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Comments on the proposed revisions to the Washington State Implementation Plan for Regional Haze 11/23/2021

Ecology has produced a comprehensive and informative document regarding their intention to submit a revision to the Washington State Implementation Plan (SIP). The actual text of their proposed amendments to the SIP do not appear to have been published and made available for public review and comment. Perhaps that is intended to be the next step following the conclusion of this public comment period.

The Clean Air Act rules require Washington to make reasonable progress toward the stated goal of "remedying of any existing, impairment of visibility in mandatory class 1 federal areas which impairment results from manmade air pollution." Where a Federal Land Manager has designated a source of pollutants to be associated with a regulated visibility impairment the State is required to evaluate and implement the Best Available Retrofit Technology. In this case the Federal Land Managers have identified the Washington refinery sector as the source of reasonably attributable impairment of visibility at several National Park wilderness areas, which triggers the evaluation of Best Available Retrofit Technology. However, probably because there are detailed state statutes that govern Reasonable Available Retrofit Technology findings, Ecology consistently refers to the RACT standard throughout the proposed Regional Haze revisions document.

To clarify here are the definitions in the Washington Administrative Code (173-400-030):
(14) "Best available retrofit technology (BART)" means an emission limitation based on the degree of reduction achievable through the application of the best system of continuous emission reduction for each pollutant which is emitted by an existing stationary facility. The emission limitation must be established, on a case-by-case basis, taking into consideration the technology available, the costs of compliance, the energy and nonair quality environmental impacts of compliance, any pollution control equipment in use or in existence at the source, the remaining useful life of the source, and the degree of improvement in visibility which may reasonably be anticipated to result from the use of such technology.

(80) "Reasonably available control technology (RACT)" means the lowest emission limit that a particular source or source category is capable of meeting by the application of control technology that is reasonably available considering technological and economic feasibility. RACT is determined on a case-by-case basis for an individual source or source category taking into account the impact of the source upon air quality, the availability of additional controls, the emission reduction to be achieved by additional controls, the impact of additional controls on air quality, and the capital and operating costs of the additional controls. RACT requirements for any source or source category shall be adopted only after notice and opportunity for comment are afforded.

and the requirement regarding visibility impairment in the Washington Administrative Code (173-400-151(d)(3)):

. . .ecology, in consultation with the permitting authority shall determine BART for each air contaminant of concern and any additional air pollution control technologies that are to be required

to reduce impairment from the existing stationary facility.
(4) Each existing stationary facility shall apply BART as new technology for control of the air contaminant becomes reasonably available if:
(a) The existing stationary facility emits the air contaminant contributing to visibility impairment;
(b) Controls representing BART for that air contaminant have not previously been required under this section; and
(c) The impairment of visibility in any mandatory Class 1 federal area is reasonably attributable to the emissions of the air contaminant.

The two definitions are very similar but have one striking difference. BART begins with determining the technology available to achieve the "best system of continuous emission reduction" while RACT begins with identification of "additional controls", which may or may not be the best technology available. Thus the responsibility rests with Ecology to identify the starting point of analysis and to then conduct the reasonable availability analysis.

The determination that the refinery sector and its individual refineries do emit contaminants that contribute to visibility impairment and that the visibility impairment in Class I federal area can be attributed to those emissions is supported by the analyses presented in this document. Therefore, while using the structure of the statutory RACT process Ecology must apply the standard of BART in developing its recommendations for further controls at the refineries.

These analyses do identify ammonium sulfate as the most important contributor to visibility impairment with ammonium nitrate or organic particulate as the next most and significantly less important, for Most Impaired Days at all sites. Therefore the focus on NOx control is a little curious for refineries and other stationary sources. Ecology should be more clear why control of sulfur emissions is de-emphasized. Ecology should take note that there is an active proposal to restart the Ferndale Intalco aluminum refinery, which was a major source of sulfur and organic particulate emissions. It is possible that a restart of the facility by a new owner would require a BACT analysis.

Because the Federal Land Managers have specifically identified the refinery sector I assume that will be the first effort out of the gate. I argue that the starting point should be, at a minimum an examination of the technologies identified in relevant NSPS and MACT regulations, such as NSPS Subparts Db, Dc, Ja, Kb, GGGa, QQQ, IIII, JJJJ, KKKK and OOOOa and MACT Subparts CC, OO, UUU, YYYY, ZZZZ, 5D, 5U and 6J. Many of these rules are for auxiliary equipment found at refineries or are not focused on the particular pollutants that are most associated with visibility impairment but, I suggest, they may identify sources and helpful technologies that should be considered.

Further I argue that an important technology that will meaningfully reduce the emissions of the relevant pollutants, and should be considered, is a reduction in the amount of petroleum crude that is processed by the refinery, as required by E3SHB 1091 Session Law C317 L21, the Clean Fuels Program. If the refinery adheres to the compliance obligation to reduce their regulated emission responsibility by 5.5% in 2028 and 20% by 2038 without resorting to offset payments the visibility impairment due to refinery emissions may be significantly reduced. Thus the rule applied in the SIP would be that the refineries comply with the law without any offset payments.

Ecology proposes to initiate RACT review after the SIP revision is accepted by EPA and, I presume, published in the Federal Register. From past experience that is a very long timeline. I

request that Ecology spell out in its revisions to the current document more detail as to approximately when it expects be in a position to begin the BART analysis and when it expects to be able to require the refineries to submit additional information. I hope that may get underway long before EPA announces or publishes its acceptance of the SIP revision.

The application of BART to sources is independent of any reference to reasonable progress or the glide path laid out in several figures in this report. The reasonable further progress glide path is only a test by EPA to determine if a state is failing to do its job, not a limit on what a state might achieve. And the requirement in 40 CFR 51.308(f) should not be seen as an upper limit of what is reasonable. As is seen in the graphs, Washington is generally doing much better than the glide path and should continue to aspire to achieving real reductions in visibility impairment at the earliest possible date. Given the number of impacted wilderness areas in the state and the great value that Washington places on amazing views within, out of and into these areas early action should be a high priority. Already meeting or exceeding the glide path is no reason to determine that an application of BART is not necessary.

In an effort to prioritize the sources to work on, Ecology has relied on a Q/d metric using only the distance (d) to the nearest wilderness area. Since visibility impairment is a logarithmic function I propose that the metric should be Q/ln(d) and that it should be computed by adding the resulting value for all the wilderness areas in Washington in computing the metric for each source. It is possible that this refinement may not result in a significant difference in the priorities - I can't say as I have not made test calculations. I certainly support the conclusion by the Federal Land Managers and Ecology that the refineries complex in the north Puget Sound lowlands should be the first priority.

With respect to several sources Ecology notes that permits to install and operate new control equipment have been languishing at the local control agency for several years. This has become a general scandal for more than just the permits identified in this document. Ecology should require more aggressive action, perhaps by adding some immediate dates for progress in the revised SIP.

I share Ecology's concern for the application of SCR as a preferred control technology to SNCR, due to the excess ammonia often utilized and the generation of unreasonable quantities of ammonium sulfate I have personally witnessed in non-optimized systems. The need for cooling for sulfur control and reheating after for nitrogen control should be met by heat exchangers instead of fossil fuel-fired reheaters wherever possible.

Ecology does face a difficulty in dealing with wildfire smoke, which they have attempted to deal with by defining it away. In this report Ecology has adopted an exclusion of the five percent of worst days from the attainment standard in creating the standard of Most Impaired Days. Ecology reports wildfire smoke has been responsible for impaired visibility on as much as seven percent of yearly days. It is reasonable to assume that without further attention to wildfire prevention and suppression that the number of annual days will increase in the future.

The small portion of section 8.6 in the document describing silvicultural burning and wildlands vegetation management and prescribed fires permits does not adequately address the much larger problem of planning to prevent wildfires or active wildfire management. It is necessary for the Department of Natural Resources to make a much more significant contribution to the development of a section of the proposed revisions to the SIP describing how they will reduce the runaway

nature of the fires we are now experiencing and will experience at a much greater level in coming years. Climate change demands more aggressive forest management to significantly reduce the magnitude of the wildland fires and better fire suppression techniques to end the fires more quickly. This would reduce the number of days when visibility is impaired by the human-induced climate change and forest mismanagement that impairs visibility in wilderness areas and even in urban areas.