



Maryland
Department of
the Environment

AIR QUALITY PERMITS PROGRAM INTERPRECURSOR TRADING REGULATORY CHANGES KAREN IRONS

Air Quality Control Advisory Council (AQCAC)

June 19, 2017



PURPOSE

- Purpose is to allow Interprecursor Trading (IPT) for ozone precursors
- EPA's proposed Ozone Implementation Rules encourage States to allow interprecursor trading by establishing offset substitution provisions



WHY IS ITP NECESSARY?

- Major new sources of air emissions in the Baltimore 8-hour ozone nonattainment area must obtain Emission Reduction Credits (ERCs) to offset emission increases of ozone precursors
- The Baltimore 8-hour ozone nonattainment area (Anne Arundel County, Baltimore City, Baltimore County, Carroll County, Harford County and Howard County) is a moderate ozone nonattainment area
- All other areas from which ERCs could possibly be obtained are either marginal ozone nonattainment areas or are part of the Ozone Transport Region



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- As a result, any new major source or major modification to an existing source of VOC or NO_x emissions in the Baltimore ozone non-attainment area can only obtain ERCs from the Baltimore area
 - Sources are currently unable to find VOC ERCS; NO_x ERCs continue to be available



FROM EPA'S 11/17/16 PROPOSED 2015 OZONE IMPLEMENTATION RULE

States can make it easier for new or modified major sources to satisfy the offset requirements in an area by establishing interpollutant offset substitution provisions. Such provisions create additional flexibility in meeting offset requirements by allowing NO_x emissions reduction to satisfy VOC offset requirements and vice versa.



WHY DO WE NEED REGULATIONS?

EPA Region III has stated that Maryland must have regulations that explicitly allow Interprecursor Trading



PROPOSAL

- Allow sources to substitute NO_x ERCs for VOC ERCs upon meeting the following requirements:
 - Submittal of a description of the air quality model(s) used to establish the appropriate ratio for the precursor substitution;
 - A proposed ratio for the precursor substitution and accompanying calculations; and
 - A demonstration substantiating that the ratio achieves an equivalent or greater air quality benefit for ozone in the nonattainment area.

Approvals will be done a case by case basis

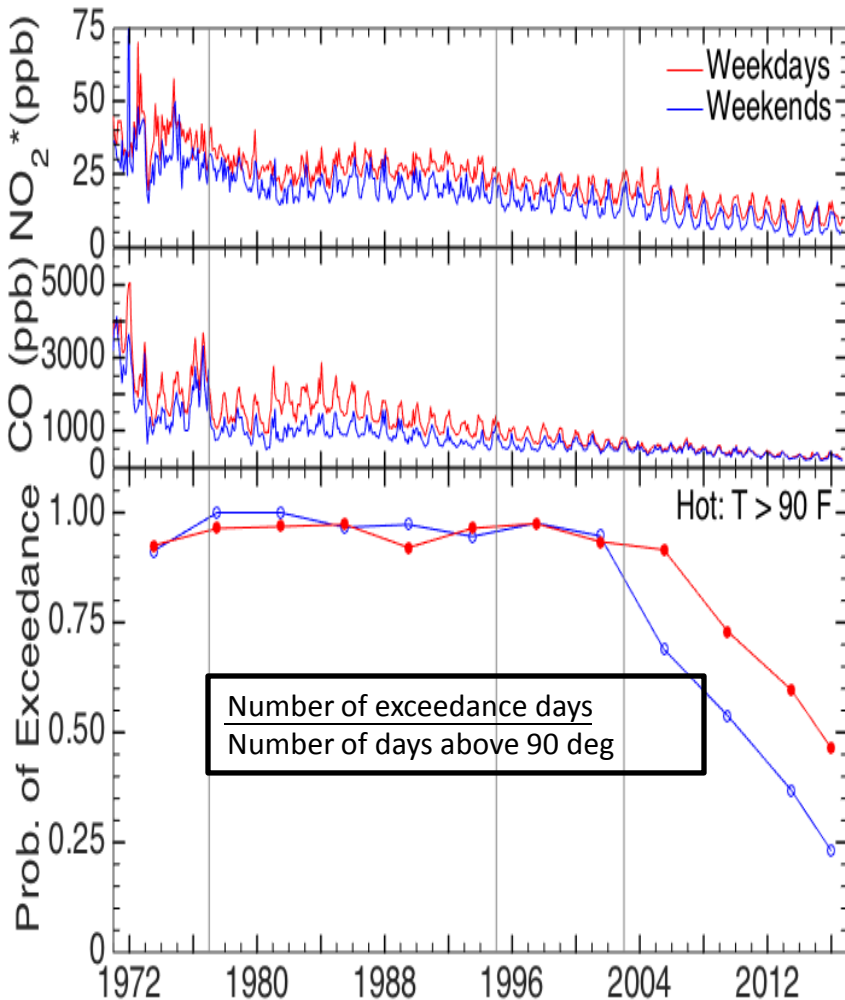


WHY SHOULD IPT BE ALLOWED?

- According to monitored data the Baltimore 8-hour ozone nonattainment area is NO_x limited for ozone formation
- Modeling completed by the University of Maryland also concluded that the Baltimore area is NO_x limited
- NO_x reductions are more beneficial to reduce ozone concentrations than VOC reductions.



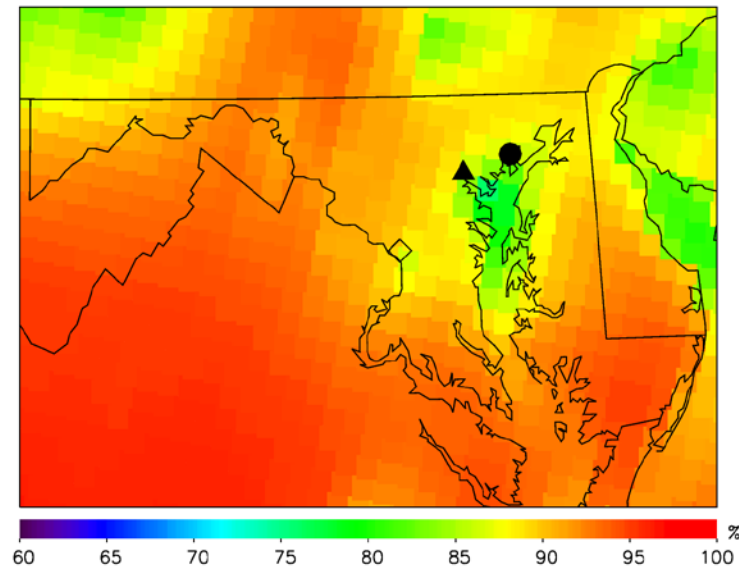
Ozone and Precursors Decreasing



- Top two panels depicts monthly average mixing ratios observed in the Baltimore/Washington region
- Ozone precursors (NO_2 , CO and VOCs) have been controlled effectively
- Keep in mind that CO and VOCs move in parallel to a large extent.
- Bottom panel, probability of an ozone exceedance on a hot day has begun to fall over the past several years.



Photochemical Modeling Shows NO₂ Reductions are Important to Reduce Ozone



- Photochemical Modeling shows that 75% - 90% of the ozone formed is in the NO_x-limited production regime during July 2011 averaged over daytime (8 AM – 8 PM local time) for the entire month.
- The filled triangle denotes Baltimore, Maryland and the filled circle denotes Edgewood, Maryland (Goldberg et al., GRL, 2016).