Status of Inventories

PM2.5 Maintenance Plan

(Washington DC-MD-VA PM2.5 Nonattainment Area)

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MWAQC-TAC Call

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Milestone Years Inventories

- **Milestone Years**
  - 2002, 2007, 2017, 2025
- **Inventories needed**
  - Point Source (EGU & NEGU)
    - EGU = Electric Generating Unit, NEGU = Non Electric Generating Unit
  - Area Source
  - Nonroad Source
  - Onroad Source

Point Source (EGU & NEGU)

Annual Inventory (tpy) - Point (EGU+NEGU)

Jutrisdiction	NOx				SO2				PM2.5			
	2002	2007	2017	2025	2002	2007	2017	2025	2002	2007	2017	2025
DC	1,317.5	788.6	685.1	688.4	2,467.6	612.4	673.7	530.0	126.5	52.8	45.8	46.0
MD	45,829.4	30,365.3	28,809.6	30,580.5	164,784.1	176,880.1	90,257.7	97,045.1	3,497.3	5,047.6	4,666.0	4,986.6
VA	14,195.7	6,701.2	6,695.2	6,994.2	37,400.2	5,956.1	5,990.7	6,275.1	545.7	446.3	552.5	568.1
Washignton, DC-MD-VA PM2.5 NAA	**61,342.6**	**37,855.2**	**36,189.9**	**38,263.1**	**204,651.8**	**183,448.6**	**96,922.1**	**103,850.1**	**4,169.6**	**5,546.8**	**5,264.2**	**5,600.7**

- 2002 emissions are taken from PM2.5 submitted in March 2008.

- **Area Source**
  - **Application of Transport Fraction to PM2.5 emissions**

  - Transport Fraction - Fraction of fugitive dust particles remaining airborne and available for transport away from the vicinity of the source, after localized removal (due to vegetation, buildings, etc.) has occurred.

  - Fugitive dust - dust from unpaved & paved roads, highways, commercial & residential construction and agricultural tilling. This is part of total PM2.5 emission.

  - Application of TF is necessary :
    - As observed fugitive dust concentrations at monitors are significantly lower compared to their emission estimates.
    - Issues with emissions factors and activity data for estimating fugitive dust.

Area Source (Without PM2.5 Transport Fraction)

Annual Inventory (tpy) - Area (Without PM2.5 TF)

Jutrisdiction	NOx				SO2				PM2.5			
	2002	2007	2017	2025	2002	2007	2017	2025	2002	2007	2017	2025
DC	1,694.7	1,477.0	1,490.7	1,560.8	463.4	1,231.5	985.6	22.5	495.1	758.5	767.7	777.5
MD	5,167.9	3,222.2	3,431.3	3,648.2	2,375.5	1,077.8	205.2	213.7	7,479.5	6,313.3	6,689.8	6,992.9
VA	7,091.4	4,652.1	4,490.2	4,535.3	9,496.6	5,411.6	4,911.7	4,712.5	5,692.3	9,176.9	10,159.2	10,951.5
Washignton, DC-MD-VA PM2.5 NAA	**13,954.0**	**9,351.3**	**9,412.2**	**9,744.3**	**12,335.6**	**7,720.9**	**6,102.5**	**4,948.7**	**13,666.9**	**16,248.7**	**17,616.8**	**18,721.9**

- **Increase in PM2.5 emissions**
  - **2007-2017: 8.4%, 2017-2025: 6.3%**

•2002 emissions are taken from PM2.5 submitted in March 2008 and need to be revised for a few sources.

Area Source (With PM2.5 Transport Fraction)

Annual Inventory (tpy) - Area (With PM2.5 TF)

Jutrisdiction	NOx				SO2				PM2.5			
	2002	2007	2017	2025	2002	2007	2017	2025	2002	2007	2017	2025
DC	1,694.7	1,477.0	1,490.7	1,560.8	463.4	1,231.5	985.6	22.5	495.1	409.7	420.2	430.7
MD	5,167.9	3,222.2	3,431.3	3,648.2	2,375.5	1,077.8	205.2	213.7	7,479.5	4,352.6	4,497.8	4,615.8
VA	7,091.4	4,652.1	4,490.2	4,535.3	9,496.6	5,411.6	4,911.7	4,712.5	5,692.3	5,021.0	5,188.7	5,324.1
Washignton, DC-MD-VA PM2.5 NAA	13,954.0	9,351.3	9,412.2	9,744.3	12,335.6	7,720.9	6,102.5	4,948.7	13,666.9	9,783.4	10,106.8	10,370.6

- **Increase in PM2.5 emissions**
  - **2007-2017: 3.3%, 2017-2025: 2.6%**

•2002 emissions are taken from PM2.5 submitted in March 2008 and need to be revised for a few sources and PM2.5 transport fraction needs to be applied.

Nonroad (NMIM+MAR) Source

Annual Inventory (tpy) - Nonroad (NMIM+MAR)

Jutrisdiction	NOx				SO2				PM2.5			
	2002	2007	2017	2025	2002	2007	2017	2025	2002	2007	2017	2025
DC	3,535.6	3,269.5	1,867.8	1,223.5	376.5	230.8	2.9	3.0	298.7	248.0	138.8	76.0
MD	9,972.9	10,396.0	6,100.3	4,505.5	894.2	550.1	50.3	51.7	1,007.4	904.8	642.3	513.2
VA	13,213.6	13,118.4	9,628.0	8,966.2	1,562.5	867.0	379.8	462.4	1,312.2	1,054.5	801.7	681.4
Washignton, DC-MD-VA PM2.5 NAA	26,722.1	26,783.9	17,596.2	14,695.2	2,833.1	1,648.0	433.0	517.1	2,618.3	2,207.4	1,582.7	1,270.6

- 2002 NONROAD2005a emissions need to be revised with NMIM.

Onroad Source (MOVES2010a) – MARAMA (Draft)

Annual Inventory (tpy) - Onroad

Jutrisdiction	NOx				SO2				PM2.5			
	2002	2007	2017	2025	2002	2007	2017	2025	2002	2007	2017	2025
DC		7698.26		1615.55		79.25		24.77		543.29		144.08
MD		35272.28		12451.36		307.63		321.76		2085.38		1026.22
VA												
Washignton, DC-MD-VA PM2.5 NAA												

- Draft 2007 & 2025 emissions here are provided by MARAMA and will be replaced by COG developed inventories.

Summary of Draft Inventories

Annual Inventory (tpy) - Total (All Sources)

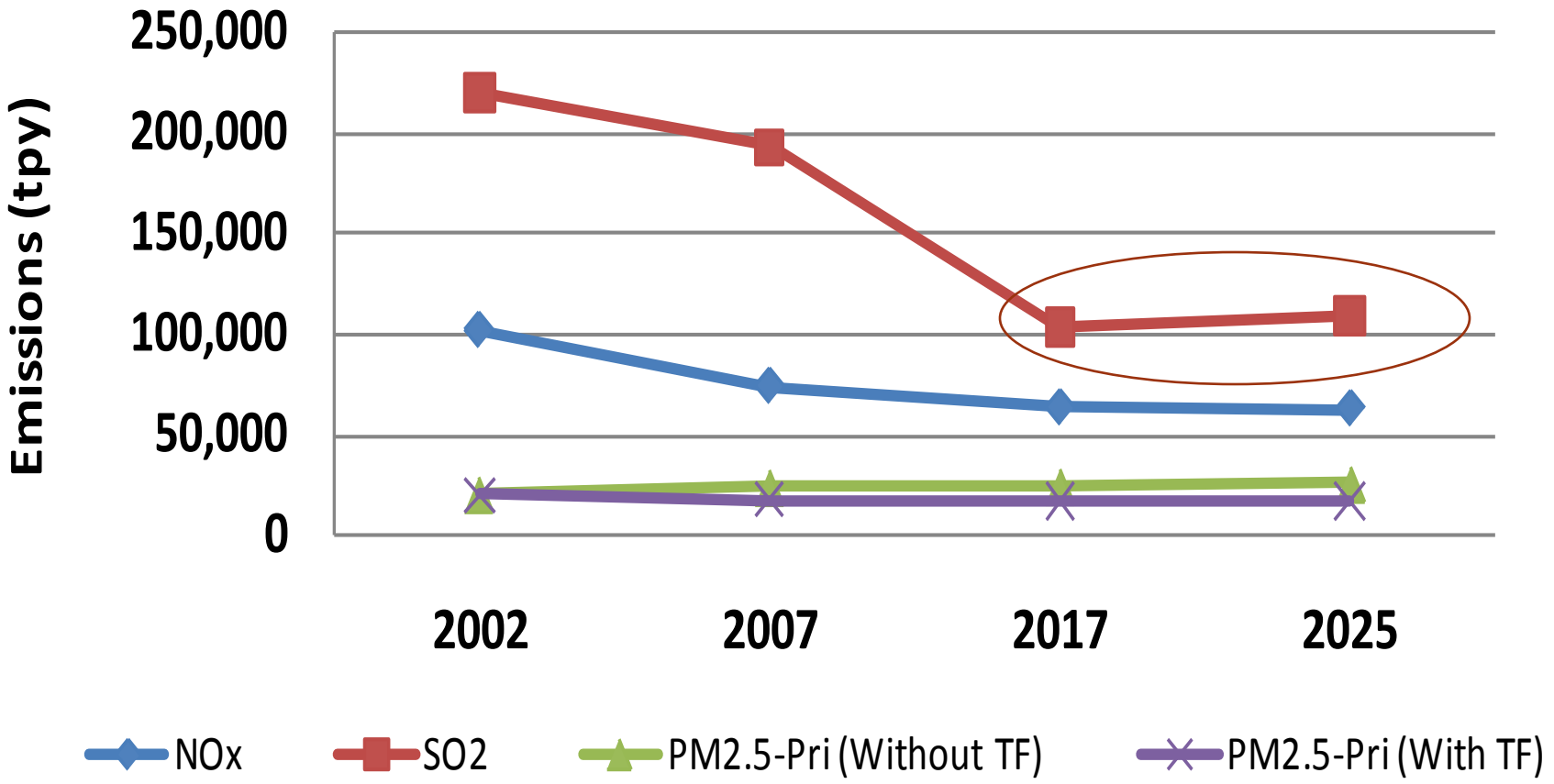
Jutrisdiction	NOx				SO2			
	2002	2007	2017	2025	2002	2007	2017	2025
DC	6,547.8	5,535.1	4,043.7	3,472.7	3,307.5	2,074.8	1,662.2	555.5
MD	60,970.3	43,983.5	38,341.2	38,734.2	168,053.8	178,508.0	90,513.2	97,310.5
VA	34,500.6	24,471.7	20,813.4	20,495.7	48,459.3	12,234.7	11,282.2	11,449.9
Washignton, DC-MD-VA PM2.5 NAA	**102,018.7**	**73,990.4**	**63,198.3**	**62,702.6**	**219,820.5**	**192,817.5**	**103,457.6**	**109,315.9**

Jutrisdiction	PM2.5 (Without Transport Factor)				PM2.5 (With Transport Factor)			
	2002	2007	2017	2025	2002	2007	2017	2025
DC	920.3	1,059.2	952.3	899.5		710.5	604.7	552.7
MD	11,984.2	12,265.8	11,998.1	12,492.6		10,305.1	9,806.1	10,115.6
VA	7,550.2	10,677.7	11,513.4	12,201.0		6,521.8	6,542.9	6,573.6
Washignton, DC-MD-VA PM2.5 NAA	**20,454.7**	**24,002.8**	**24,463.8**	**25,593.2**		**17,537.5**	**16,953.7**	**17,241.9**

MOVES emissions are not included.
2002 NONROAD2005a emissions from PM2.5 SIP need be replaced with NMIM emissions.
2002 Area and a few nonroad source emissions might need revision.

Emissions Trend

(Washington, DC-MD-VA PM2.5 NAA)



These draft inventories do not include MOVES emissions and might need revision of 2002 area and a few nonroad source emissions

Status of Inventories
PM2.5 Maintenance Plan

Source	2002	2007	2017	2025
Point	Final	Final	Draft	Draft
Area	Draft	Final	Draft	Draft
NMIM		Final	Final	Final
MAR	Draft	Final	Final	Final
Onroad				

- MOVES emissions are scheduled to be developed by February 2012.

Summary of Inventories

PM2.5 Maintenance Plan

- **Conclusion**
  - **A number of inventories are still draft or in the process of being developed.**
  - **Point Source – Significant SO2 emission increase between 2017 and 2025.**
  - **Area Source – PM2.5 emission with "Transport Factor" applied shows lower rate of increase between 2007 and 2025.**
  - **Onroad Mobile Source – MOVES emissions need to be developed.**