

**FACT SHEET – CAPITOL POWER PLANT PROPOSED AIR QUALITY PERMITS FOR PLANTWIDE
APPLICABILITY LIMITS FOR NO_x AND PM_{2.5}, INSTALLATION OF COGENERATION
EQUIPMENT, AND OPERATION OF EXISTING BOILER #3**

Background

- The Architect of the Capitol (AOC) plans to construct new combined heat and power equipment (“cogeneration project”) at the U.S. Capitol Power Plant (CPP). The cogeneration project will include two (2) combustion turbines (CTs) rated at 7.5 megawatts (MW) each and two (2) Heat Recovery Steam Generation (HRSG) units rated at approximately 71.9 million British thermal units per hour (MMBtu/hr) each.
- In connection with this project, the District Department of the Environment (DDOE) has issued four air quality permits to AOC controlling construction and operations at CPP:
 - One operating permit for an existing boiler;
 - Two construction permits, one for each cogeneration unit; and
 - One Plantwide Applicability Limits (PALs) permit, containing facility-wide limits on nitrogen oxides (NO_x) and fine particulate matter (PM_{2.5}).
- The construction permits for the cogeneration project will also contain plantwide limits on Hazardous Air Pollutants (HAPs) and a condition banning coal combustion, except in cases of *force majeure* (i.e. events outside of the control of AOC such as extreme weather events, acts of terrorism, or interruptions in fuel deliveries not in the control of AOC) and for testing and tuning, starting 18 months after the commercial operation date of the cogeneration project.
- These permits will provide a net benefit to air quality in the District because they will:
 - Reduce AOC’s reliance on older, dirtier equipment in favor of the efficient, cleaner burning cogeneration equipment, resulting in significant reductions in sulfur dioxide (SO₂) and hazardous air pollutants (HAPs) from the facility;
 - Alleviate regional pollution by reducing CPP’s reliance on the electrical grid, much of which is supported by coal burning power plants, resulting in net regional reductions of nitrogen oxides (NO_x), fine particulate matter (PM_{2.5}), and Greenhouse Gases (GHGs); and
 - Place facility-wide emission limits on CPP for the first time ever – the permits will lower CPP’s emission limits from the equivalent of 925 tons per year (tpy) for NO_x, 82 tpy for PM_{2.5}, and 257 tpy for HAPs, to 197 tpy for NO_x, 35 tpy PM_{2.5}, and 25 tpy for HAPs.

Frequently Asked Questions about the Cogeneration Project and Related Air Quality Permits

- *Can DDOE either ban or limit coal burning at CPP?*
 - No. DDOE does not have legal authority to prohibit coal burning at the facility through any permitting process, or to require additional control technology on the coal burning units.
 - The only way DDOE can ban or limit coal burning is if the applicant voluntarily agrees to such a condition, and accepts the condition in the final permit. DDOE has worked with AOC and incorporated language that would limit coal burning following completion of the cogeneration project.

- *What is the expected usage of the plant for heating, cooling, and electricity generation once the new construction is completed? Will the plant be expanding its operations once it is capable of producing electricity?*
 - Although the new equipment will expand the plant's capacity, DDOE does not anticipate any change in demand due to construction of the cogeneration project. The plant operates to provide heating and cooling for 23 federal buildings, therefore CPP's usage of its equipment is directly related to weather patterns, not plant capacity. Due to the limitations of the PALs permit and the natural constraints of the equipment, DDOE does not expect CPP to operate the equipment purely for electricity production.
 - DDOE does expect that CPP will meet the facility's existing demand far more efficiently, in terms of both cost and air quality, after the project is completed.
- *How do the projected actual emission levels following completion of the cogeneration project compare to those in the PALs permit and with levels from the existing operations using the most recent year as the baseline?*
 - The projected actual emissions may not exceed the limits specified in the PALs because this would constitute a violation of the source permit.
 - AOC anticipates that the cogeneration project will result in actual emissions reductions of SO₂ and HAPs, and likely small reductions in particulate matter (PM_{2.5} and PM₁₀), compared to 2011 levels. Following completion of the cogeneration project, AOC anticipates NO_x and greenhouse gas (GHG) emissions from the facility during an average winter will be slightly higher than 2011 levels. However, 2011 was a particularly mild winter, and therefore demand on the facility was lower than average. Therefore, it is very likely that emissions from the facility during an average winter would be higher than those in 2011, *even without the cogeneration project*.
 - In addition, by reducing the facility's load on the electrical grid (much of which is coal-fired), regional emissions of all pollutants will decrease. AOC predicts that it will reduce the plant's electricity demand from 91,146 MWh in 2011 to approximately 5,989 MWh after completion of the cogeneration project. Particulate matter, SO₂, NO_x, and GHGs are all regulated on a regional and national basis; therefore regional reductions of these pollutants are still extremely beneficial to local air quality.
- *If actual emissions are expected to decrease following construction of the cogeneration project, why do the technical support documents state that the "installation of the cogeneration units will cause a significant increase in emissions" without Plantwide Applicability Limits (PALs) on emissions?*
 - "Significant" is a legal term used in the air quality regulations (see 20 DCMR § 299.1) to determine when a new or modified source is required to go through a process called New Source Review (NSR). If the new source or the modification would result in a "significant" emissions increase, then it is required to go through the NSR permitting process under 20 DCMR § 204. Whether or not an emissions increase is "significant" is based on a comparison of the source's actual emissions prior to the change to the *potential* emissions, *i.e.* the emissions that would result if all of the equipment operated at its maximum capacity, after the change.
 - Therefore, when DDOE says that the installation of the cogeneration units would result in a significant emissions increase, this is based on the source's potential

- emissions following construction of the cogeneration units, not the projected actual emissions. It is possible for a project to cause a “significant” increase in emissions even if the actual emissions of the facility are expected to stay the same or decrease following completion of the project. By issuing a permit with PALs, DDOE effectively limits the source’s potential emissions so that the increase is no longer considered “significant”.
- *What is DDOE’s basis for determining that the February 2007- January 2009 period is a more appropriate baseline for CPP’s actual emissions than the more recent 2010-2011 calendar years?*
 - Demand at CPP is directly related to weather conditions because the plant’s fuel burning equipment is used to provide steam to heat federal buildings. DDOE determined that the February 2007 - January 2009 baseline period is more representative of normal operations than the calendar years 2010-2011 (the default period) because the District experienced warmer than average winters during 2010-2011, and therefore demand on the facility was lower than average.
 - AOC submitted an analysis of heating degree days (HDDs), a measurement of how much energy is needed to heat buildings, in support of its requested baseline. The data demonstrated that the average annual number of HDDs for the immediately preceding 2 calendar years was 3,800, for the proposed baseline period was 3,956, and for the 30-year average was 4,053. Because operation of the plant’s emission equipment is directly related to the number of HDDs, DDOE agreed with AOC’s analysis that a period closer to the average is more representative of normal source operations than the immediately preceding 2 calendar years.
 - *The Capitol Power Plant has significantly reduced its coal usage and emissions since 2009, so couldn’t AOC comply with lower PALs? If DDOE set the PALs based on 2010-2011 emissions, would this effectively force AOC to stop burning coal?*
 - Based on many discussions with AOC, the cogeneration project would not be able to proceed with lower PALs. AOC needs to be able to ensure that it can meet the CPP’s Congressionally-mandated mission to provide heating to federal buildings under a worst-case scenario (*i.e.* an extremely cold winter). Because calendar years 2010 and 2011 were warmer than average, AOC could not guarantee that it would be able to meet its mission during a very cold winter if the PALs were set based on those years.
 - Until construction of the cogeneration project is completed, AOC has stated that it needs to maintain coal as a backup fuel source in three situations:
 - Emergencies and interruptions to the natural gas supply;
 - Abnormally cold conditions placing a high heating demand on CPP; and
 - Equipment outages or maintenance on the gas-fired boilers;
Beginning 18 months after the commercial operation date of the cogeneration project, AOC will only be permitted to burn coal at CPP during instances of *force majeure* and for testing and tuning purposes.
 - *How long will the PALs in these permits be effective? Does DDOE have authority to lower the PALs in the future?*
 - The PAL permit is only valid for 5 years and therefore must be renewed at the end of that period, if the source desires to continue operating with PALs. * At that time,

* If the PAL is not renewed, the facility must comply with individual emissions limits on each unit, in accordance with the procedures in 20 DCMR § 208.15.

- DDOE has discretion to assess whether it should renew the PALs at the same level or set a new (*i.e.* lower) level.
- One of the factors that DDOE will consider when making this decision is how the facility's most recent emissions compare to the limits in the PALs permit and what is representative of the source's normal operations. Other factors may include air quality needs, advances in control technology, anticipated economic growth in the area, and desire to reward or encourage the source's voluntary emissions reductions. See 20 DCMR § 208.20.
 - The renewed PALs permit will be go through a 30 day public notice and comment period, during which time any person may propose a PAL level for the source for consideration by DDOE, or comment on the appropriateness of the proposed PAL.