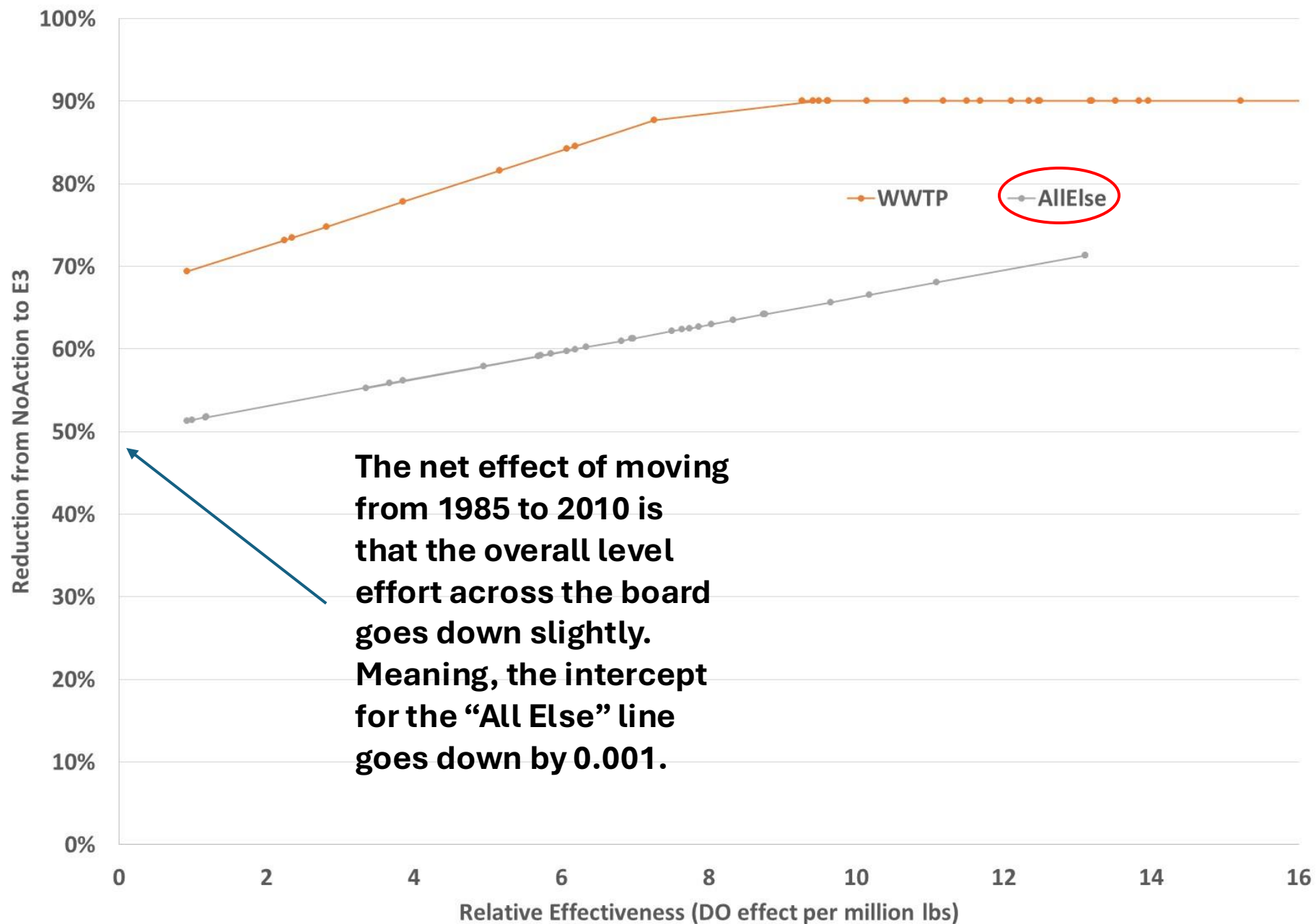
- Becomes harder to meet TN planning targets

- NY – has to reduce an extra 1.0M lbs TN
- PA – has to reduce an extra 0.92M lbs TN



However, you can see that a decrease in level of effort doesn't yield the same result for each jurisdiction, since the distance between E3 and NA changes for each basin.

Planning Target Calculation - Nitrogen



Let's Break This Down With A Simple Example

- NY is only comprised of the Susquehanna Above Fall Line, so useful to explain the concept

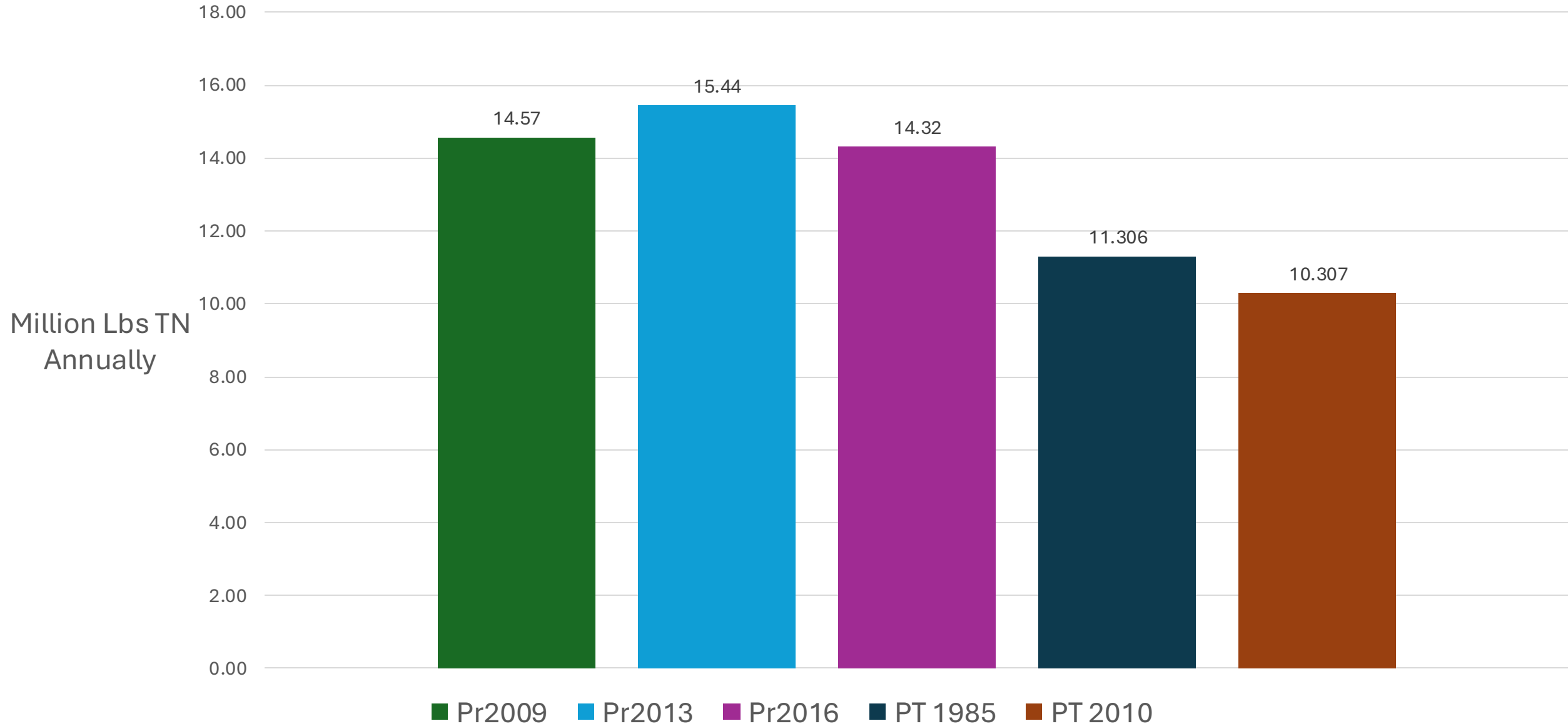
Scenario Base Year	No Action All Else (M lbs TN)	E3 All Else (M lbs TN)	Planning Target (M lbs TN)	Level of Effort (% difference between E3 & NA)
1985	15.41 M lbs TN	6.72 M lbs TN	10.23 M lbs TN	59.6%
2010	13.24 M lbs TN	6.5 M lbs TN	9.23 M lbs TN	59.4%

- Since No Action shrank more than E3 did (2.17 M lbs vs 0.22 M lbs), the reduction in level of effort is counteracted, and then some
- Potential reasons: land coming out of production and going through natural succession, decrease in population on septic from out-migration

**NY was at
14.57 M Lbs TN
at 2009
Progress**



Susquehanna NY AFL



An Opposite Example

- VA Potomac Above Fall Line can show us the opposite: larger gap between No Action and E3

Scenario Base Year	No Action All Else (M lbs TN)	E3 All Else (M lbs TN)	Planning Target (M lbs TN)	Level of Effort (% difference between E3 & NA)
1985	11.97 M lbs TN	5.00 M lbs TN	7.84 M lbs TN	59.3%
2010	12.46 M lbs TN	5.01 M lbs TN	8.05 M lbs TN	59.1%

- Growth in load from No Action with a steady E3 & a slight decrease in level of effort mean Potomac AFL VA can pollute more in this case
- Potential reasons: agricultural intensification, population growth and development

Potomac VA AFL

