

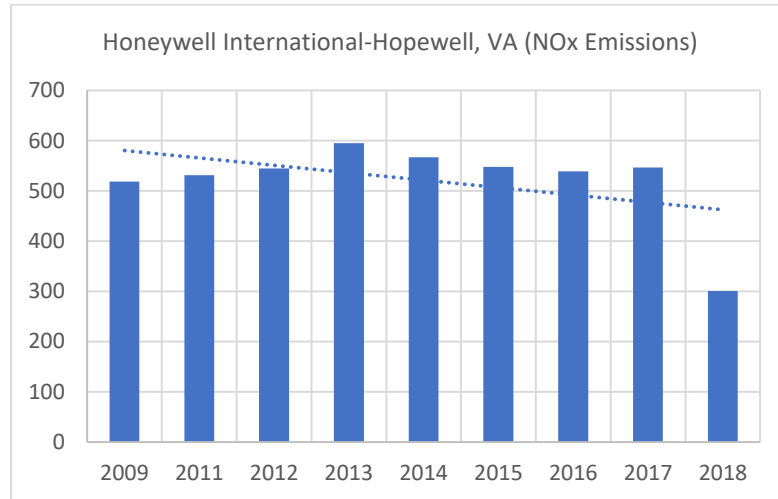
The U.S. Environmental Protection Agency's (EPA) 2016v2 modeling platform was developed as an update to EPA's 2016v1 modeling platform. Among other updates to 2016v2, this platform incorporated updated emissions data, which represent emissions for the 2016 base year, as well as projected emissions for the 2023, 2026, and 2032 future years. Arkansas Division of Environmental Quality (ARDEQ) reviewed the point non-electric generating unit (ptnonipm) and point electric generating unit (ptegu) sectors of the 2016v2 platform and below are comments derived from this review.

**For the ptnonipm sector:**

1. Although additional review could result in identification of more issues, ARDEQ has found that the future year projection factors used for Arkansas facilities in the 2016v2 for the 2026 and 2032 future years are more reasonable compared to those in the 2016v1 platform. For example, a future year projection factor of 2.55 was applied to an Arkansas facility in the 2016v1, while the 2016v2 platform applied a future year projection factor of 0.98 for this same facility that has exhibited decreasing emissions over the last 10 years.
2. According to EPA's 2016v2 Technical Support Document (TSD) "...the 2016 point source emission inventories for the platform include emissions 2016 primarily from S/L/T-submitted data, along with adjusted 2014 data pulled forward for sources under the annual reporting threshold with the goal of better representing emissions in 2016." ARDEQ suggests EPA considering examining the use of 2017 NEI data and adjusting the dataset to create a 2016 base year. The 2017 data is more recent and if a backward base year projection is necessary, then it would be a one year projection (2017 to 2016) and not two years (2014 to 2016).
3. According to EPA's 2016v2 TSD, for sources outside of the Mid-Atlantic Regional Air Management Association (MARAMA) region, the maximum future year projection factor was capped at 1.25. Also the future year projection factor was capped at a maximum of 2.5 if SCC/NAICS combinations with criteria pollutant emissions >100 tons/year for the ptnonipm sector. However, the ptnonipm includes future year projection factors that are greater than 1.25 for various facilities outside of MARAMA region where the total annual emissions are less than 100 tons, including a future year projection factor as high as 1.468. ARDEQ does not know the origin of these greater than 1.25 exceptions to the TSD language and whether they are possibly a result of state-submitted refinement data, which would be reliable sources.
4. The future year projection factor for NOx emissions from "Honeywell International Inc – Hopewell" (unit# 20375813) in Virginia is 6.79 for 2026 in the 2016v2 platform and was 0.63 for 2028 in 2016v1 platform. ARDEQ conducted trend analyses to evaluate some future year projection factors and ARDEQ's analysis for this source does not appear to support a future year projection factor of 6.79 and may support a future year projection factor of 0.62; however, Virginia may have suggested the 6.79 as the appropriate value and, if so, would likely be the best source of this data. ARDEQ suggests that EPA verify

the above example, possibly with Virginia if data not already provided by Virginia, and other similar examples.

Figure 1: Historical NOx Emission Data for Honeywell International



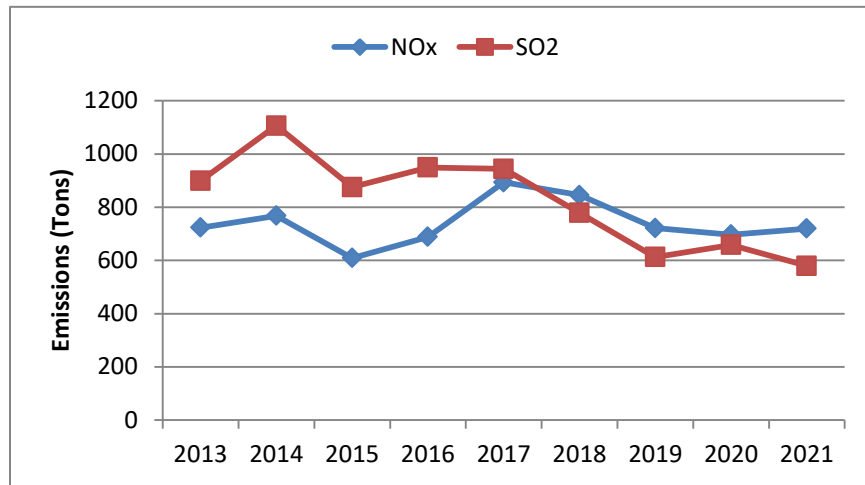
**For the ptegu sector:**

1. For regional haze purposes, ARDEQ previously compared future year projections in EPA's 2016v1 platform and the v16.1 future year projections developed by the Eastern Regional Technical Advisory Committee (ERTAC), deciding ERTAC's v16.1 future year projections were more appropriate than EPA's Integrated Planning Model (IPM) future year projections that informed EPA's 2016v1 platform. So, it may be informative to conduct a thorough comparison of ERTAC's v16.1 (or a future update) and EPA's 2016v2 (or a future update) to evaluate future year projections if EPA continues to choose to use IPM instead of ERTAC.
2. If EPA chooses to continue to use IPM instead of ERTAC, then ARDEQ suggests EPA communicate with states to seek any updates and/or corrections prior to conducting IPM modeling as is done by ERTAC.
3. For some sectors (e.g., solvents, nonpt, nonroad), EPA's 2016v2 platform future year projections utilized Energy Information Agency's (EIA) Annual Energy Outlook (AEO) 2021 data. However, according to the TSD, the ptegu IPM modeling used AEO 2020 data (e.g., demand, gas and coal market assumptions, cost and performance of fossil generation technologies, among others). The latest AEO 2021 was released on February 3, 2021 and ARDEQ suggests updating the 2016v2 using the latest AEO data in all sectors.
4. Table 4.2 of EPA's 2016v2 TSD reported total 2026 NOx emission for Arkansas as 9,258 tons; however, summing the three files (summer, winter, and wintersld) for both cems and noncems data for the ptegu sector indicates the total 2026 NOx emissions for

Arkansas as being 9,273 tons. ARDEQ did not make this comparison for other states. ARDEQ suggests EPA identify the source of the discrepancy in the above example and conduct the same comparison for other states.

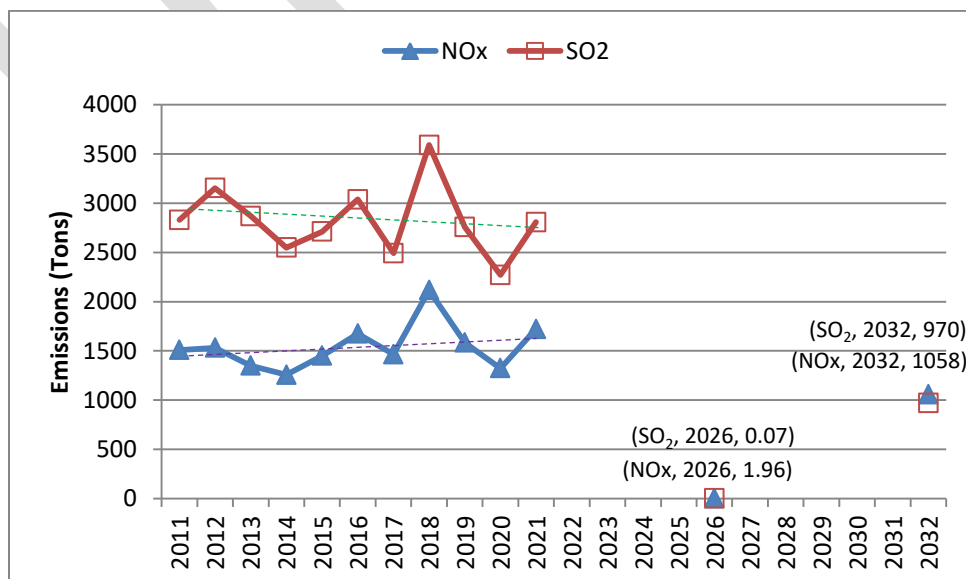
5. IPM modeling for the 2032 future year includes emissions for the Entergy Arkansas-White Bluff plant. However, a state and federally enforceable administrative order requires the cessation of coal-fired operations by no later than December 31, 2028 and any possible operation beyond 2028 is unknown and would require future permitting actions if ambient air emissions are to be emitted. ARDEQ suggests EPA zero out emissions beyond 2028 for this facility.
6. IPM 2032 projections show zero NO<sub>x</sub> emissions for the winter shoulder months (March, April, October, and November) for the Flint Creek, Plum Point, Arkansas Electric-Thomas B Fitzhugh Corp, and Harry D. Mattison Power plants in Arkansas. Also, IPM projected zero SO<sub>2</sub> emissions for Plum Point, Flint Creek, Union Power Station, and others in 2032 for the winter shoulder months. IPM projected zero NO<sub>x</sub> and SO<sub>2</sub> emissions for Independence plant in 2026 for the same shoulder months. Historical data consistently shows both NO<sub>x</sub> and SO<sub>2</sub> emissions for all of these facilities in these months. ARDEQ suggests EPA re-examine this data and potentially other IPM projections in Arkansas and in other states as ARDEQ did not evaluate this beyond the above examples.
7. IPM did not project 2026 emissions for the Flint Creek Power Plant, but did project 2032 emission. We suggest EPA re-examining including 2026 emissions for this facility.
8. IPM did not project 2026 and 2032 ptegu sector emissions for the John W. Turk Power Plant. However, IPM did project 2026 and 2032 ptnonipm sector emissions for this facility of NO<sub>x</sub> at less than 1 ton and SO<sub>2</sub> at less than 1 ton. Historical NO<sub>x</sub> and SO<sub>2</sub> emissions for the John W. Turk Power Plant are presented in Figure 2. EPA should include appropriate 2026 and 2032 ptegu sector emissions and verify the 2026 and 2032 ptnonipm sector emissions for the John W. Turk Power Plant.

Figure 2: Historical Emissions from John W. Turk Power Plant, AR



9. IPM did not project 2026 ptegu sector emissions for the Plum Point Energy Station. However, IPM did project 2026 ptnonipm sector for this facility of NO<sub>x</sub> at 1.96 tons and SO<sub>2</sub> at 0.07 ton. Historical emissions for the Plum Point Energy Station are presented in Figure 3. In addition, IPM did project 2032 ptegu emissions, although the 2032 ptegu future year projection was a 62% reduction for SO<sub>2</sub> emissions from a 2021 baseline. For the Plum Point Energy Station, EPA should include appropriate 2026 ptegu sector emissions, verify the 2026 ptnonipm sector emissions, and verify the reasonableness of the 2032 ptegu SO<sub>2</sub> emissions.

Figure 3: Historical Emissions from Plum Point Energy Station, AR



10. IPM 2026 projected NOx emissions from the ARK Elec Co-Op-Oswald Generating Station are Unit G7: 172 tons, Unit G6: 115 tons, and Unit G5: 115 tons. IPM 2032 projected NOx emissions are Unit G7: 160 tons, Unit G6: 107 tons, and Unit G5: 107 tons. Table 1 provides gross load from IPM future year projections and a 5-year average of historical data (2017-2021) for these units. The 2011-2021 historical NOx emissions for these units are provided in Figure 4. EPA should verify the reasonableness of projected 2026 and 2032 NOx emissions for all of this facility's units and potentially for IPM-projected emissions at other facilities.

Table 1: Gross Load and Emission Rate from Oswald Generating Station

	Last 5 years Historical Average (MW-h)	IPM 2026 (MW-h)	IPM 2032 (MW-h)	Last 5 years Historical NOx rate (lb/mmBtu)	IPM 2032 NOx rate (lb/mmBtu) calculated from data in NEEDS
<b>Unit G7</b>	106991.622	374908	328548	0.1701	0.11459
<b>Unit G6</b>	53159.776	231851	203181	0.20512	0.12391
<b>Unit G5</b>	53122.886	231851	203181	0.20818	0.12391

Figure 4: Historical Emissions from Oswald Generating Station

