

Point Sources (BACT)

Process description (general)

The BACT process outlined by EPA is essentially a 5-step process.

- *Step 1: Develop a comprehensive inventory.*
- *Step 2: Identify potential control measures.* The list should include options not previously considered as RACM/RACT for the area.
- *Step 3: Determine whether an available control measure is technologically feasible.* EPA interprets the term technological feasibility to include consideration of factors such as a source's process and operating procedures, raw materials, physical plant layout, and potential environmental impacts such as increased water pollution, waste disposal and energy requirements. The feasibility of modifying processes or applying control equipment can also be influenced by the physical layout of a particular plant.
- *Step 4: Determine whether an available control measure is economically feasible.* EPA did not establish a specific fixed \$/ton cost threshold for economic feasibility determinations, but States will need to consider emission reduction measures with higher costs per ton when assessing the economic feasibility of BACM/BACT controls (and, where applicable, additional feasible measures) as compared to the criteria applied in the RACM/RACT analysis for the same nonattainment area.

The state must, at a minimum, consider any technologically feasible control measures implemented by similar sources as potential BACM/BACT measures.

For each technologically feasible measure, a state should evaluate the economic feasibility through consideration of factors such as the capital costs, operating and maintenance costs, and cost effectiveness (i.e. annualized \$/ton).

In some cases the state may provide adequate justification that clearly explains the specific circumstances of a source or sources that make an otherwise technologically feasible measure economically infeasible.

- *Step 5: Determine the earliest date by which a control measure can be implemented in whole or in part.*

State may not simply rely on prior BACT, LAER, and BART analyses for the purposes of showing that a source has also met BACT for the PM_{2.5} NAAQS. Rather, EPA expects that in Step 2 of the determination process, the state would identify such measures as "existing measures" that should be further evaluated as potential BACM or BACT.

January 4, 2013 Court Ruling – As the Moderate Area SIPs for Salt Lake City and Provo were nearing completion, the D.C. Circuit Court of Appeals found that EPA had incorrectly interpreted the Clean Air Act when determining how to implement the National Ambient Air Quality Standards (NAAQS) for PM_{2.5}. The January 4, 2013 court ruling held that the EPA should have implemented the PM_{2.5} NAAQS based on *both* Clean Air Act (CAA) Subpart 1 *and* Subpart 4 of Part D, title 1. EPA had (incorrectly) required states to develop their SIPs based only on subpart 1. Utah was thus immediately required to supplement its three SIPs to address the additional requirements of Subpart 4.

This affected the RACT analysis in several ways, most notably re-assigning the attainment date for each of the three nonattainment areas (in EPA's Deadlines Rule) as December 31, 2015.

Under Subpart 1, Utah had structured these SIPs to make use of a 5-year extension to the initial attainment dates. This had resulted in specific targets for the implementation of RACT measures: 2014, 2017, and 2019. Under Subpart 4 a moderate PM_{2.5} nonattainment area could not petition EPA for an extension to its attainment date, and the plans would instead need to assess attainment by 2015 on a pass / fail basis.

As UDAQ restructured these plans to address the new attainment date in 2015, it elected to retain all of the RACT measures that had been adopted as State rule even though many of the measures could not feasibly be implemented by the date set by the Act, December 14, 2013.

Furthermore, many of the control measures adopted as meeting RACT were considered with an eye to the future, where BACT would likely become the standard to be achieved in practice. Formal approved, of a control measure, into a SIP as meeting RACT does not preclude subsequent approval of that same measure as also meeting BACT.

Executive Summary –The control measures retained as part of the overall control strategy for the SIP are described in each of the source specific reports. Taken as a whole however, some generalizations can be made as to the end result of the process.

Firstly, the resulting emission projections for these sources reflect a high degree of existing emission control. Thus, the percentage of SIP related emissions reductions would never have been large relative to the overall quantity of emissions. The sources reside in areas that are already nonattainment for PM₁₀, and so this is their second or third SIP.

Secondly, the routine permitting in these areas of nonattainment already includes BACT as an ongoing standard of review, even for minor sources and modifications. This leads to a result for this exercise that prescribes a level of emission control that prescribes the best available control on an ongoing basis, effectively keeping the population of stationary sources current with respect to improving technologies.

The result of the BACT analyses for the two large stationary sources in the Provo nonattainment area is that no additional controls are required, and no changes are being made to the requirements of

Section IX, Part H.13 Source-Specific Emission Limitations in Provo – UT PM2.5 Nonattainment Area.

This is really not surprising in light of the forgoing discussion.

Technical Analysis – The list of sources to be analyzed was developed based on the emissions inventory criteria included in 40 CFR Part 51, which specifies 70 tons per year as its cutoff. This threshold was tested against the emissions of PM2.5, SO2, NOx, VOC and ammonia, for all of the sources in the modeling domain and captured the vast majority of these emissions. Furthermore, the cutoff applies to the sources’ potentials to emit as well as their actual emissions in 2014.

These criteria were used to establish the list of large stationary sources to be treated individually and included on the Point Source List. At the beginning of the BACT review process, 54 major sources were contained within the prescribed modeling domain, which is much larger than the Provo nonattainment area. Additional sources also within the modeling domain but located outside of Utah were also identified. Emissions from these 54 sources would ordinarily support modeled attainment demonstration for each of Utah’s three nonattainment areas. However, within the context of a clean data determination for the Provo Nonattainment Area it is only necessary to submit a base year inventory, and the EI need only encompass the Provo nonattainment area.

Changes to the Point Source List – From these original 54 sources, several factors contributed to pare down the list. First is a source’s physical location. In order that a source can be analyzed specifically for BACT, the source would have to reside within the borders of the area of nonattainment. This eliminates from consideration those sources located within the modeling domain, but located outside of the actual nonattainment area.

Second is the passage of time. SIP development is a long process, and during the course of that process, certain sources were dropped from the list as they no longer qualified. A number of sources obtained minor source permits to limit their potential emissions below the 70 ton threshold. Other sources ceased operations entirely, withdrawing their permits.

Therefore, as the end of the SIP development process approaches, only four sources remain within the Provo nonattainment area. Of these four sources: Brigham Young University, Geneva Nitrogen, McWane Ductile – Utah, and PacifiCorp Energy – Lake Side, two additional facilities are scheduled to be removed from the Point Source List. Brigham Young University is obtaining a minor source permit for its operations; while Geneva Nitrogen has ceased operations at the Provo facility, withdrawing its permit. Thus, the remaining two sources, McWane and PacifiCorp, have been analyzed according to the following steps.

Preparation of the BACT Reports – The source-specific reports included below document what was considered as part of the control strategy analysis, particularly with respect to the identification of any technologically or economically feasible control options.

When analyzing BACT for any particular source, the following general process was followed:

First, each source was reviewed to determine what emission units were present, along with what

types of emissions each emitted. This was done by starting with the 2014 baseline inventory, and then reviewing any significant permitting actions that had taken place since that baseline. If necessary, that baseline inventory was adjusted to account for these permitting actions. This adjusted inventory was used as the 2017 projected inventory, and it formed the basis for all emission reductions for the application of BACT. Recall that BACM/BACT includes those technologically and economically feasible measures which can be implemented within 4 years of the reclassification to serious. The Provo, UT PM2.5 nonattainment area was effectively re-classified on June 9, 2017.

For each emitting unit, a list of all potential control options was generated. This consideration was informed by soliciting information from each of the sources, a review of other state's SIP actions, consulting the RACT, BACT, LAER Clearinghouse, recent New Source Review permitting actions (both in Utah and other states), and other research. This list is created on a pollutant by pollutant basis, even though some controls may cover more than one pollutant, and some controls may be mutually exclusive. Such comparison is left to a later step. The starting point for these controls was always the existing BACT or LAER analysis which may have been performed on the source, or any similar BACT/LAER analysis performed recently.

In the second step, any controls which are technically infeasible are eliminated. The determination of technical feasibility may include physical constraints, but only if these constraints are not merely economic in nature. However, requiring the source to relocate so that space or nonattainment area concerns are not an issue, is not "merely an economic constraint."

The remaining technically feasible controls are then ranked and any controls which would show an environmental benefit over the existing situation can be evaluated further. Controls which do not show a benefit can be eliminated.

Each of the remaining possibly effective controls are then evaluated using economic, energy, and other environmental considerations. Timing constraints, amount of emissions reduced, incremental savings and incremental cost, are also considered.

Based on the analysis conducted above BACT is then chosen for the specific emissions/emission unit. A conclusion is drawn, any specific language is drafted, and total emission reductions are calculated. If required, and where needed, specific limits are drafted for each source along with an appropriate compliance methodology.

Source-Specific BACT Evaluation Reports

BACT Evaluation Reports were prepared specifically for the following stationary sources within the Provo, UT PM2.5 nonattainment area. Links to these reports have been provided on the webpage.

PACIFICORP – LAKE SIDE POWER PLANT

MCWANE DUCTILE-UTAH