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**Regional Haze Planning Work Group – Emissions Inventory & Modeling Protocol Subcommittee**

**Guidance and Background Information on Stationary Source Emissions Inputs to Regional Modeling**

*last updated August 28, 2019*

This document provides guidance and background information to WESTAR-WRAP members for the regional haze modeling effort summarized in the table on page 4. This document will continue to updated.

Historic Emissions

* Current Representative emissions for stationary sources due from States to WRAP – ***Julythrough mid-Sept.***
	+ Emissions used to determine sources of interest for states (Q/d tool from Control Measures Subcommittee)
	+ Great time to engage sources of interest in RH2 (if haven’t done so already). Acceptable to use AEI data from recent years if engagement hasn’t started. \*Sometimes there are anomalies by just doing this (i.e. controls came online in mid/late 2017 and AEI isn’t reflective of new emissions rate).
	+ For fossil EGUs currently operating in your state, identify if 2018 emissions rates are correct, as shown in [EGU Emissions Analysis Project for Regional Haze Round 2 planning](https://www.wrapair2.org/EGU.aspx) webpage, in the final report ([PDF](https://www.wrapair2.org/pdf/Final%20EGU%20Emissions%20Analysis%20Report.pdf)).
	+ The modeled results will be used:
		- as the “modeled baseline emissions” for future year regional modeling, i.e., the basis of 2028 OTW/OTB projected emissions (see below); and
		- to determine where “States” are at currently with respect to the emissions changes since 2014, based on taking into consideration controls which have come online since 2014 base year (as applicable – include plant shutdowns, plant turndowns et cetera)

Projecting Future Emissions and Next Steps

* **2028 OTW/OTB for Stationary Sources** (Expected 2028 baseline used to compare possible future additional emissions reductions and control costs against) – ***Augustthrough Sept. 2019***
	+ States should work with identified sources (from Q/d tool) to accurately project this number and which SCC at that source it applies to.
		- From [EGU Emissions Analysis Project for Regional Haze Round 2 planning](https://www.wrapair2.org/EGU.aspx) webpage, review the final report ([PDF](https://www.wrapair2.org/pdf/Final%20EGU%20Emissions%20Analysis%20Report.pdf) - especially pages 9 through 18), the coal EGU data file at: [Western Coal Units](https://www.wrapair2.org/pdf/Data%20File%204%20-%20Western%20Coal%20Units_1.xlsx), gas EGU data file at: [2018 and 2028 gas units](https://www.wrapair2.org/pdf/Data%20File%206%20-%202018%20and%202028%20gas%20units_1.xlsx), and [non-CAMD units](https://www.wrapair2.org/pdf/Data%20File%207%20-%20non-CAMD%20units_1.xlsx).
			* Identify if there are any error or omissions, and that closures and 2028 emissions rates are correct for EGUs in your state
			* Note relationships of total tons of emissions and emission rate as shown in: [scatter plots](https://www.wrapair2.org/pdf/Data%20File%209%20-%20scatter%20plots_1.xlsx)
			* WRAP regional modeling plans to use the more conservative “2028 Scenario 1” emissions rates from [2018 and 2028 by state](https://www.wrapair2.org/pdf/Data%20File%208%20-%202018%20and%202028%20by%20state%20%282%29_1.xlsx)
		- Determine how 2028 will look compared to Current Rep. emissions, taking into consideration expected/planned future operational rates (capacity factor)
		- take into consideration any planned fuel changes since Current Rep.
		- incorporate any current plans to reduce emissions through control projects (sources should get credit for this)
			* If ‘plans/controls’ are implemented already – they should be included as reductions in the “Current Representative emissions modeling”
			* More likely: If they are planned to be installed before 2028 (or say, just recently installed in late 2018), then they are only included in the 2028 OTW/OTB modeling
	+ Vital to engage sources for this information, they can provide sufficient justification to defend why the projected numbers are accurate to the best of their knowledge.
		- The better the justification, the more defensible the State Proposed SIP.
		- Important to identify which source units should be included in a 4F evaluation (easy for Coal EGUs – not as easy for sources with many units. Look at high emitting units and current controls on those units as starting point)
	+ If sources don’t have projected operational data, 2028 Expected Baseline may be the same as the Current Representative Baseline
		- Sources have better information then States, when sources see the impact that this information may have on their facility(s) – they become more engaged and willing to work with the State.
	+ Model Results will show States where they will be at in 2028 with respect to the glidepath – not considering additional control(s) to be installed (this is the intent of the next step)

Defensibility:

* + important for States to review and ensure legitimate information is provided which supports the emissions projections. Should be 'agreed upon' between Source/State
	+ this is the number sources should start from, "Expected 2028 Baseline", when evaluating the feasibility of control technologies selected for 4F analysis
* **2028 Future Controls Case Inputs** – ***due in Dec. 2019***
	+ Accurately determine the 2028 Emissions after implementation of controls determined reasonable through 4F analysis. Model how this looks in relations to the regional haze reasonable progress goals and meeting the URP on the glidepath***.***
	+ the technological evaluations should begin ASAP, this takes time for sources to complete and we are only ~5 months from Dec. 1 (ND gave sources ~8 months to complete and were told this was difficult to complete in time). ND guidance was to focus on the Technology aspect of the 4F, 2028 expected emissions can be adjusted in the 4F reports received.
		- Cost of technological feasible projects won’t change
		- Cost effectiveness can change depending on projected 2028 emissions (starting point). The reason it is vital to engage sources, so defensibility of starting point is included in proposed SIP.
			* Enforceability (through permitting action) may be an important part of having a defensible baseline
		- Economic feasibility (or selection of what is determined to be economically feasible) will depend on the State needs and attainment status. Model results should point States in right direction to take with needed reductions to show reasonable progress.
* **2028 Source Apportionment / Sensitivity** – specifications for use of emissions data provided by the EI&MP Subcommittee, individual states/other jurisdictions, regional contractors, and other WRAP Work Groups for modeling scenarios, will be provided by the RTOWG for review by the EI&MP Subcommittee and Regional Haze Planning Work Group – ***specifications in 4th quarter 2019, modeling scenarios to be run 1st quarter 2020.***
	+ This is also a vital aspect of the modeling scenarios (potentially the most integral)
		- Will take into account and remove non-U.S. sources impacting visibility
			* International anthropogenic contributions
			* Wildfires and prescribed wildland fires
		- Model Results can be used to adjust the uniform rate of progression based on prescribed wildland fires and international anthropogenic impacts outside of the States control. (RH1 modeling performed, at least in ND, indicated this would have significant impact on the URP – See page 127 and 170 of March 2010 SIP Package) – based on the RH1 modeling, ND Sources have expressed interest in this.
		- See figures below on pages 5, 6, and 7 for example. Numbers are meant for discussion purposes only.



<https://www.wrapair2.org/pdf/WesternModelingPlan%20update%20August_2019.pdf>

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