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| **WRAP Regional Haze Planning Workgroup** |  |
| **Emissions Inventory & Modeling Protocol Subcommittee**  |
| **Guidance for Point Source Representativeness**  |
| WORKING DRAFT – 3/29/2019  |

The Regional Haze Planning Work Group Emissions Inventory and Modeling Protocol (RHPWG EI & MP) Subcommittee is providing this guidance to States & Locals for determining point-source representativeness, to be used as the basis for projecting future emissions scenarios. The [plan](http://www.wrapair2.org/pdf/WesternModelingPlan%20update%20March27_2019.pdf) for photochemical modeling includes the base case v1 and v2 (actual 2014 emissions with iterative changes/corrections), representative baseline (2013-17 averaging or more representative data for planning purposes), future “on the books/on the way” case (2028 OTB/OTW), and future “controls” case (2028). The 2028 OTB/OTW case is used to characterize conditions as-if no emissions controls would be used other than what is already planned, assuming any necessary activity or operations increases or growth, projected from the representative baseline data. The future “controls” case is used to characterize conditions with emissions controls that are already planned plus additional activity growth and/or controls that states identify as necessary to consider for the Reasonable Progress analysis requirements of the Regional Haze Program. In order to accurately project facility emissions for the future 2028 planning scenarios, a “representative baseline” dataset is used as the starting point. In contrast, for mobile, fire, and other non-point sources, including all emissions from Mexico, Canada, and off-shore sources, the WRAP modeling contractor will vet and process projection data available from EPA, such as the MOVES model, as well as from WRAP Work Groups for selected sectors, for use in the 2028 modeling scenarios.

It is up to States & Locals to determine the “representative” emissions that will be used as the starting point when forecasting future point source emissions. The simplest solution would be to take 2014 emissions as-is, but this could be problematic for a variety of reasons:

1. a source may not have had a normal operating schedule in 2014;
2. a source has been controlled within the 2015-17 timeframe as required by rule or permit;
3. a source may have permanent modifications (or plans to do so) since 2014 as required in rule or permit that changes the existing 2014 actual emissions profile;
4. a source may shut down completely but not demolished or removed (discretion of the state air program where a source is mothballed or is for sale);
5. a new source may not be represented in the WRAP 2014v2 base case modeling inventory, but for 2028 projections should be assumed, so emissions estimates are needed for the representative baseline modeling inventory.

The “representative” emissions will be the basis of comparison to the 2028 future case scenarios. The WRAP RHPWG EI & MP Subcommittee recommends that each state/local provide a “representative” emissions dataset for any point source facility that is not characterized properly by the 2014 emissions. The WRAP RHPWG EI & MP Subcommittee will use 2014 emissions (as characterized in v2 of the base-case modeling inventory) as the “representative baseline” data for any source that is not submitted by the corresponding state/local. States may choose to take a simple average of 2013 to 2017 emissions to be used as the “representative” dataset, but any years with atypical emissions should not be used in such an average. Alternatively, states may select a single year of emissions to be used as the “representative” emissions. The [EGU Emissions Analysis project](http://www.wrapair2.org/EGU.aspx) has done this for traditional fossil-fueled EGUs and the OGWG has a [task](http://www.wrapair2.org/pdf/11162017_WRAPO%26GWorkgroup_RoadMapSOW.pdf) to do this for [O&G sources](http://www.wrapair2.org/pdf/10172017_WRAPO%26GWorkgroup_EmissionsSources.pdf). If there is a new source or if a source has undergone permanent modifications (or plans to do so) since 2014, then the state should identify or create an emissions profile that best represents their understanding of the source’s future emissions. For sources that will be completely shut down by 2028, we need to have this noted so that the source can be excluded from modeling.

The table below describes seven modeling scenarios for various situations which may apply to States and Facilities

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|  | **Emissions of species of concern in tons per year (NOX/SOX/PM10)** |  |
|  | **2014Base Case v2***Due April 26, 2019* | **2013-2017 Representative***Due June 14, 2019* | **2028OTB/OTW Case***Due Aug.1, 2019* | **2028 Controls Case***Due Dec. 1, 2019* | **Notes on the Situation:** |
| **Facility 1** | 10,000 | 10,000 | 10,000 | 2,000 | No additional controls have been required since ’14 and '28 operations are expected to look like current operations. Controls case has 80% reduction. |
| **Facility 2** | 10,000 | 6,000 | 6,000 | 3,000 | Controls were installed post-'14 and '28 operations are expected to look like current operations. Controls case has 50% reduction. |
| **Facility 3** | 10,000 | 6,000 | 3,000 | 3,000 | Controls were installed post-'14. '28 operations are expected to be less based on 'XYZ'. Controls case has no further reduction. |
| **Facility 4** | 10,000 | 10,000 | 6,000 | 5,400 | '14 emissions and '13-'17 Representative emissions are the same. On or before '28, OTB/OTW controls will be installed. Controls case has 10% reduction. |
| **Facility 5** | 10,000 | 6,000 | 8,000 | 8,000 | Controls were installed post-'14 and '28 operations are expected to increase based on 'XYZ'. Controls case has no further reduction. |
| **Facility 6** | 6,000 | 10,000 | 10,000 | 6,000 | '14 year was atypical (e.g. outage), and '28 operations are expected to look like current operations. Controls case has 40% reduction. |
| **Facility 7** | 10,000 | 10,000 | 10,000 | 10,000 | No additional controls have been required since ’14 and '28 operations are expected to look like current operations. Controls case has no reduction. |

\* Highlighted emission values represent data that would need to be submitted to WRAP by the deadline noted in the column header. Note that 2014 Base Case v2 Emissions also need to be submitted to WRAP if they differ from the 2014 Base Case Shakeout (v1)

\*\* Please submit data to WRAP in FF10 format with the same facility/unit/process IDs that are in EPA EIS (and the NEI). FF10 files for facility emissions can be exported from EPA EIS. Please note that altering FF10 files in Excel can unintentionally change formatting.

**Notes on Modeling Scenarios:**

***2014 Base Case v1 to v2:***

Objective: Refine/adjust model results to reflect IMPROVE monitor data. The 2014 v2 changes are important so the model can more accurately reflects the emissions history. 3 significant changes are listed below.

* adjustment of most/all California data
* intermountain State(s) adjustments of O&G source emissions. 2014 EI data contradicts new data coming from survey of sources (we got better information)
* model boundary conditions changes (international anthropogenic emissions vs international natural emissions)

***2013-2017 Representative Baseline*** *(can be thought of as "Current baseline"):*

Objective: Accurately reflect the current emissions profile for each source potentially impacting CIA visibility [source(s) identified from Q/d analysis].

* reflective of current emission rates and "normal" operations
* many changes for the Coal EGU fleet since 2014 data (e.g. RH1 controls, MATS rule, BMACT rule, new PTC requirements, State Rules/Plans)
* Current Baseline will be equal to the 2014 Base Case if no controls were installed and the 2014 emissions data and operations are similar to current
* Wildfire data for '13-17 will be replaced with a "representative" fire year to smooth out uncertainty as best we can

***2028 OTB/OTW*** *(can be thought of as "Expected 2028 Baseline"):*

Objective: Accurately determine the Expected 2028 Baseline Emissions for which the 4F analysis use as baseline emission to determine control feasibility.

Main consideration:

* how does 2028 look compared to Current Baseline, taking into consideration expected/planned future operational rates (capacity factor)
* take into consideration any planned fuel or fuel quality changes since "Current Baseline"

Defensibility:

* important to review and have legitimate information which supports information provided. Should be 'agreed upon' between Source/State
* do not include evaluation additional controls outside of the already OTW/OTB (since these are already planned)
* this is the number sources should start from, "Expected 2028 Baseline", when evaluating the feasibility of control technologies selected for 4F analysis
* 2028 Expected Baseline may be the same as the Representative Baseline

***2028 Future Controls Case:***

Objectives: Accurately determine the post-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.

* starts from 2028 OTB/OTW case; an evaluation of reasonable controls which can be installed to reduce emissions
* reasonable controls must be both technically and economically feasible
* economical feasibility will depend on state needs and attainment status
* For non-Coal EGUs it is important for States to identify the emissions sources/emissions points which the facility needs to perform the 4F analysis on.