

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

ELECTRONIC JOINT APPLICATION OF)	
KENTUCKY UTILITIES COMPANY AND)	
LOUISVILLE GAS AND ELECTRIC COMPANY)	
FOR CERTIFICATES OF PUBLIC CONVENIENCE)	CASE NO.
AND NECESSITY AND SITE COMPATIBILITY)	2022-00402
CERTIFICATES AND APPROVAL OF A DEMAND)	
SIDE MANAGEMENT PLAN AND APPROVAL OF)	
FOSSIL FUEL-FIRED GENERATING UNIT)	
RETIREMENTS)	

NOTICE OF FILING

Notice is given to all parties that the following materials have been filed into the record of this proceeding:


- The digital video recording of the evidentiary hearing conducted on August 25, 2023 in this proceeding;
- Certification of the accuracy and correctness of the digital video recording;
- All exhibits introduced at the evidentiary hearing conducted on August 25, 2023 in this proceeding;
- A written log listing, inter alia, the date and time of where each witness' testimony begins and ends on the digital video recording of the evidentiary hearing conducted on August 25, 2023.

A copy of this Notice, the certification of the digital video record, and hearing log have been served upon all persons listed at the end of this Notice. Parties

desiring to view the digital video recording of the hearing may do so at https://youtu.be/rhkwEV4_9xU.

Parties wishing an annotated digital video recording may submit a written request by electronic mail to pscfilings@ky.gov. A minimal fee will be assessed for a copy of this recording.

Done at Frankfort, Kentucky, this 1st day of November 2023.

A handwritten signature in blue ink that reads "Linda C. Bridwell". The signature is written in a cursive style with a horizontal line underneath it.

Linda C. Bridwell

Executive Director

Public Service Commission of Kentucky

COMMONWEALTH OF KENTUCKY
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In the Matter of:

ELECTRONIC JOINT APPLICATION OF KENTUCKY)
UTILITIES COMPANY AND LOUISVILLE GAS AND)
ELECTRIC COMPANY FOR CERTIFICATES OF)
PUBLIC CONVENIENCE AND NECESSITY AND SITE)
COMPATIBILITY CERTIFICATES AND APPROVAL)
OF A DEMAND SIDE MANAGEMENT PLAN AND)
APPROVAL OF FOSSIL FUEL-FIRED GENERATING)
UNIT RETIREMENTS)

CASE NO.
2022-00402

CERTIFICATION

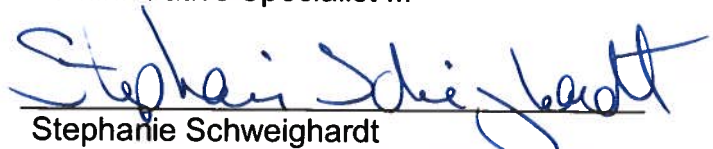
I, Candace H. Sacre, hereby certify that:

1. The attached flash drive contains a digital recording of the Formal Hearing conducted in the above-styled proceeding on August 25, 2023. The Formal Hearing Log, Exhibits, and Exhibit List are included with the recording on August 25, 2023;
2. I am responsible for the preparation of the digital recording;
3. The digital recording accurately and correctly depicts the Formal Hearing of August 25, 2023; and
4. The Formal Hearing Log attached to this Certificate accurately and correctly states the events that occurred at the Formal Hearing of August 25, 2023, and the time at which each occurred.

Signed this 30th day of October, 2023.



Candace H. Sacre
Administrative Specialist III



Stephanie Schweighardt
Kentucky State at Large ID# KYNP 64180
Commission Expires: January 14, 2027



Session Report - Detail

2022-00402 25Aug2023

Kentucky Utilities Company and Louisville Gas and Electric Company (KU/LG&E)

Date:	Type:	Location:	Department:
8/25/2023	Public Hearing\Public Comments	Hearing Room 1	Hearing Room 1 (HR 1)

Witness: Philip Imber
 Judge: Kent Chandler; Angie Hatton; Mary Pat Regan
 Clerk: Candace Sacre

Event Time	Log Event
8:36:10 AM	Session Started
8:36:20 AM	Chairman Chandler Note: Sacre, Candace
	Back on the record.
8:36:46 AM	Chairman Chandler Note: Sacre, Candace
	Mr. Malone?
8:36:50 AM	Atty Malone KCA - witness Imber Note: Sacre, Candace
	Cross Examination (cont'd). Answering AG about NAP 111(b) and (d) issue, explain to me, why treated as final?
8:38:44 AM	Atty Malone KCA - witness Imber Note: Sacre, Candace
	When proposed rule, effective as of day proposed?
8:39:10 AM	Chairman Chandler - witness Imber Note: Sacre, Candace
	Examination. Line in the sand once proposed?
8:39:39 AM	Atty Malone KCA - witness Imber Note: Sacre, Candace
	Cross Examination (cont'd). Once rule finality, ideas where may finish up but not know happen with rule?
8:40:23 AM	Atty Malone KCA - witness Imber Note: Sacre, Candace
	Permitting process NGCCs, litigated company decide take risk move forward, what risk to ratepayers?
8:41:06 AM	Atty Malone KCA - witness Imber Note: Sacre, Candace
	If say inappropriate move forward, identify risks ratepayers exposed to by delay?
8:42:32 AM	Atty Malone KCA - witness Imber Note: Sacre, Candace
	Other thing extent permits litigated create risk with firm transportation issues as well?
8:43:18 AM	Atty Malone KCA - witness Imber Note: Sacre, Candace
	Mill Creek 1 and 2, consistent with SB 4, not receive approval, what permitting actions needed to continue run units?
8:46:16 AM	Atty Malone KCA - witness Imber Note: Sacre, Candace
	Right now, not issue with MC 2, way to run MC 2 and 5 operate simultaneously?
8:47:12 AM	Atty Malone KCA - witness Imber Note: Sacre, Candace
	Why?
8:47:49 AM	Atty Malone KCA - witness Imber Note: Sacre, Candace
	Original permit MC 5, when submitted?
8:48:15 AM	Atty Malone KCA - witness Imber Note: Sacre, Candace
	Does SCR on MC 2 change anything relative to permit?
8:48:33 AM	Atty Malone KCA - witness Imber Note: Sacre, Candace
	Put SCR MC 2, change analogy MC 2 and MC 5 operate simultaneously?
8:48:49 AM	Atty Malone KCA - witness Imber Note: Sacre, Candace
	Why?

8:49:38 AM	Chairman Chandler Note: Sacre, Candace	Spell out acronyms. (Click on link for further comments.)
8:50:27 AM	Chairman Chandler - witness Imber Note: Sacre, Candace	Examination. What does PSD mean?
8:50:44 AM	Atty Malone KCA - witness Imber Note: Sacre, Candace	Cross Examination (cont'd). What telling me, cannot run MC 2 and 5 because of potential GHG rules?
8:51:17 AM	Atty Malone KCA - witness Imber Note: Sacre, Candace	What else is there?
8:52:01 AM	Atty Malone KCA - witness Imber Note: Sacre, Candace	Could be done?
8:52:16 AM	Atty Malone KCA - witness Imber Note: Sacre, Candace	What are risks, what are obstacles?
8:53:17 AM	Atty Malone KCA - witness Imber Note: Sacre, Candace	Referring to nonattainment Louisville Board?
8:53:32 AM	Atty Malone KCA - witness Imber Note: Sacre, Candace	316 issue, issue with Water Quality, possibility done study eliminate possibility of tower?
8:56:07 AM	Atty Malone KCA - witness Imber Note: Sacre, Candace	If not go exemption route and not done study asked to do, be no need retrofit cooling tower on Unit 1?
8:56:46 AM	Atty Malone KCA - witness Imber Note: Sacre, Candace	Possible outcome of study could have led to different result?
8:57:36 AM	Atty Malone KCA - witness Imber Note: Sacre, Candace	How much cost of study?
8:57:48 AM	Atty Malone KCA - witness Imber Note: Sacre, Candace	Seems possibility study demonstrated not need for cooling tower?
8:58:18 AM	Atty Malone KCA - witness Imber Note: Sacre, Candace	Ghent 2, permitting actions required continue operating?
8:58:51 AM	Atty Malone KCA - witness Imber Note: Sacre, Candace	Between now and 2032?
8:59:40 AM	Atty Malone KCA - witness Imber Note: Sacre, Candace	Perceive significant obstacles running Ghent 2 with or without SCR?
9:00:02 AM	Atty Malone KCA - witness Imber Note: Sacre, Candace	Such as?
9:00:23 AM	Atty Malone KCA - witness Imber Note: Sacre, Candace	Permitting actions required for Ghent 2 SCR?
9:00:31 AM	Atty Malone KCA - witness Imber Note: Sacre, Candace	Such as?
9:00:52 AM	Atty Malone KCA - witness Imber Note: Sacre, Candace	Nonattainment issue not the same with Ghent 2?
9:01:25 AM	Atty Malone KCA - witness Imber Note: Sacre, Candace	How many coal plants decommissioned in last five to ten years?
9:01:48 AM	Atty Malone KCA - witness Imber Note: Sacre, Candace	Agree significant?
9:01:57 AM	Atty Malone KCA - witness Imber Note: Sacre, Candace	Downwind - upwind, extent less coal plants, that issue may not be as significant as was ten years ago?
9:02:30 AM	Atty Malone KCA - witness Imber Note: Sacre, Candace	Why?
9:04:11 AM	Atty Malone KCA - witness Imber Note: Sacre, Candace	What have to do with Ghent?
9:06:50 AM	Chairman Chandler - witness Imber Note: Sacre, Candace	Examination. NAAQS updated periodic basis?

9:07:09 AM	Chairman Chandler - witness Imber Note: Sacre, Candace	Updated this year or next year?
9:08:40 AM	Chairman Chandler - witness Imber Note: Sacre, Candace	Recent reporting on result of panel recommendations, EPA timeline different?
9:09:16 AM	Chairman Chandler - witness Imber Note: Sacre, Candace	Interplay between NAAQS and CSAPR?
9:09:35 AM	Chairman Chandler - witness Imber Note: Sacre, Candace	Downwind states complain pollution contribute to ability local attainment?
9:10:02 AM	Chairman Chandler - witness Imber Note: Sacre, Candace	Two different seasons?
9:10:12 AM	Chairman Chandler - witness Imber Note: Sacre, Candace	Is Louisville NAAQS time period same everywhere for local attainment for ozone?
9:10:40 AM	Chairman Chandler - witness Imber Note: Sacre, Candace	Good Neighbor rule five-month summer MC 1 and 2 and Ghent 2 comply?
9:11:17 AM	Chairman Chandler - witness Imber Note: Sacre, Candace	Nonattainment for NAAQS, Louisville upwind or downwind from Ghent 2?
9:11:38 AM	Chairman Chandler - witness Imber Note: Sacre, Candace	Have expectations Louisville Metro that Ghent 2 operations summer is contributor at all to Louisville nonattainment of NAAQS?
9:12:36 AM	Chairman Chandler - witness Imber Note: Sacre, Candace	Don't know is a fine answer, have expectation contributor?
9:12:53 AM	Chairman Chandler - witness Imber Note: Sacre, Candace	Responses Malone, local nonattainment Ghent 2 comes in not necessarily Jefferson Co but to local nonattainment other counties?
9:14:06 AM	Chairman Chandler - witness Imber Note: Sacre, Candace	Have long arm extend beyond Jefferson Co to other places in Commonwealth?
9:14:36 AM	Chairman Chandler - witness Imber Note: Sacre, Candace	LG&E/KU concerned Louisville Board require controls at Ghent 2 related to NOx emissions?
9:14:38 AM	Chairman Chandler Note: Sacre, Candace	Mr. Malone?
9:15:21 AM	Atty Malone KCA - witness Imber Note: Sacre, Candace	Cross Examination (cont'd). Decommissioning of coal plants, seems less coal plants change model?
9:16:09 AM	Atty Malone KCA - witness Imber Note: Sacre, Candace	When happen, when know?
9:16:26 AM	Atty Malone KCA - witness Imber Note: Sacre, Candace	When new modeling arise?
9:16:48 AM	Atty Malone KCA - witness Imber Note: Sacre, Candace	Explain why SCR installed on Brown 3 but not MC 1 and MC 2 and Ghent 2?
9:17:19 AM	Atty Malone KCA - witness Imber Note: Sacre, Candace	Explain that?
9:18:49 AM	Atty Malone KCA - witness Imber Note: Sacre, Candace	Brown 3, EPA alleged permit violations, know SCR put on something paid by ratepayers or company?
9:19:38 AM	Atty Malone KCA - witness Imber Note: Sacre, Candace	Life extension costs, explain what are respect coal plants?

9:19:57 AM	Atty Malone KCA - witness Imber Note: Sacre, Candace	Who right person?
9:20:26 AM	Atty Malone KCA - witness Imber Note: Sacre, Candace	Scope 3 emissions, what are they?
9:21:22 AM	Atty Malone KCA - witness Imber Note: Sacre, Candace	Use example relative to gas plants proposing?
9:21:52 AM	Atty Malone KCA - witness Imber Note: Sacre, Candace	Possible these emissions relative to methane something impact how gas plants run and cost structure?
9:22:27 AM	Atty Malone KCA - witness Imber Note: Sacre, Candace	Greenhouse Gas not final either?
9:23:00 AM	Atty Malone KCA - witness Imber Note: Sacre, Candace	Familiarity 2021 IRP?
9:23:14 AM	Atty Malone KCA - witness Imber Note: Sacre, Candace	What involvement carbon capture?
9:23:29 AM	Atty Malone KCA - witness Imber Note: Sacre, Candace	What changed 2021 to 2022 assessment carbon capture?
9:23:47 AM	Atty Malone KCA - witness Imber Note: Sacre, Candace	Why included 2021 and not 2022?
9:24:43 AM	Atty Malone KCA - witness Imber Note: Sacre, Candace	What basis for statement?
9:25:05 AM	Atty Malone KCA - witness Imber Note: Sacre, Candace	Page 5, footnote 6, comments submitted on FIP, Good Neighbor Plan, asking for delay in implementation, Jun 21 2022, CPCN filed Dec 2022, stay, AG reach out about supporting request to stay?
9:27:26 AM	Atty Malone KCA - witness Imber Note: Sacre, Candace	AG Office reach out see if support request stay Good Neighbor?
9:27:50 AM	Atty Malone KCA - witness Imber Note: Sacre, Candace	Why not do that?
9:29:26 AM	Atty Malone KCA - witness Imber Note: Sacre, Candace	Filed comments in June, what was change of course, what changed?
9:30:37 AM	Atty Malone KCA - witness Imber Note: Sacre, Candace	Big Rivers supported it as did EKPC?
9:30:55 AM	Atty Riggs KU/LG&E Note: Sacre, Candace	Objection, asked and answered. (Click on link for further comments.)
9:31:06 AM	Atty Malone KCA - witness Imber Note: Sacre, Candace	On Brown 3, any permitting issue inhibiting ability run gas plant and Brown 3?
9:31:59 AM	Chairman Chandler - witness Imber Note: Sacre, Candace	Examination. Every answer set up situation way file permit, feel like get permit either CCs at MC or Brown without retirement MC 1 and 2 and Brown 3?
9:33:39 AM	Chairman Chandler - witness Imber Note: Sacre, Candace	PM of what size?
9:33:46 AM	Chairman Chandler - witness Imber Note: Sacre, Candace	Model other than what proposing?
9:34:30 AM	Chairman Chandler - witness Imber Note: Sacre, Candace	Modeling for pollutants, anything other proposed in this case?
9:35:32 AM	Chairman Chandler - witness Imber Note: Sacre, Candace	No modeling from environmental done, CPCN and retirements negated need?
9:35:56 AM	Chairman Chandler - witness Imber Note: Sacre, Candace	Concern stated hurdle to performing assessments?

9:37:06 AM Chairman Chandler - witness Imber
Note: Sacre, Candace Feel provided considerations alternatives in direct?

9:37:30 AM Chairman Chandler - witness Imber
Note: Sacre, Candace All considerations took up led to decisions in this case?

9:37:54 AM Chairman Chandler - witness Imber
Note: Sacre, Candace Where put things, permits filed, responses to Malone, knew all before asked questions today?

9:38:23 AM Chairman Chandler - witness Imber
Note: Sacre, Candace If CC put at MC and MC 2 up, not file same type application would if MC 1 and 2 retired and MC 5 built?

9:38:50 AM Chairman Chandler - witness Imber
Note: Sacre, Candace Factor into ultimate decision?

9:39:09 AM Chairman Chandler - witness Imber
Note: Sacre, Candace Tried to build CC at Green River?

9:39:21 AM Chairman Chandler - witness Imber
Note: Sacre, Candace No generators retire?

9:39:31 AM Chairman Chandler - witness Imber
Note: Sacre, Candace Not true?

9:39:33 AM Chairman Chandler - witness Imber
Note: Sacre, Candace Saying here, nothing Green River now, wanted to build one by ones at Green River be different permit than proposed at MC and Brown?

9:39:55 AM Chairman Chandler - witness Imber
Note: Sacre, Candace Knew that, when comes to your job, if retiring MC 1 and 2, just put MC 5 at MC station, not file new application, amend and do netting?

9:40:54 AM Chairman Chandler - witness Imber
Note: Sacre, Candace Participated in cases?

9:41:13 AM Chairman Chandler - witness Imber
Note: Sacre, Candace Ever heard look at alternatives?

9:41:21 AM Chairman Chandler - witness Imber
Note: Sacre, Candace Provided through case alternatives?

9:41:30 AM Chairman Chandler - witness Imber
Note: Sacre, Candace As relates to impact of environmental impacts of alternatives, addressed those?

9:42:21 AM Chairman Chandler - witness Imber
Note: Sacre, Candace What looked at and what done since then, hundreds of data requests?

9:42:46 AM Chairman Chandler - witness Imber
Note: Sacre, Candace Responded fully, done modeling, financial and economic, you have responded?

9:43:07 AM Chairman Chandler - witness Imber
Note: Sacre, Candace Lot have been why do this way, impact of this, just a fact, after nine months feasibility of any proposals because alternative proposal risk not look at environmental risks?

9:44:18 AM Chairman Chandler - witness Imber
Note: Sacre, Candace Asked about if looked like, run that study financial impact, provide in data requests feasibility from environmental permitting perspective?

9:46:52 AM Chairman Chandler - witness Imber
Note: Sacre, Candace Table in Wilson testimony, Table 5, SMW-1, did Ghent no SCR, gave LLOE, if did impact portfolio, pick up concerns about keeping Ghent 2 on without SCR local nonattainment in other jurisdictions?

9:48:40 AM Chairman Chandler - witness Imber
Note: Sacre, Candace Testimony identifying risks of outcomes, plant retire in seven years, significant risk?

9:49:29 AM	Chairman Chandler - witness Imber Note: Sacre, Candace	If expected last decades and lasts seven, terrible for customers, make sure if need know qualitative risks exists for customers, provided or request so identify risks as relates to environmental risks?
9:50:34 AM	Chairman Chandler - witness Imber Note: Sacre, Candace	If gave to you as post-hearing, identify qualitative risks as relates to environmental controls or permitting or compliance?
9:50:52 AM	Chairman Chandler Note: Sacre, Candace	Mr. Malone?
9:50:57 AM	Atty Malone KCA - witness Imber Note: Sacre, Candace	Cross Examination (cont'd). Permitting risks, bear any financial risk if not able attain environmental permits CC units timely manner?
9:51:44 AM	Atty Malone KCA - witness Imber Note: Sacre, Candace	Also no guarantee getting what needed?
9:52:26 AM	Atty Malone KCA - witness Imber Note: Sacre, Candace	See no risk in getting permit?
9:52:36 AM	Atty Malone KCA - witness Imber Note: Sacre, Candace	Wonder if Commission decides plants stay open, pose risk?
9:53:04 AM	Atty Malone KCA - witness Imber Note: Sacre, Candace	Rebuttal, stay, how many times seen a stay issued?
9:53:30 AM	Atty Malone KCA - witness Imber Note: Sacre, Candace	My review Sixth Circuit statement from Division of Air Quality, reading (click on link for further comments), reconcile his view with your view not have effect on SIP, understand the question?
9:54:40 AM	Atty Malone KCA - witness Imber Note: Sacre, Candace	Declaration for Kennedy, Air Quality, reading, (click on link for further comments), look at rebuttal not think significant changes, what difference?
9:58:26 AM	Atty Malone KCA - witness Imber Note: Sacre, Candace	Conclusion based on what?
9:59:15 AM	Atty Malone KCA - witness Imber Note: Sacre, Candace	Admit Kentucky chance to revise, not know final result going to be?
9:59:28 AM	Atty Riggs KU/LG&E - witness Imber Note: Sacre, Candace	Objection, counsel testifying.
9:59:30 AM	Atty Malone KCA - witness Imber Note: Sacre, Candace	Not know what result SIP going to be, correct?
10:00:32 AM	Atty Malone KCA - witness Imber Note: Sacre, Candace	Position Good Neighbor Rule be fete a complet, NSPS not be enforced, how pick and choose?
10:02:43 AM	Atty Malone KCA - witness Imber Note: Sacre, Candace	Think stay get issued?
10:02:47 AM	Atty Riggs KU/LG&E Note: Sacre, Candace	Objection, calls for legal conclusion. (Click on link for further comments.)
10:03:38 AM	Atty Malone KCA - witness Imber Note: Sacre, Candace	Ascribe significance to a stay?
10:04:24 AM	Chairman Chandler Note: Sacre, Candace	Short recess until 10:20.
10:05:00 AM	Session Paused	
10:36:36 AM	Session Resumed	
10:36:45 AM	Chairman Chandler Note: Sacre, Candace	Witness and Counsel appearances. (Click on link for further comments.)

10:37:34 AM	Chairman Chandler Note: Sacre, Candace	Questions?
10:37:49 AM	Atty Nguyen Louisville Metro - witness Imber Note: Sacre, Candace	Cross Examination. Rebuttal, page 12, future environmental requirements outside Good Neighbor Plan, MC2 in Jefferson Co, recall?
10:38:36 AM	Atty Nguyen Louisville Metro - witness Imber Note: Sacre, Candace	Mentioned Jefferson Co nonattainment for ozone?
10:38:49 AM	Atty Nguyen Louisville Metro - witness Imber Note: Sacre, Candace	Louisville Metro Air Pollution Control District along with Div of Air Quality filed petition EPA redesignate local area as being in attainment?
10:39:09 AM	Atty Nguyen Louisville Metro - witness Imber Note: Sacre, Candace	Director of Federal and Environmental Compliance?
10:39:33 AM	Atty Nguyen Louisville Metro - witness Imber Note: Sacre, Candace	How many years environmental areas for companies?
10:40:08 AM	Atty Nguyen Louisville Metro - witness Imber Note: Sacre, Candace	During time with LG&E and overseeing compliance, interactions with LMAPCD and processes?
10:40:32 AM	Atty Nguyen Louisville Metro - witness Imber Note: Sacre, Candace	Bottom page 12, lines 11-15, read that?
10:41:31 AM	Atty Nguyen Louisville Metro - witness Imber Note: Sacre, Candace	Mention monitoring of ambient air meets federal standards?
10:41:52 AM	Atty Nguyen Louisville Metro - witness Imber Note: Sacre, Candace	Aware monitoring stations?
10:41:57 AM	Atty Nguyen Louisville Metro - witness Imber Note: Sacre, Candace	Five monitoring stations in Jefferson Co?
10:42:27 AM	Atty Nguyen Louisville Metro - witness Imber Note: Sacre, Candace	Certain federal regulations be complied with even by LMAPCD operations and maintenance of stations?
10:42:40 AM	Atty Nguyen Louisville Metro - witness Imber Note: Sacre, Candace	As well as data collected, quality control and quality assurance procedures?
10:43:15 AM	Atty Nguyen Louisville Metro - witness Imber Note: Sacre, Candace	Attend LMACD board meetings?
10:43:39 AM	Atty Nguyen Louisville Metro Note: Sacre, Candace	What passed out is entitled Document Louisville Metro Air Pollution Control District PM2.5 Monitoring Report August 2023.
10:44:12 AM	Chairman Chandler Note: Sacre, Candace	Mark this?
10:44:31 AM	Atty Nguyen Louisville Metro - witness Imber Note: Sacre, Candace	LMG 1.
10:44:32 AM	MARKED - LMG HEARING EXHIBIT 1 Note: Sacre, Candace Note: Sacre, Candace	ATTY NGUYEN LOUISVILLE METRO - WITNESS IMBER LOUISVILLE METRO AIR POLLUTION CONTROL DISTRICT PM2.5 MONITORING REPORT AUGUST 2023
10:44:34 AM	Atty Nguyen Louisville Metro - witness Imber Note: Sacre, Candace	Cross Examination (cont'd). Do you have that exhibit?
10:45:00 AM	Atty Nguyen Louisville Metro - witness Imber Note: Sacre, Candace	Is this report normally produced by LMAPC District staff to provide to board?
10:45:09 AM	Atty Nguyen Louisville Metro - witness Imber Note: Sacre, Candace	Air Quality Control report from LM??

10:45:33 AM Atty Nguyen Louisville Metro - witness Imber
Note: Sacre, Candace Page 3, 8-Hour Ozone Monitoring Report, Page 6, report on sulfur dioxide?

10:46:12 AM Atty Nguyen Louisville Metro - witness Imber
Note: Sacre, Candace NAAQS criteria pollutants defined?

10:46:26 AM Atty Nguyen Louisville Metro - witness Imber
Note: Sacre, Candace What are those?

10:46:50 AM Atty Nguyen Louisville Metro - witness Imber
Note: Sacre, Candace Be lead and nitrogen oxide?

10:47:08 AM Atty Nguyen Louisville Metro - witness Imber
Note: Sacre, Candace Focus on ground level ozone in nonattainment, Bullitt Oldham Jefferson KY and Clark and ??? in IN, page 3, states, reading, (click on link for further comments), automated report what references?

10:48:32 AM Atty Nguyen Louisville Metro - witness Imber
Note: Sacre, Candace Term by EPA for general collection for ozone?

10:48:53 AM Atty Nguyen Louisville Metro - witness Imber
Note: Sacre, Candace Chart 2023 max values exceeded through Aug 9th?

10:49:15 AM Atty Nguyen Louisville Metro - witness Imber
Note: Sacre, Candace Label says Aug 9th?

10:49:28 AM Atty Nguyen Louisville Metro - witness Imber
Note: Sacre, Candace Number of 8-hour exceeds?

10:49:41 AM Atty Nguyen Louisville Metro - witness Imber
Note: Sacre, Candace Sums up 8-hour exceeds through Aug 4 as 38?

10:49:59 AM Atty Nguyen Louisville Metro - witness Imber
Note: Sacre, Candace Number of days exceeded, 12 days?

10:50:20 AM Atty Nguyen Louisville Metro - witness Imber
Note: Sacre, Candace Shows remainder of columns has stations indicated at top, Clark Co?

10:50:44 AM Atty Nguyen Louisville Metro - witness Imber
Note: Sacre, Candace Remainder, other?

10:50:53 AM Atty Nguyen Louisville Metro - witness Imber
Note: Sacre, Candace How many through Aug 23, Cannons Lane?

10:51:10 AM Atty Nguyen Louisville Metro - witness Imber
Note: Sacre, Candace Last row, Truncated 4th Maximum, what last row indicate?

10:52:06 AM Atty Nguyen Louisville Metro - witness Imber
Note: Sacre, Candace For Cannons Lane Jefferson County measurement shows 75?

10:52:13 AM Atty Nguyen Louisville Metro - witness Imber
Note: Sacre, Candace 75 parts per billion?

10:52:30 AM Atty Nguyen Louisville Metro - witness Imber
Note: Sacre, Candace What limit on that?

10:52:38 AM Atty Nguyen Louisville Metro - witness Imber
Note: Sacre, Candace When established?

10:53:04 AM Atty Nguyen Louisville Metro - witness Imber
Note: Sacre, Candace Shows whether stations in excess or below standard?

10:54:02 AM Atty Nguyen Louisville Metro - witness Imber
Note: Sacre, Candace How many stations show design value above 2015 max standard of 74 parts per billion?

10:54:47 AM Atty Nguyen Louisville Metro - witness Imber
Note: Sacre, Candace All except for Buckner and Oldham County?

10:55:06 AM Atty Nguyen Louisville Metro - witness Imber
Note: Sacre, Candace Next page, ozone design value trend chart?

10:55:51 AM Atty Nguyen Louisville Metro - witness Imber
Note: Sacre, Candace What design value for time period?

10:56:05 AM Atty Nguyen Louisville Metro - witness Imber
Note: Sacre, Candace 2022 time period time value for that?

10:56:18 AM Atty Nguyen Louisville Metro - witness Imber
Note: Sacre, Candace Increasing?

10:56:22 AM Atty Nguyen Louisville Metro - witness Imber
Note: Sacre, Candace Showing area not in attainment?

10:56:51 AM Atty Nguyen Louisville Metro - witness Imber
Note: Sacre, Candace Bad weather this week?

10:57:00 AM Atty Nguyen Louisville Metro - witness Imber
Note: Sacre, Candace How ozone formed?

10:57:17 AM Atty Nguyen Louisville Metro - witness Imber
Note: Sacre, Candace Aware that LMAPCD issues air quality alerts?

10:57:39 AM Atty Nguyen Louisville Metro - witness Imber
Note: Sacre, Candace Aware alerts issued this week?

10:58:08 AM Atty Nguyen Louisville Metro - witness Imber
Note: Sacre, Candace In terms of 2015 NAAQS standard EPA opening up consideration of standard?

10:58:37 AM Atty Nguyen Louisville Metro - witness Imber
Note: Sacre, Candace Mentioned that CASAC having recommended standard being 55 to 60 ppb?

10:59:06 AM Atty Nguyen Louisville Metro - witness Imber
Note: Sacre, Candace What is source is largest emitter of NOx in Jefferson Co?

10:59:33 AM Atty Nguyen Louisville Metro - witness Imber
Note: Sacre, Candace Second most NOx emitter?

10:59:57 AM Atty Nguyen Louisville Metro - witness Imber
Note: Sacre, Candace In terms of NAAQS ozone standard, EPA required to undertake review of NAAQS ozone standard?

11:00:35 AM Atty Nguyen Louisville Metro - witness Imber
Note: Sacre, Candace How often?

11:00:48 AM Atty Nguyen Louisville Metro - witness Imber
Note: Sacre, Candace Just beginning time review?

11:01:00 AM Atty Nguyen Louisville Metro - witness Imber
Note: Sacre, Candace Mentioned could be other regulations EPA consider under NAAQS, required under Clean Air Act reviewed by EPA?

11:01:30 AM Atty Nguyen Louisville Metro - witness Imber
Note: Sacre, Candace Fine particulate PM2.5 NAAQS required be reviewed by EPA?

11:01:41 AM Atty Nguyen Louisville Metro - witness Imber
Note: Sacre, Candace How often required?

11:01:51 AM Atty Nguyen Louisville Metro - witness Imber
Note: Sacre, Candace Has EPA undertaken review of current PM2.5 standard?

11:02:06 AM Atty Nguyen Louisville Metro - witness Imber
Note: Sacre, Candace What is current PM2.5 standard?

11:02:19 AM Atty Nguyen Louisville Metro - witness Imber
Note: Sacre, Candace 12 micrograms per cubic meter?

11:02:23 AM Atty Nguyen Louisville Metro - witness Imber
Note: Sacre, Candace So 12?

11:02:28 AM Atty Nguyen Louisville Metro - witness Imber
Note: Sacre, Candace Refer back report, LMG Exhibit 1, monitoring report?

11:02:50 AM Atty Nguyen Louisville Metro - witness Imber
Note: Sacre, Candace PM2.5 Monitoring Report August 2023?

11:03:05 AM Atty Nguyen Louisville Metro - witness Imber
Note: Sacre, Candace Large table in middle where lists PM2.5 Monthly Averages Tracking Table 2013-2023?

11:04:06 AM Atty Nguyen Louisville Metro - witness Imber
Note: Sacre, Candace Turn to next page, second page, middle table, PM2.5 Annual Means and Annual Design Values?

11:04:33 AM	Atty Nguyen Louisville Metro - witness Imber Note: Sacre, Candace	Left column, Site Name?
11:04:48 AM	Atty Nguyen Louisville Metro - witness Imber Note: Sacre, Candace	Site name Durrett Lane?
11:05:03 AM	Atty Nguyen Louisville Metro - witness Imber Note: Sacre, Candace	Site of station?
11:05:14 AM	Atty Nguyen Louisville Metro - witness Imber Note: Sacre, Candace	Algonquin, Cannons Lane, Watson Lane all station sites?
11:05:25 AM	Atty Nguyen Louisville Metro - witness Imber Note: Sacre, Candace	Under Annual Design Values for 2020-2022, what annual design value three-year period?
11:05:50 AM	Atty Nguyen Louisville Metro - witness Imber Note: Sacre, Candace	Data for PM2.5 level Durrett Lane reflective of attainment level in Jefferson Co?
11:06:26 AM	Atty Nguyen Louisville Metro - witness Imber Note: Sacre, Candace	Current standard?
11:06:35 AM	Atty Nguyen Louisville Metro - witness Imber Note: Sacre, Candace	Considering reviewing?
11:06:57 AM	Atty Nguyen Louisville Metro - witness Imber Note: Sacre, Candace	Taking comments on proposal, range considering what?
11:07:27 AM	Atty Nguyen Louisville Metro - witness Imber Note: Sacre, Candace	Comment period ended?
11:07:40 AM	Atty Nguyen Louisville Metro - witness Imber Note: Sacre, Candace	If final rule reflects draft upper limit of 10, how impact compliance?
11:09:19 AM	Chairman Chandler Note: Sacre, Candace	Short break.
11:09:24 AM	Atty Nguyen Louisville Metro Note: Sacre, Candace	Move to admit
11:09:30 AM	Chairman Chandler Note: Sacre, Candace	Objection?
11:09:33 AM	Chairman Chandler Note: Sacre, Candace	Entered LMG Hearing Exhibit 1.
11:09:34 AM	LMG HEARING EXHIBIT 1 Note: Sacre, Candace Note: Sacre, Candace	ATTY NGUYEN LOUISVILLE METRO - WITNESS IMBER LOUISVILLE METRO AIR POLLUTION CONTROL DISTRICT PM2.5 MONITORING REPORT AUGUST 2023
11:12:07 AM	Chairman Chandler Note: Sacre, Candace	Counsel?
11:12:18 AM	Atty Smith Sierra Club - witness Imber Note: Sacre, Candace	Cross Examination. Responsible environmental regulations, have understanding compliance methods for doing so?
11:12:55 AM	Atty Smith Sierra Club - witness Imber Note: Sacre, Candace	In that role keep track of rulemaking dockets on regulations.gov?
11:13:18 AM	Atty Smith Sierra Club - witness Imber Note: Sacre, Candace	Agency keeps docket, various technical documents support compliance methods?
11:13:30 AM	Atty Smith Sierra Club - witness Imber Note: Sacre, Candace	Been at hearing throughout?
11:13:39 AM	Atty Smith Sierra Club - witness Imber Note: Sacre, Candace	Wilson direct testimony, familiar?
11:13:47 AM	Atty Smith Sierra Club - witness Imber Note: Sacre, Candace	Have access to that, show you Table 13?

11:16:41 AM	Atty Smith Sierra Club - witness Imber Note: Sacre, Candace	Table 13, SAW-1, page 74, Stress Testing Results, preferred alternative least cost every scenario, Portfolio 1?
11:17:38 AM	Atty Riggs KU/LG&E Note: Sacre, Candace	Object, not within scope of testimony. (Click on link for further comments.)
11:18:01 AM	Atty Smith Sierra Club - witness Imber Note: Sacre, Candace	Least cost, retiring MC 1 and 2, Ghent 2, and E W Brown 3?
11:18:18 AM	Atty Smith Sierra Club - witness Imber Note: Sacre, Candace	To keep units running, additional environmental costs only directionally make operation more expensive?
11:18:40 AM	Atty Smith Sierra Club - witness Imber Note: Sacre, Candace	Walk through regulations, been some confusion?
11:19:05 AM	Atty Smith Sierra Club - witness Imber Note: Sacre, Candace	Recall relating to siting new CC at same location MC 2 and 1, recall that?
11:19:50 AM	Atty Smith Sierra Club - witness Imber Note: Sacre, Candace	MC 5 proposed?
11:19:56 AM	Atty Smith Sierra Club - witness Imber Note: Sacre, Candace	Constraints on doing that?
11:20:14 AM	Atty Smith Sierra Club - witness Imber Note: Sacre, Candace	When conducts analysis, netting analysis?
11:20:27 AM	Atty Smith Sierra Club - witness Imber Note: Sacre, Candace	Part of analysis retiring MC 1 and 2?
11:20:47 AM	Atty Smith Sierra Club - witness Imber Note: Sacre, Candace	Helps avoid thresholds trigger further review?
11:20:55 AM	Atty Smith Sierra Club - witness Imber Note: Sacre, Candace	Continue operate each of units process evaluating addition modification to include new emissions?
11:21:20 AM	Atty Smith Sierra Club - witness Imber Note: Sacre, Candace	Addition of units would exceed thresholds?
11:21:26 AM	Atty Smith Sierra Club - witness Imber Note: Sacre, Candace	In nonattainment area, correct?
11:21:40 AM	Atty Smith Sierra Club - witness Imber Note: Sacre, Candace	Undergoes heightened new source review compliance requirement?
11:21:54 AM	Atty Smith Sierra Club - witness Imber Note: Sacre, Candace	If add CCs to existing coal units, exceed modification threshold?
11:22:20 AM	Atty Smith Sierra Club - witness Imber Note: Sacre, Candace	Also exceed lowest emission rate?
11:22:30 AM	Atty Smith Sierra Club - witness Imber Note: Sacre, Candace	More stringent?
11:22:49 AM	Atty Smith Sierra Club - witness Imber Note: Sacre, Candace	Trigger emission rates commensurate with SCR?
11:23:05 AM	Atty Smith Sierra Club - witness Imber Note: Sacre, Candace	If exceed significance threshold, lowest achievable emission rate requirements kick in?
11:23:35 AM	Atty Smith Sierra Club - witness Imber Note: Sacre, Candace	Agree for nitrogen oxides lowest achievable emission rate commensurate with SCR technology?
11:24:13 AM	Atty Smith Sierra Club - witness Imber Note: Sacre, Candace	There is one bucket of risks of SCR at Mill Creek?
11:24:35 AM	Atty Smith Sierra Club - witness Imber Note: Sacre, Candace	In addition, offset requirement?

11:24:48 AM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Requires offset NOx with reductions somewhere else?

11:25:10 AM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Expect impose additional costs?

11:25:21 AM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Offsets greater than increase from modification itself?

11:26:31 AM Chairman Chandler - witness Imber
Note: Sacre, Candace Examination. Retire generation in Jefferson Co, why put replacement generation in Jefferson Co?

11:28:24 AM Chairman Chandler
Note: Sacre, Candace Short recess.

11:28:42 AM Session Paused

11:33:37 AM Session Resumed

11:33:47 AM Chairman Chandler
Note: Sacre, Candace Back on record.

11:33:48 AM Chairman Chandler
Note: Sacre, Candace Mr. Smith, continue?

11:33:58 AM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Cross Examination (cont'd). Putting new NGCC at Mill Creek 5 and operate Units 1 and 2 represent risk of installing SCR?

11:34:25 AM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace If retire, significant NOx reductions?

11:34:36 AM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Few thousand tons a year?

11:35:09 AM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace E W Brown 12 similar problem?

11:35:26 AM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Not designated as nonattainment?

11:35:43 AM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Still have to comply best available control technology?

11:35:59 AM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Commensurate with rate achieve with SCR?

11:36:18 AM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Compliance issues, sound okay?

11:36:34 AM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Good Neighbor Plan, if implemented, MC 1 and 2 and Ghent emission rates commensurate with SCR?

11:37:07 AM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Did install SCR units able operate eight days out of ozone season?

11:37:30 AM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Explain how calculated that?

11:38:09 AM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace SC-6?

11:38:21 AM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Recognize?

11:38:26 AM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Identify?

11:38:48 AM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Look like true and accurate copy?

11:39:02 AM Atty Smith Sierra Club
Note: Sacre, Candace Move to admit as SC-6.

11:39:08 AM Chairman Chandler
Note: Sacre, Candace Mr. Riggs?

11:39:14 AM	Chairman Chandler	
	Note: Sacre, Candace	Admitted as SC Exhibit 6.
11:39:21 AM	SC HEARING EXHIBIT 6	
	Note: Sacre, Candace	ATTY SMITH SIERRA CLUB - WITNESS IMBER
	Note: Sacre, Candace	RESPONDING WITNESS: PHILIP A IMBER, RESPONSE TO ATTORNEY GENERAL'S INITIAL REQUEST FOR INFORMATION DATED FEB 17 2023
11:39:40 AM	Atty Smith Sierra Club - witness Imber	
	Note: Sacre, Candace	Help explain operation?
11:42:30 AM	Atty Smith Sierra Club - witness Imber	
	Note: Sacre, Candace	Under finalized plan, dynamic reallocation of emission credits?
11:43:22 AM	Atty Smith Sierra Club - witness Imber	
	Note: Sacre, Candace	Fair to say expect allocations ratchet down?
11:44:05 AM	Atty Smith Sierra Club - witness Imber	
	Note: Sacre, Candace	Stay, recall that?
11:44:23 AM	Atty Smith Sierra Club - witness Imber	
	Note: Sacre, Candace	In rebuttal, page 7, note Kentucky arguments to SIP disapproval, see that?
11:44:46 AM	Atty Smith Sierra Club - witness Imber	
	Note: Sacre, Candace	Basic argument state not have reasonable ???
11:45:05 AM	Atty Smith Sierra Club - witness Imber	
	Note: Sacre, Candace	Disagreement with threshold?
11:45:16 AM	Atty Smith Sierra Club - witness Imber	
	Note: Sacre, Candace	Procedural arguments?
11:45:29 AM	Atty Smith Sierra Club - witness Imber	
	Note: Sacre, Candace	Kentucky win usual court remand back to EPA notice to Kentucky?
11:45:57 AM	Atty Smith Sierra Club - witness Imber	
	Note: Sacre, Candace	Reconsideration of threshold?
11:46:12 AM	Atty Smith Sierra Club - witness Imber	
	Note: Sacre, Candace	Familiar briefing Kentucky submitted?
11:46:25 AM	Atty Smith Sierra Club - witness Imber	
	Note: Sacre, Candace	Talk about in rebuttal?
11:46:35 AM	Atty Smith Sierra Club - witness Imber	
	Note: Sacre, Candace	State used EPA previous version in developing plan?
11:46:53 AM	Atty Smith Sierra Club - witness Imber	
	Note: Sacre, Candace	Kentucky not dispute modeling platform?
11:47:08 AM	Atty Smith Sierra Club - witness Imber	
	Note: Sacre, Candace	If approval validated, not result in invalidation of Good Neighbor Plan?
11:47:40 AM	Atty Smith Sierra Club - witness Imber	
	Note: Sacre, Candace	One bucket of risks continued operation of units?
11:47:59 AM	Atty Smith Sierra Club - witness Imber	
	Note: Sacre, Candace	Good Neighbor Plan another bucket of risks?
11:48:06 AM	Atty Smith Sierra Club - witness Imber	
	Note: Sacre, Candace	If go away completely, still cross-state air pollution rule subject to?
11:48:32 AM	Atty Smith Sierra Club - witness Imber	
	Note: Sacre, Candace	Different cross-state program EPA developed?
11:48:48 AM	Atty Smith Sierra Club - witness Imber	
	Note: Sacre, Candace	Imposed on Kentucky because contributed several other states?
11:49:06 AM	Atty Smith Sierra Club - witness Imber	
	Note: Sacre, Candace	New York, New Jersey, Maryland remain in nonattainment?
11:49:18 AM	Atty Smith Sierra Club - witness Imber	
	Note: Sacre, Candace	CSAPR remain regardless of Good Neighbor Plan?

11:49:50 AM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Similar program to Good Neighbor Plan?

11:50:50 AM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Declaration in Sixth Circuit?

11:51:00 AM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Latest iteration, before that NOx SIP rule?

11:51:23 AM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace New and evolving iterations designed to decrease NOx emissions?

11:51:41 AM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace While limits changed over time, trading program approach not novel?

11:51:59 AM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Expect continue regulate NOx?

11:52:33 AM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Aware recent NOx prices under existing program?

11:52:49 AM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Aware last summer spiked to \$50,000 per ton?

11:53:10 AM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace EPA declaration cited, EPA cited more recent prices \$9000 a ton?

11:53:37 AM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Familiar how many NOx credits issued?

11:53:53 AM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Accept each of units 600 tons per ozone season?

11:54:19 AM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Non-SCR units higher?

11:54:42 AM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace MC 1 and 2 recent NOx emissions?

11:55:07 AM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Revised CSAPR 2008 MC 1 and 2 and Ghent 2 1000 or 1200 tons ozone season?

11:55:44 AM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Come up with 500 tons per year?

11:56:11 AM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Assume \$9000 ton credit price how much cost 500 credits per year per unit?

11:57:07 AM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Operation coal units at issue continue to be limited by CSAPR?

11:57:32 AM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Three buckets of risk?

11:57:49 AM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Also talk other risks, Section 126 of Clean Air Act?

11:58:15 AM Chairman Chandler
Note: Sacre, Candace Recess until 12:30.

11:58:41 AM Session Paused

12:40:35 PM Session Resumed

12:40:42 PM Session Paused

12:40:50 PM Session Resumed

12:41:00 PM Session Paused

12:42:11 PM Session Resumed

12:42:23 PM Chairman Chandler
Note: Sacre, Candace Back on the record.

12:42:31 PM Chairman Chandler
Note: Sacre, Candace Anything take up? (Click on link for further comments.)

12:43:14 PM	Chairman Chandler Note: Sacre, Candace	Mr. Smith?
12:43:17 PM	Chairman Chandler Note: Sacre, Candace	Still under oath.
12:43:28 PM	Atty Smith Sierra Club - witness Imber Note: Sacre, Candace	Cross Examination (cont'd). Talked about new source review requirements and permitting, recall?
12:43:56 PM	Atty Smith Sierra Club - witness Imber Note: Sacre, Candace	Responded two requests and two applications?
12:44:15 PM	Atty Smith Sierra Club - witness Imber Note: Sacre, Candace	Recall responding to those?
12:44:37 PM	Atty Smith Sierra Club - witness Imber Note: Sacre, Candace	If wanted to look at emission evaluations, go look at those calculations?
12:45:08 PM	Atty Smith Sierra Club Note: Sacre, Candace	Attachments 1 and 2, Responses JI-2.
12:45:25 PM	Atty Smith Sierra Club - witness Imber Note: Sacre, Candace	Transport rules arise resetting NAAQS?
12:45:48 PM	Atty Smith Sierra Club - witness Imber Note: Sacre, Candace	Each time revises, triggers state develop implementation plan?
12:46:22 PM	Atty Smith Sierra Club - witness Imber Note: Sacre, Candace	Initial cross-state air pollution rule include sulfur dioxide trading program?
12:47:06 PM	Atty Smith Sierra Club - witness Imber Note: Sacre, Candace	Talk about other provisions of NAAQS, Exhibit Nguyen used?
12:47:51 PM	Atty Smith Sierra Club - witness Imber Note: Sacre, Candace	Page 2 of document, recall?
12:48:02 PM	Atty Smith Sierra Club - witness Imber Note: Sacre, Candace	Establishes 10 microgram per cubic meter standard, Louisville area in nonattainment?
12:49:00 PM	Atty Smith Sierra Club - witness Imber Note: Sacre, Candace	Assuming 2021-2023 value persists, area not be needed 10 micrograms per unit standard?
12:49:36 PM	Atty Smith Sierra Club - witness Imber Note: Sacre, Candace	Revision to standard trigger obligations for Kentucky?
12:49:53 PM	Atty Smith Sierra Club - witness Imber Note: Sacre, Candace	Not contributing?
12:50:01 PM	Atty Smith Sierra Club - witness Imber Note: Sacre, Candace	If state not do that, step in with own plan?
12:50:23 PM	Atty Smith Sierra Club - witness Imber Note: Sacre, Candace	Local attainment standards?
12:50:45 PM	Atty Smith Sierra Club - witness Imber Note: Sacre, Candace	Every state of limitation plan Kentucky comes up with different elements, ensure every area comes into compliance?
12:51:15 PM	Atty Smith Sierra Club - witness Imber Note: Sacre, Candace	Page 12, rebuttal, lines 17-19, state, reading (click on link for further comments), areas in EPA attainment area?
12:51:55 PM	Atty Smith Sierra Club - witness Imber Note: Sacre, Candace	Mean nonattainment?
12:52:25 PM	Atty Smith Sierra Club - witness Imber Note: Sacre, Candace	State come up with plan to ensure state back into compliance?
12:53:01 PM	Atty Smith Sierra Club - witness Imber Note: Sacre, Candace	State not do it, EPA step in and do it for them?

12:53:27 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace State must impose reasonable available control technology?

12:53:52 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace MC 1 and 2 in nonattainment area?

12:54:02 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Separate obligation meet technology?

12:54:19 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Agree technology is SCR technology?

12:54:42 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace MC 1 subject to binding agreement limit operations call back?

12:54:52 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Not any relevance MC 2 need controls to comply?

12:55:11 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Limitations at MC 1 not affect MC 2 subject to SCR?

12:55:30 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Discussion sources outside nonattainment area subject to emission reductions bring area into attainment?

12:55:52 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Reasonably available control technology?

12:56:11 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Measures to bring area into attainment?

12:56:21 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Authority impose controls outside of area?

12:56:41 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Subject to emission reductions of NOx?

12:57:06 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Aware EPA Nov 2022 reclassified Louisville area moderate nonattainment?

12:57:30 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Levels of nonattainment?

12:57:52 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace In Nov last year, EPA determined Louisville bumped up moderate?

12:58:24 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Required submit plan by Jan 2023?

12:58:35 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Failed to submit?

12:58:52 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace EPA issued finding of failure to submit?

12:59:27 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Aware Clean Air Act, if did, federal agency has obligation to impose own implementation plan bring into nonattainment?

1:00:03 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Mentioned rebuttal petition redesignate Louisville area in attainment?

1:00:30 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Area not in attainment designation not be approved?

1:00:56 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Walked through risks transport provisions and associated with local attainments and requirements?

1:01:20 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Even if NGCC denied units face NOx standards going forward?

1:01:42 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Section 126, Clean Air Act, pending 126 petition Maryland New York New Jersey, describe what is?

1:03:05 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Aware states at issue NY NJ MD and CT units are contributing to nonattainment problems?

1:03:47 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Impose reductions?

1:03:59 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace 126 risk?

1:04:11 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace If EPA grant, oppose SCR technology at Mill Creek and Ghent?

1:04:46 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Backstop?

1:05:05 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Regional haze program?

1:05:20 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Describe what program requires?

1:06:18 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Designed to protect visibility certain national parks?

1:06:33 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace One is Mammoth Cave?

1:06:43 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace States required to submit plan addressing pollution impacts visibility?

1:06:53 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Generally addresses pollutants sulfur dioxide, nitrogen oxides, particulate matter?

1:07:07 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Focus large sources of pollution?

1:07:18 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace States obligation submit revised state implementation plan in 2021?

1:07:38 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Plan to protect visibility?

1:08:10 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Rules sources impact?

1:08:12 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace EPA and states deemed cost effective selective catalytic reduction?

1:08:35 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Flu gas desulphurization?

1:09:06 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace 1.5 pounds per BTU?

1:09:24 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Regulations addressing limits?

1:09:38 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace .15 close SCR technology?

1:10:10 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Discussed units at MC 1 and 2 and Ghent emit 1.3 pounds per BTU per unit?

1:10:56 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace State decide limitations were required reduce emissions by half?

1:11:21 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Aware Kentucky not submit regional haze?

1:11:39 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace EPA issued finding failed to submit plan?

1:11:50 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Triggers EPA implement own plan?

1:12:01 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Setting aside NSR permitting issues, Good Neighbor Plan, and independent of CSAPR, another risk associated risk NOx emissions?

1:13:02 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Expect SCR required at MC 1 and 2 and Ghent?

1:13:20 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Suggestion that MC 1 and 2 and/or Ghent operate without SCR if limited operations nonozone seasons?

1:13:45 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Because concerned highest ozone readings?

1:13:52 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Under haze program no such seasonal limitation?

1:14:13 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Wintertime NOx greater?

1:14:30 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Not get away with just operating in winter?

1:14:42 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace BART, best available retrofit technology?

1:15:21 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Congress used term because existing sources exempt from coming into compliance more stringent standards?

1:15:50 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Envisioned old sources eventually come into compliance with modern technology?

1:16:21 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Why these provisions?

1:16:28 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Aware Ghent 2 emission rate .6 pounds per BTU?

1:16:54 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Read intervenors testimonies?

1:17:05 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Lane Kollen testimony?

1:19:44 PM Session Paused



Session Report - Detail

2022-00402 25Aug2023

Kentucky Utilities Company and Louisville Gas and Electric Company (KU/LG&E)

Date:	Type:	Location:	Department:
8/25/2023	Public Hearing\Public Comments	Hearing Room 1	Hearing Room 1 (HR 1)

Witness: Philip Imber
 Judge: Kent Chandler; Angie Hatton; Mary Pat Regan
 Clerk: Candace Sacre

Event Time	Log Event
1:33:15 PM	Session Started
1:34:03 PM	Session Paused
1:34:13 PM	Session Resumed
1:34:25 PM	Session Paused
1:34:45 PM	Session Resumed
1:35:28 PM	Chairman Chandler Note: Sacre, Candace Mr. Smith, continue?
1:35:32 PM	Atty Smith Sierra Club - witness Imber Note: Sacre, Candace Cross Examination (cont'd). SO2 emissions rates from Ghent 2?
1:35:42 PM	Atty Smith Sierra Club - witness Imber Note: Sacre, Candace In context regional haze program?
1:35:50 PM	Atty Smith Sierra Club - witness Imber Note: Sacre, Candace SO2 regulated under the rule?
1:36:12 PM	Atty Smith Sierra Club - witness Imber Note: Sacre, Candace Talked about presumptive limit NOx emissions?
1:36:20 PM	Atty Smith Sierra Club - witness Imber Note: Sacre, Candace Similar presumptive limit for SO2, aware?
1:36:41 PM	Atty Smith Sierra Club - witness Imber Note: Sacre, Candace Accept 1.5 per BTU?
1:36:54 PM	Atty Smith Sierra Club - witness Imber Note: Sacre, Candace Achieve must better than that?
1:37:12 PM	Atty Smith Sierra Club - witness Imber Note: Sacre, Candace Scrubbers achieve .04, .06?
1:37:41 PM	Atty Smith Sierra Club - witness Imber Note: Sacre, Candace Identify document?
1:37:54 PM	Atty Smith Sierra Club - witness Imber Note: Sacre, Candace S&P Capital IQ?
1:38:08 PM	Atty Smith Sierra Club - witness Imber Note: Sacre, Candace Familiar that service?
1:38:33 PM	Atty Smith Sierra Club - witness Imber Note: Sacre, Candace That document indicates Ghent 2 achieves .36 sulphur dioxide?
1:38:44 PM	Atty Riggs KU/LG&E Note: Sacre, Candace Objection. (Click on link for further comments.)
1:41:36 PM	Atty Smith Sierra Club - witness Imber Note: Sacre, Candace Familiar with EIA data?
1:41:54 PM	Atty Smith Sierra Club - witness Imber Note: Sacre, Candace Accept that Ghent 2 emission rate higher than .3?
1:42:22 PM	Atty Smith Sierra Club - witness Imber Note: Sacre, Candace Think EPA or state required additional reductions impose additional costs on that unit?

1:42:57 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Clean Water Act, 316(b), recall?

1:43:34 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Section of Clean Water Act?

1:43:42 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Designed to protect endangered and threatened species?

1:44:01 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace EPA issued regulation 316(b) regulations?

1:44:19 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Requirement coal generating limit intake?

1:44:48 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace 316(b) regulations look at velocity coal units intake water 125 million gallons a day or faster do analysis?

1:45:23 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace MC 1 aware intakes 285 million gallons per day?

1:45:49 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Provided response has application?

1:46:04 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace 125 million gallons per day establishes threshold best technology reduce velocity of intake?

1:46:32 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Best available be cooling tower?

1:46:46 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Avoid analysis retire Unit 1?

1:47:16 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Best technology look at variety of factors?

1:47:30 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Effectiveness avoiding impingement?

1:47:37 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Have to install retrofit to address issue?

1:48:11 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace What cost install new cooling tower?

1:48:37 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace MC stops operating risk goes away?

1:48:55 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Distinguish from effluent guidelines, discharge of water?

1:49:17 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Currently effective guidelines at MC 1 and 2 and Ghent and E W Brown?

1:49:42 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Most recent permits limitations designed comply with currently effective regulations?

1:50:06 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Existing rules requires discharge bottom ash wastewater eliminate by 2025?

1:50:33 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Loophole, ten percent purge?

1:50:47 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Another part requires limitations of flue gas and bottom ash wastewater?

1:50:55 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace What is bottom ash wastewater?

1:51:53 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Flue gas FDG wastewater, describe that?

1:53:04 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace MC1 discharges both?

1:53:15 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Explain?

1:53:33 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace MC 2 discharge bottom ash?

1:53:46 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Watching as Wilson and Bellar stay open costs at each of coal units?

1:54:04 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Column for stay open ELG costs at MC1?

1:54:18 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Lists several million continue operating unit?

1:54:37 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Any costs apply to MC 2, provision allows coal burning ELG units retire?

1:55:03 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Submit a NOQ related to MC 1?

1:55:21 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace MC 2 discharge bottom ash?

1:55:40 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace MC 2 discharge FGD wastewater?

1:55:45 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace ELG costs apply to facility as a whole?

1:56:03 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Retire one, still have to invest address discharge?

1:57:07 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Aware EPA proposed revisions to guidelines?

1:57:32 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Proposed rule new rules for flue gas wastewater?

1:57:51 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Over and above what planning do there?

1:58:02 PM Chairman Chandler - witness Imber
Note: Sacre, Candace Examination. Not understand distinction just made?

1:58:53 PM Chairman Chandler - witness Imber
Note: Sacre, Candace Project 31 just gave CPCN for Sept 2020?

1:59:10 PM Chairman Chandler - witness Imber
Note: Sacre, Candace Item got CPCN at MC 2 3 and 4 to comply with ELG?

1:59:40 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Cross Examination (cont'd). Impose additional cost at Mill Creek station?

1:59:50 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Aware how much EPA estimated cost?

2:00:23 PM Chairman Chandler - witness Imber
Note: Sacre, Candace Examination. Not prepared give estimate or not know?

2:01:15 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Cross Examination (cont'd). Should have SC-7, responsibility understanding EPA regs?

2:01:47 PM Chairman Chandler
Note: Sacre, Candace Mark as Sierra Club Exhibit 7.

2:01:48 PM MARKED - SIERRA CLUB HEARING EXHIBIT 7
Note: Sacre, Candace ATTY SMITH SIERRA CLUB - WITNESS IMBER
Note: Sacre, Candace EPA MEMORANDUM FEBRUARY 28 2023 GENERATING UNIT-LEVEL COSTS AND LOADINGS ESTIMATES

2:02:41 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Familiar with and review dockets contain documentation?

2:03:01 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Recognize document?

2:03:04 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Consistent with EPA revised effluent limitation guidelines?

2:03:35 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Aware cost estimates new proposal, read agency published?

2:04:31 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Accept in industry refer to dockets to find technical support documents?

2:04:58 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Not dispute records accurate?

2:05:17 PM Atty Smith Sierra Club
Note: Sacre, Candace Take notice of document. (Click on link for further comments.)

2:07:19 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Impose additional costs?

2:07:34 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace EPA proposed regulations leachate wastewater?

2:08:27 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Aware under proposal treatment or precipitation leachate?

2:08:48 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace MC discharges leachate wastewater?

2:08:56 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace If EPA finalizes rule additional costs?

2:09:25 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Alternate pathway in lieu of retirement?

2:10:08 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Agree if MC 1 and 2 retired avoid all additional costs?

2:10:40 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Application effluent guidelines to Ghent 2, discharges flue gas sulphurization wastewater?

2:11:16 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace New proposal require zero discharge?

2:11:20 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Impose additional costs?

2:11:30 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Ghent 2 discharge bottom ash wastewater?

2:11:48 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Ten percent purge?

2:11:59 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Need to eliminate exemption?

2:12:10 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Leachate wastewater?

2:12:19 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Impose additional costs?

2:12:24 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Retire, avoid all costs?

2:13:22 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace E W Brown discharges bottom ash wastewater?

2:13:47 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Newly proposed regulations eliminate ten percent purge?

2:14:01 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Also discharges leachate wastewater?

2:14:11 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Comply impose costs or eliminate costs?

2:14:53 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Agree some costs avoided by retiring unit?

2:15:13 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Good Neighbor, transport rules, CSAPR, control technology, 126, haze rule, 316(b), independent of each other?

2:16:04 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Several risks remaining?

2:16:50 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace 111(d), should have in front of you SC-9, identify?

2:19:22 PM Chairman Chandler
Note: Sacre, Candace Mark as SC-9.

2:19:23 PM MARKED - SIERRA CLUB HEARING EXHIBIT 9
Note: Sacre, Candace ATTY SMITH SIERRA CLUB - WITNESS IMBER
Note: Sacre, Candace 40 CFR PART 60 NEW SOURCE PERFORMANCE STANDARDS FOR GREENHOUSE GAS EMISSIONS

2:20:09 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace If MC 1 and 2 and Ghent 2 not retired as planned, DWD impose costs going forward?

2:21:07 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Applies to existing stationary sources?

2:21:26 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Distinguishing Good Neighbor and 111(b), recall?

2:21:54 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Good Neighbor plan and ????

2:22:19 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Regulation carbon dioxide not well established?

2:22:36 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace 111 regulations related to carbon dioxide?

2:22:50 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Regulation carbon dioxide not going away?

2:23:16 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace 111(a) endangerment finding?

2:23:29 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Supreme Court upheld?

2:23:47 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Summary of 111(d) regulations, EPA four categories of regulations?

2:24:24 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace EGUs not elect retire by 2040, 90 percent capture rate by 2030?

2:25:02 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Table 5, back page, best system emission reduction?

2:25:41 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace First row?

2:26:21 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Carbon capture sequestration?

2:27:49 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace If operate four coal units MC 1-2, Ghent, Brown, until 2040, either install SCR or reduce emissions by 90 percent?

2:28:25 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace If operate only ten percent, low capacity factor?

2:28:32 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Matter of weeks not make energy revenue?

2:28:49 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Medium term subcategory, units commit retire before 2040 but operate past 2034?

2:29:54 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace EPA anticipating co-firing with 40 percent natural gas or 16 percent emission reduction?

2:29:55 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Lowering capacity factor, time operate unit?

2:30:12 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Near term category, units will operate interim period, operate end 2024 20 percent limitation?

2:30:48 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Kick in 2030?

2:31:00 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Five years 20 percent?

2:31:03 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Units commit retire 2032 maintain current CO2 emissions?

2:31:56 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Retrofitting, how work?

2:32:07 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace SCR significant up front costs?

2:32:19 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace \$100 million MC 2?

2:32:34 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace \$126 million Ghent 2?

2:32:47 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Retrofitting Ghent 2?

2:33:00 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace In SAW-1?

2:33:12 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Indicates install SCR Ghent 2 not break even until 2049?

2:33:29 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Break even commonly used identify point investment pays for itself?

2:33:45 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Analysis installation SCR not pay for itself until 2049, not include CO2 constraint?

2:34:25 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Assume that, would not break even until 2049?

2:34:35 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Burn coal through break even point, install CCS or limit emissions by 90 percent?

2:35:05 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Limitation over and above all other regulations talked about?

2:35:18 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Stress test to evaluate implications of 111(d) and (b) on portfolios?

2:35:49 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Have input into process?

2:36:10 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Going through Response PSC 5-2 stress test adders for CO2?

2:36:38 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Reasonable proxy implications CCS on coal units including implication tax credit?

2:37:21 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Reasonable cost assumption?

2:37:45 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Aware stress test Wilson ran, where CCS imposes additional cost above zero dollars per ton, retrofitting or continuing operate uneconomic to preferred portfolio?

2:38:35 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Done analysis cost of CCS would be?

2:38:52 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Role reviewing EPA?

2:39:26 PM Chairman Chandler
Note: Sacre, Candace Recess until 2:55.

2:39:44 PM Session Paused

2:55:52 PM Session Resumed

2:56:10 PM Chairman Chandler
Note: Sacre, Candace Back on the record.

2:56:16 PM Chairman Chandler
Note: Sacre, Candace Procedural discussion.

2:57:38 PM Chairman Chandler
Note: Sacre, Candace Mr. Smith, continue?

2:57:46 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Cross Examination (cont'd). Break even date, SCR investment at Ghent 2, recall?

2:58:16 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Analysis says 2049 or what Wilson says?

2:58:32 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Depreciation schedule 2035?

2:58:45 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Install SCR Ghent 2 and retire, seven years?

2:59:04 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Assumptions 15-year life?

2:59:18 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Operated at half life, stranded costs?

2:59:45 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Fall into intermediate category?

3:00:10 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace 20 percent capacity factor not be making as much money?

3:00:39 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace 111(d) presents significant risk?

3:01:01 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Apply to MC as well?

3:01:27 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Stress test, see document?

3:02:07 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Table 2, PVRR Delta from Best, Response 5-2, seen document?

3:02:35 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Accept this as analysis Wilson ran to stress test operation of NGCCs and 111(b)?

3:03:05 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Thought CO2 adders reasonable price adders, familiar with 45Q?

3:03:47 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Aware part of IRA \$85 per ton captured and sequestered?

3:04:16 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace CO2 price zero adder pays whatever cost per ton would be?

3:05:01 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Documentation in EPA 111(d) costs, recall that?

3:05:18 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Reviewed anything in docket estimated costs installing and operating CCR?

3:05:57 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Aware of cost estimates included in docket, ask see file name?

3:06:32 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Read file name?

3:07:43 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Look at paper copy SC-9 agree file name is same as name for the 111(d) rule?

3:08:12 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace EPA convention for identifying dockets?

3:08:25 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Accept spreadsheet comes from rule-making docket?

3:08:45 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Seen document before?

3:08:59 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Someone familiar with it?

3:09:13 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Familiar with system?

3:09:34 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Documents supporting rule?

3:09:45 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Able find documents readily?

3:09:57 PM Atty Smith Sierra Club
Note: Sacre, Candace Ask Commission take judicial notice.

3:10:21 PM Chairman Chandler
Note: Sacre, Candace So granted.

3:10:30 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Mentioned Sinclair some cost information about 111(d) compliance?

3:10:55 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Assumption in stress test 45Q cover costs?

3:11:31 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Reasonable cost estimate for CCS technology?

3:11:50 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace CCS technology requires very high SO2 removal?

3:12:08 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Required make system function?

3:12:28 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace 98 percent removal make function properly?

3:12:47 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Have to achieve that reduction?

3:12:57 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Ghent SO2 removal, current emission rate lower than 98 percent?

3:13:43 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Add CCS to any coal units model sulphurization method?

3:14:04 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Additional costs?

3:14:07 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Increases cooling water usage?

3:14:20 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Additional water usage cause impose additional operations/maintenance costs?

3:14:32 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Installation of CCS have parasitic load impact?

3:14:54 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace By as much as a third?

3:15:07 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace If you had CCS, take derate, take 60 percent power produce?

3:15:36 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Installation of CCS take up fair bit of space?

3:16:01 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Complicated factors and costs involved?

3:16:21 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Each of these present distinct and independent cost risks for operation of coal units?

3:17:08 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Avoid any costs have to win across the board?

3:17:38 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Showed Wilson exhibit economics going forward, shows preferred portfolio least cost but one?

3:18:11 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Agree any rules impose additional costs make continuing operate units appear more expensive than shutting down?

3:18:45 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Knock out all, operating coal units more expensive?

3:19:02 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Possibility some might go away?

3:19:16 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Agree hope not strategy for maintaining system reliability?

3:19:35 PM Atty Smith Sierra Club - witness Imber
Note: Sacre, Candace Not a strategy for environmental compliance?

3:20:08 PM Chairman Chandler
Note: Sacre, Candace Discussion of hearing exhibits. (Click on link for further comments.)

3:25:00 PM Chairman Chandler
Note: Sacre, Candace Anything else?

3:25:13 PM Chairman Chandler
Note: Sacre, Candace Mr. Cmar?

3:25:28 PM Atty Cmar Joint Intervenors - witness Imber
Note: Sacre, Candace Cross Examination. Aware information Ghent contributing nonattainment standard Louisville?

3:26:22 PM Atty Cmar Joint Intervenors - witness Imber
Note: Sacre, Candace Might but not have definitive position?

3:26:38 PM Atty Cmar Joint Intervenors - witness Imber
Note: Sacre, Candace Analysis determine that?

3:26:51 PM Atty Cmar Joint Intervenors - witness Imber
Note: Sacre, Candace Which sources addresses nonattainment source apportionment modeling?

3:27:17 PM Atty Cmar Joint Intervenors - witness Imber
Note: Sacre, Candace Who makes submittal Commonwealth not Louisville District nonattainment area?

3:27:40 PM Atty Cmar Joint Intervenors - witness Imber
Note: Sacre, Candace Louisville nonattainment area broader than jurisdiction of Louisville Metro?

3:27:52 PM Atty Cmar Joint Intervenors - witness Imber
Note: Sacre, Candace Bullitt and Oldham counties?

3:27:59 PM Atty Cmar Joint Intervenors - witness Imber
Note: Sacre, Candace Parts of Indiana?

3:28:12 PM Atty Cmar Joint Intervenors - witness Imber
Note: Sacre, Candace Because SIP looks at sourcing?

3:28:47 PM Atty Cmar Joint Intervenors - witness Imber
Note: Sacre, Candace SIP obligation rests with state?

3:29:12 PM Atty Cmar Joint Intervenors - witness Imber
Note: Sacre, Candace Recall discussion with Smith supplemental rule EPA released earlier this year?

3:29:50 PM Atty Cmar Joint Intervenors - witness Imber
Note: Sacre, Candace Recognize document?

3:29:54 PM Atty Cmar Joint Intervenors - witness Imber
Note: Sacre, Candace What is it?

3:30:16 PM Atty Cmar Joint Intervenors - witness Imber
Note: Sacre, Candace Know what is?

3:30:51 PM Atty Cmar Joint Intervenors - witness Imber
Note: Sacre, Candace Something reviewed before?

3:31:06 PM Atty Cmar Joint Intervenors - witness Imber
Note: Sacre, Candace Know what purports to do?

3:31:48 PM Atty Cmar Joint Intervenors - witness Imber
Note: Sacre, Candace Aware action apply to proposed rule if finalized?

3:32:05 PM Atty Cmar Joint Intervenors - witness Imber
Note: Sacre, Candace Not aware allow opt into 2028 retirement compliance pathway avoid compliance proposed rule?

3:32:39 PM Atty Cmar Joint Intervenors - witness Imber
Note: Sacre, Candace Yes to what?

3:33:33 PM Chairman Chandler
Note: Sacre, Candace Procedural discussion. (Click on link for further comments.)

3:34:51 PM Atty Cmar Joint Intervenors - witness Imber
Note: Sacre, Candace Supplemental ELG rule, not developed cost estimate if finalized as proposed?

3:35:44 PM Atty Cmar Joint Intervenors - witness Imber
Note: Sacre, Candace Be able offer opinion on that?

3:36:10 PM Atty Cmar Joint Intervenors - witness Imber
Note: Sacre, Candace What not small mean to you?

3:36:11 PM Atty Riggs KU/LG&E
Note: Sacre, Candace Objection, getting to limits of this witness. (Click on link for further comments.)

3:36:38 PM Atty Cmar Joint Intervenors - witness Imber
Note: Sacre, Candace Whatever easiest to explain last answer?

3:37:05 PM Atty Cmar Joint Intervenors - witness Imber
Note: Sacre, Candace Tens of millions per plant?

3:37:20 PM Atty Cmar Joint Intervenors - witness Imber
Note: Sacre, Candace Netting analysis air permit applications in record?

3:37:47 PM Atty Cmar Joint Intervenors - witness Imber
Note: Sacre, Candace Analysis more pollutants than just NOx?

3:38:14 PM Atty Cmar Joint Intervenors - witness Imber
Note: Sacre, Candace Includes reading, (click on link for further comments)?

3:38:31 PM Atty Cmar Joint Intervenors - witness Imber
Note: Sacre, Candace Net significant increase at MC or Brown?

3:38:51 PM Atty Cmar Joint Intervenors - witness Imber
Note: Sacre, Candace Reason why able to net out of treated major modifications in applications proposed retirements at MC 1 and 2 and Brown 3?

3:39:34 PM	Atty Cmar Joint Intervenors - witness Imber Note: Sacre, Candace	Implications for major modification respect to coal units, what would be implications of going through process of major modification at sites, NGCC units major modifications?
3:41:26 PM	Atty Cmar Joint Intervenors - witness Imber Note: Sacre, Candace	Offer opinion about specifics what permits looks like if done in that manner?
3:41:42 PM	Atty Cmar Joint Intervenors - witness Imber Note: Sacre, Candace	Potentially more stringent pollution emission limits?
3:42:10 PM	Atty Cmar Joint Intervenors - witness Imber Note: Sacre, Candace	Also include additional air modeling demonstrations NGCCs not contributing to nonattainment air quality standards?
3:42:44 PM	Atty Cmar Joint Intervenors - witness Imber Note: Sacre, Candace	As part of application?
3:42:46 PM	Atty Cmar Joint Intervenors - witness Imber Note: Sacre, Candace	Respond in detail what required from NGCCs if go through major source permitting analysis?
3:43:13 PM	Atty Riggs KU/LG&E Note: Sacre, Candace	Object to request, not relevant. (Click on link for further comments.)
3:43:14 PM	POST-HEARING DATA REQUEST Note: Sacre, Candace Note: Sacre, Candace	ATTY CMAR JOINT INTERVENORS - WITNESS IMBER WHAT REQUIRED FROM NGCCS IF GO THROUGH MAJOR SOURCE PERMITTING ANALYSIS
3:43:45 PM	Atty Cmar Joint Intervenors - witness Imber Note: Sacre, Candace	A lot of work in terms of extensive process?
3:44:06 PM	Atty Cmar Joint Intervenors - witness Imber Note: Sacre, Candace	Not seem feasible, why is that?
3:44:27 PM	Atty Cmar Joint Intervenors - witness Imber Note: Sacre, Candace	Proposals on table at Mill Creek or Brown or both continue to operate?
3:45:03 PM	Atty Cmar Joint Intervenors - witness Imber Note: Sacre, Candace	Requested approval for retirements, whether approve retirements?
3:45:18 PM	Atty Cmar Joint Intervenors - witness Imber Note: Sacre, Candace	If not approved, permitting implications of that?
3:46:58 PM	Atty Cmar Joint Intervenors - witness Imber Note: Sacre, Candace	Document marked SC-9, on screen full document, reviewed document before?
3:47:24 PM	Atty Cmar Joint Intervenors - witness Imber Note: Sacre, Candace	Page 33326, page 87 of PDF, paragraph begins left-hand side, Jan 1 2031 deadline, see that?
3:50:57 PM	Atty Cmar Joint Intervenors - witness Imber Note: Sacre, Candace	Aware proposed new Greenhouse Gas rules?
3:51:11 PM	Atty Cmar Joint Intervenors - witness Imber Note: Sacre, Candace	Three rules contained in here?
3:51:15 PM	Atty Cmar Joint Intervenors - witness Imber Note: Sacre, Candace	111(e) rule?
3:51:37 PM	Atty Cmar Joint Intervenors - witness Imber Note: Sacre, Candace	Deadline of Jan 1 2031 which pathway follow?
3:52:05 PM	Atty Cmar Joint Intervenors - witness Imber Note: Sacre, Candace	Agree rule sets this guideline notifying of pathway?
3:52:57 PM	Atty Cmar Joint Intervenors - witness Imber Note: Sacre, Candace	What other information know determine applicability?

3:53:29 PM	Atty Cmar Joint Intervenors - witness Imber Note: Sacre, Candace	Not read language concerning 2031 deadline decide opt into what pathway?
3:54:34 PM	Atty Cmar Joint Intervenors - witness Imber Note: Sacre, Candace	Something spelled out elsewhere in this document?
3:55:13 PM	Chairman Chandler Note: Sacre, Candace	Questions?
3:55:25 PM	Atty Kurtz KIUC - witness Imber Note: Sacre, Candace	Cross Examination. Sierra Club position retire four coal plants and not grant two CPCNs?
3:55:38 PM	Atty Huddleston Sierra Club Note: Sacre, Candace	Objection, not proffered a position. (Click on link for further comments.)
3:55:55 PM	Atty Kurtz KIUC - witness Imber Note: Sacre, Candace	If grants retirement four coal plants and denies CPCNs two gas plants, reduce cost and risk?
3:56:52 PM	Atty Kurtz KIUC - witness Imber Note: Sacre, Candace	Why is that?
3:57:07 PM	Atty Kurtz KIUC - witness Imber Note: Sacre, Candace	Retire four coal plants and not build new gas, reduce environmental risk?
3:57:48 PM	Atty Kurtz KIUC - witness Imber Note: Sacre, Candace	Also mean not enough electricity serve customers?
3:57:50 PM	Atty Kurtz KIUC - witness Imber Note: Sacre, Candace	Trade off serving customers?
3:57:57 PM	Atty Kurtz KIUC - witness Imber Note: Sacre, Candace	Aware cost SCR Ghent 2 \$126 million?
3:58:10 PM	Atty Kurtz KIUC - witness Imber Note: Sacre, Candace	\$250 per kW?
3:58:25 PM	Atty Kurtz KIUC - witness Imber Note: Sacre, Candace	One-quarter cost of new CC?
3:58:36 PM	Atty Kurtz KIUC - witness Imber Note: Sacre, Candace	Retire Ghent 2 denies, be in for CPCN for SCR plant continue operate?
3:59:02 PM	Atty Kurtz KIUC - witness Imber Note: Sacre, Candace	SC-7 have that?
3:59:22 PM	Atty Kurtz KIUC - witness Imber Note: Sacre, Candace	Reading this right, page 3, see that?
4:00:41 PM	Atty Kurtz KIUC - witness Imber Note: Sacre, Candace	EPA have zero cost Ghent units?
4:01:55 PM	Atty Riggs KU/LG&E Note: Sacre, Candace	Can Imber have four-minute break? (Click on link for further comments.)
4:03:22 PM	Atty Kurtz KIUC - witness Imber Note: Sacre, Candace	Making any sense compliance costs be so minimal?
4:04:03 PM	Chairman Chandler Note: Sacre, Candace	Short recess for five minutes.
4:04:15 PM	Session Paused	
4:10:23 PM	Session Resumed	
4:10:41 PM	Chairman Chandler Note: Sacre, Candace	Back on record.
4:10:50 PM	Atty Kurtz KIUC - witness Imber Note: Sacre, Candace	Cross Examination (cont'd). Ghent four units, correct?

4:10:55 PM	Atty Kurtz KIUC - witness Imber Note: Sacre, Candace	EPA allow you to average out pounds per MMBtu to get average?
4:11:34 PM	Atty Kurtz KIUC - witness Imber Note: Sacre, Candace	Assume hypothetical, what do to Jefferson County?
4:12:29 PM	Atty Kurtz KIUC - witness Imber Note: Sacre, Candace	Will natural gas CC at Mill Creek have SCR?
4:12:45 PM	Atty Kurtz KIUC - witness Imber Note: Sacre, Candace	Have NOx impact?
4:13:00 PM	Atty Kurtz KIUC - witness Imber Note: Sacre, Candace	What about on stand alone, how much NOx emit?
4:13:21 PM	Atty Kurtz KIUC - witness Imber Note: Sacre, Candace	Pretty small?
4:13:25 PM	Atty Kurtz KIUC - witness Imber Note: Sacre, Candace	Small amount?
4:13:30 PM	Atty Kurtz KIUC - witness Imber Note: Sacre, Candace	Assume Brown 3 retires and NGCC permitted, date by which NGCC be built, what happens to dates if plant delayed?
4:14:44 PM	Atty Kurtz KIUC - witness Imber Note: Sacre, Candace	Business decision start construction permit remains valid or not start construction, how would work?
4:15:05 PM	Atty Kurtz KIUC - witness Imber Note: Sacre, Candace	One shovel in ground, starting construction, how work?
4:15:27 PM	Atty Kurtz KIUC - witness Imber Note: Sacre, Candace	Permit would have date, plan new gas plant 2028, is that what permit say?
4:16:04 PM	Atty Kurtz KIUC - witness Imber Note: Sacre, Candace	What if construction delayed till 2029?
4:16:18 PM	Atty Kurtz KIUC - witness Imber Note: Sacre, Candace	Common or uncommon?
4:16:20 PM	Chairman Chandler Note: Sacre, Candace	Questions?
4:16:29 PM	Chairman Chandler - witness Imber Note: Sacre, Candace	Examination. Filed permits same time filed this case?
4:16:40 PM	Chairman Chandler - witness Imber Note: Sacre, Candace	Assumptions companies receive CPCN?
4:16:48 PM	Chairman Chandler - witness Imber Note: Sacre, Candace	Occur about same time?
4:17:01 PM	Chairman Chandler - witness Imber Note: Sacre, Candace	Up the hill, know who mean?
4:17:11 PM	Chairman Chandler - witness Imber Note: Sacre, Candace	Deal with a lot?
4:17:15 PM	Chairman Chandler - witness Imber Note: Sacre, Candace	Notify Cabinet of application same time tendered applications in this case?
4:17:34 PM	Chairman Chandler - witness Imber Note: Sacre, Candace	Not surprise approval action needing permits?
4:18:07 PM	Chairman Chandler - witness Imber Note: Sacre, Candace	Commission always decide CPCN for CCs, not news to you?
4:18:56 PM	Chairman Chandler - witness Imber Note: Sacre, Candace	Have power plants not run because not have certain environmental controls?
4:19:56 PM	Chairman Chandler - witness Imber Note: Sacre, Candace	Elliott situation, receive waivers state agency?

4:20:14 PM Chairman Chandler - witness Imber
Note: Sacre, Candace Keep lights on but costs after fact?

4:20:24 PM Chairman Chandler - witness Imber
Note: Sacre, Candace Some follow along?

4:20:32 PM Chairman Chandler - witness Imber
Note: Sacre, Candace Elliott requests for waivers?

4:21:53 PM Chairman Chandler - witness Imber
Note: Sacre, Candace Run uncontrolled units during ozone season to keep lights on?

4:22:42 PM Chairman Chandler - witness Imber
Note: Sacre, Candace Never had rolling blackouts?

4:23:16 PM Chairman Chandler - witness Imber
Note: Sacre, Candace Something come down because of NOx?

4:23:39 PM Chairman Chandler - witness Imber
Note: Sacre, Candace Just making more strict?

4:24:01 PM Chairman Chandler - witness Imber
Note: Sacre, Candace Lowering level, confidence rule?

4:24:17 PM Chairman Chandler - witness Imber
Note: Sacre, Candace GHG, maybe less confidence, eventuality regulate CO2?

4:26:19 PM Chairman Chandler - witness Imber
Note: Sacre, Candace Arguing about NOx, ship has sailed?

4:26:41 PM Chairman Chandler - witness Imber
Note: Sacre, Candace Ever heard Massachusetts v EPA?

4:26:58 PM Chairman Chandler - witness Imber
Note: Sacre, Candace About cars?

4:27:11 PM Chairman Chandler - witness Imber
Note: Sacre, Candace Seen section of Act relating to cars?

4:27:28 PM Chairman Chandler - witness Imber
Note: Sacre, Candace 111(d) any air pollutant?

4:27:42 PM Chairman Chandler - witness Imber
Note: Sacre, Candace GHGs fall under category of any air pollutant?

4:28:19 PM Chairman Chandler - witness Imber
Note: Sacre, Candace Where think fight is, definition, endangerment, at what point conversation is gives confidence risk not there same way is on NOx rule?

4:29:05 PM Chairman Chandler - witness Imber
Note: Sacre, Candace Focus on best systems emission reductions?

4:29:51 PM Chairman Chandler - witness Imber
Note: Sacre, Candace Major questions doctrine?

4:30:15 PM Chairman Chandler - witness Imber
Note: Sacre, Candace Major questions doctrine came up because inside the fence argument?

4:30:39 PM Chairman Chandler - witness Imber
Note: Sacre, Candace Not case here, what is concern, outcome or something about rule that raises questions?

4:31:13 PM Chairman Chandler - witness Imber
Note: Sacre, Candace Formed based on conversations with attorneys or individually formed?

4:31:33 PM Chairman Chandler - witness Imber
Note: Sacre, Candace 50 percent capacity factor, based off what know or from Wilson, know whether assumption only running it at 310 MW all the time or running on annual basis capacity factor 50 percent?

4:32:26 PM Chairman Chandler - witness Imber
Note: Sacre, Candace If had question whether 50 percent capacity factor impacted emission rates, who should ask?

4:33:08 PM	Chairman Chandler - witness Imber Note: Sacre, Candace	1000 pounds CO2 important characteristic of CC, less than 1000 lbs per MW hour?
4:33:49 PM	Chairman Chandler - witness Imber Note: Sacre, Candace	Talk about emissions at Cane Run 7, rebuttal, page 17, referenced 1000 lbs per MWh?
4:35:35 PM	Chairman Chandler - witness Imber Note: Sacre, Candace	Standard without hydrogen coal firing?
4:35:55 PM	Chairman Chandler - witness Imber Note: Sacre, Candace	111(b) or 111(d)?
4:36:27 PM	Chairman Chandler - witness Imber Note: Sacre, Candace	Reference to two NGCCs at issue, next page, meet 1000 Cane Run 7 already at 800?
4:37:03 PM	Chairman Chandler - witness Imber Note: Sacre, Candace	Go back to direct at 6, are those emission rates of CO2 how units operated?
4:38:37 PM	Chairman Chandler - witness Imber Note: Sacre, Candace	Impact overall emissions of CO2 megawatt hour, running at 50 percent capacity factor opposed to 80 percent capacity factor affect emissions of CO2 megawatt hour?
4:39:57 PM	Chairman Chandler - witness Imber Note: Sacre, Candace	Page 6, direct, line 15, anticipate greenhouse gas new source performance standards significantly reduce CO2 emissions levels NGCC units, answer, reading (click on link for further comments), see that?
4:40:57 PM	Chairman Chandler - witness Imber Note: Sacre, Candace	Supported in rebuttal even old CC 20 percent below 1000 lbs CO2?
4:41:19 PM	Chairman Chandler - witness Imber Note: Sacre, Candace	Cane Run 7 not being limited by proposed BSCR 50 percent capacity factor?
4:41:29 PM	Chairman Chandler - witness Imber Note: Sacre, Candace	Limitation impact pounds of CO2 per megawatt hour?
4:41:50 PM	Chairman Chandler - witness Imber Note: Sacre, Candace	Do we know to what degree?
4:42:15 PM	Chairman Chandler - witness Imber Note: Sacre, Candace	How find that out?
4:42:35 PM	Chairman Chandler - witness Imber Note: Sacre, Candace	Know when Wilson runs scenarios give idea what emissions are?
4:43:15 PM	Chairman Chandler - witness Imber Note: Sacre, Candace	Basis of direct and rebuttal?
4:43:49 PM	Chairman Chandler - witness Imber Note: Sacre, Candace	But if capacity factor change pounds of CO2 would effectively be a rule prevent company proceed with NGCCs?
4:44:14 PM	Chairman Chandler - witness Imber Note: Sacre, Candace	Ask as post-hearing data request what emissions of NGCC be similar to 5-2 studies?
4:44:15 PM	POST-HEARING DATA REQUEST Note: Sacre, Candace	CHAIRMAN CHANDLER - WITNESS IMBER WHAT NGCC EMISSIONS SIMILAR TO 5-2 STUDIES
4:45:11 PM	Chairman Chandler - witness Imber Note: Sacre, Candace	Model what impact occur comply with SIP as opposed to FIP?
4:46:11 PM	Chairman Chandler - witness Imber Note: Sacre, Candace	Sinclair quoted testimony in Sixth Circuit?
4:46:30 PM	Chairman Chandler - witness Imber Note: Sacre, Candace	Testimony from EPA employee state SIP have no impact on NOx?

4:46:38 PM	Chairman Chandler - witness Imber Note: Sacre, Candace	True what said, or agree with assessment?
4:47:00 PM	Atty Riggs KU/LG&E Note: Sacre, Candace	Ask for leave consider if have redirect. (Click on link for further comments.)
4:47:21 PM	Chairman Chandler Note: Sacre, Candace	Back at 9 am on Monday.
4:47:50 PM	Chairman Chandler Note: Sacre, Candace	Recess until 9 am, Monday morning.
4:48:18 PM	Session Paused	
4:48:33 PM	Session Ended	



Exhibit List Report

2022-00402 25Aug2023

**Kentucky Utilities Company and
Louisville Gas and Electric
Company (KU/LG&E)**

Name:	Description:
LOUISVILLE METRO HEARING EXHIBIT 1	LOUISVILLE METRO AIR POLLUTION CONTROL DISTRICT PM2.5 MONITORING REPORT AUGUST 2023
SC HEARING EXHIBIT 6	RESPONDING WITNESS: PHILIP A IMBER, RESPONSE TO ATTORNEY GENERAL'S INITIAL REQUEST FOR INFORMATION DATED FEB 17 2023
SC HEARING EXHIBIT 9	40 CFR PART 60 NEW SOURCE PERFORMANCE STANDARDS FOR GREENHOUSE GAS EMISSIONS

Louisville Metro Air Pollution Control District
PM_{2.5} Monitoring Report
August 2023

This report summarizes PM_{2.5} data collected by Federal Reference Method (FRM) and Federal Equivalent Method (FEM) instruments. Measurements are reported as 24-hour averages in micro-grams per cubic meter (µg/m³). The data are subject to further quality assurance checks and are not final.

PM_{2.5} Monthly Data Summary for July 2023

Site Name	Maximum		Minimum		Sample	Monthly
	Conc.	Date	Conc.	Date	Recovery	Average
Algonquin Parkway	39.4	7/16/23	5.1	7/30/23	100.0%	12.5
Durrett Lane**	NA	NA	NA	NA	TBD	NA
Cannons Lane	40.2	7/16/23	5.1	7/30/23	100.0%	12.2
Watson Lane	39.1	7/16/23	5.2	7/30/23	100.0%	12.2
Overall	40.2	6/28/23	5.1	6/22/23	100.0%	12.3

** Durrett Lane data for July 2023 are considered suspect due to possible instrumentation issue. Further evaluation needed.

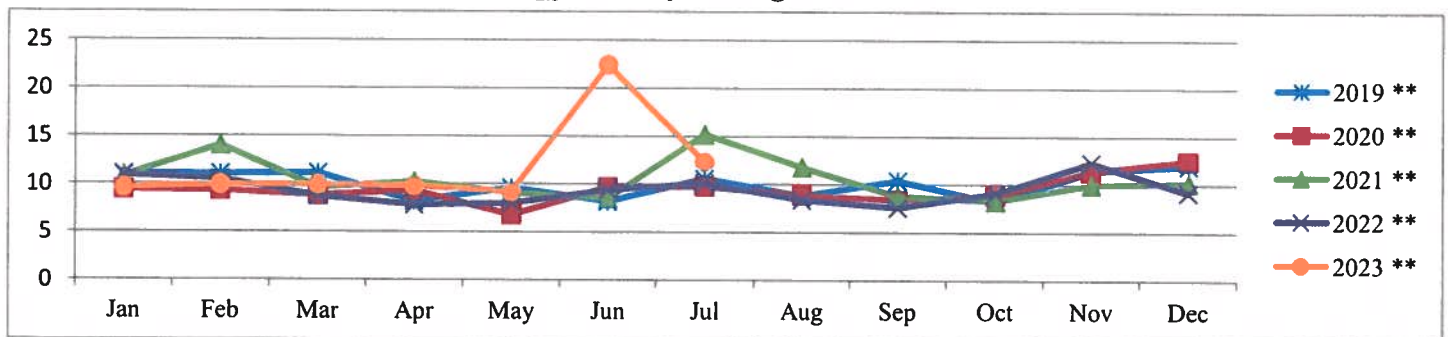
PM_{2.5} Monthly Averages Tracking Table for 2013-2023

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Months >Annual Standard
2013*	10.5	10.0	8.5	7.6	8.8	11.6	10.1	12.7	11.9	9.3	7.2	10.7	0
2014	7.5	14.3	11.7	9.6	10.7	14.0	16.4	13.6	9.9	7.9	9.8	12.4	1
2015	10.9	11.0	11.3	6.9	10.2	10.1	13.1	10.0	9.7	7.5	8.5	7.7	0
2016	8.9	9.5	6.4	7.1	7.1	8.5	7.4	8.9	9.3	8.1	11.3	9.3	0
2017	7.7	8.1	6.6	5.8	7.2	6.7	11.3	9.3	8.5	6.8	10.5	10.7	0
2018	9.7	9.6	8.4	6.5	11.0	10.4	11.9	11.7	7.2	7.1	12.9	11.0	1
2019**	11	11.0	11.1	8.2	9.6	8.2	10.6	8.8	10.4	8.2	11.4	12.0	0
2020**	9.4	9.3	8.8	9.3	6.8	9.7	9.8	8.9	8.4	8.9	11.4	12.5	1
2021**	10.8	14.0	9.6	10.2	9.1	8.5	15.2	11.8	8.8	8.3	10.0	10.2	2
2022**	10.9	10.5	8.7	7.8	8.0	9.4	10.1	8.4	7.6	9.1	12.3	9.2	1
2023**	9.6	9.9	9.9	9.8	9.2	22.4	12.3						2
Average	9.7	10.7	9.2	8.1	10.3	10.9	11.7	10.4	9.2	8.1	10.5	10.6	

*The new PM_{2.5} standard of 12 µg/m³ became effective on March 18, 2013

** Data from continuous FEM Instruments

PM_{2.5} Monthly Averages 5-Year Trend



National Ambient Air Quality Standards (NAAQS):

National Ambient Air Quality Standards consist of primary and secondary standards. The primary standards define levels of air quality which EPA judges are necessary, with an adequate margin of safety, to protect the public health. The secondary standards define levels of air quality which EPA judges necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant. For PM_{2.5} the levels of the primary and secondary standards are the same.

National Ambient Air Quality Standard for PM_{2.5} - Annual Standard:

The annual standard is designed to provide an appropriate level of protection from long-term exposure to PM_{2.5}. The standard is met when the annual design value is less than or equal to 12 µg/m³. The standard changed from 15 µg/m³ to 12 µg/m³ on March 18, 2013. The annual design value is calculated by averaging the annual means of 3 consecutive complete years of air quality data. The table below compares data collected from 2017 through year-to-date 2023 to the PM_{2.5} annual standard.

PM_{2.5} Annual Means and Annual Design Values

Site Name	Annual Means µg/m ³							Annual Design Values				
	2017	2018	2019	2020	2021	2022	2023	2017-2019	2018-2020	2019-2021	2020-2022	2021-2023
Algonquin	8.3	9.5	10.2	9.3	10.2	9.0	11.5	9.3	9.6	9.9	9.5	10.2
Durrett Lane	8.9	10.2	10.4	9.7	11.2	9.8	12.7	9.8	10.1	10.4	10.2	11.2
Cannons Lane	7.9	9.1	9.6	9.2	9.9	8.5	11.2	8.8	9.3	9.6	9.2	9.9
Watson Lane	8.1	10.5	10.0	9.6	10.6	9.9	12.0	9.6	10.1	10.1	10.0	10.8

Bold: Design value for Louisville

National Ambient Air Quality Standard for PM_{2.5} - 24-Hour (Daily) Standard:

The 24-hour standard is designed to provide an appropriate level of protection from short-term exposure to PM_{2.5}. The standard is met when the 24-hour design value is less than or equal to 35 µg/m³. The design value is based on 3 consecutive complete years of air quality data and is calculated by taking the average of the 98th percentile value for each of the 3 years. The 98th percentile value is the 24-hour average out of a year of PM_{2.5} monitoring data below which 98 percent of all 24-hour averages fall. The table below compares data collected from 2017 through year-to-date 2023 to the 24-hour standard for PM_{2.5}.

PM_{2.5} Annual 98th Percentiles and 24-Hour Design Values

Site Name	Annual 98 th Percentile Value µg/m ³							24-Hour Design Values				
	2017	2018	2019	2020	2021	2022	2023	2017-2019	2018-2020	2019-2021	2020-2022	2021-2023
Algonquin	17.8	23.0	20.2	18.9	26.0	18.3	35.7	20.3	20.7	21.7	21.1	26.7
Durrett Lane	20.7	24.7	22.9	22.4	28.3	22.1	36.2	22.8	23.3	24.5	24.3	28.9
Cannons Lane	17.2	22.2	20.5	20.6	26.1	19.2	34.7	20.0	21.1	22.4	22.0	26.7
Watson Lane	17.7	24.3	21.4	21.3	27.2	21.8	32.4	21.1	22.3	23.3	23.4	27.1

Bold: Design value for Louisville

8-Hour Ozone Exceedances:

The National Ambient Air Quality Standard for ozone is measured as an 8-hour average. An ozone exceedance occurs when the highest 8-hour average for each day is greater than the NAAQS. The NAAQS was lowered from 80 ppb to 75 ppb in 2007 and from 75 ppb to 70 ppb in 2016. The data below lists the number of exceedances based on the NAAQS at the time the data was collected.

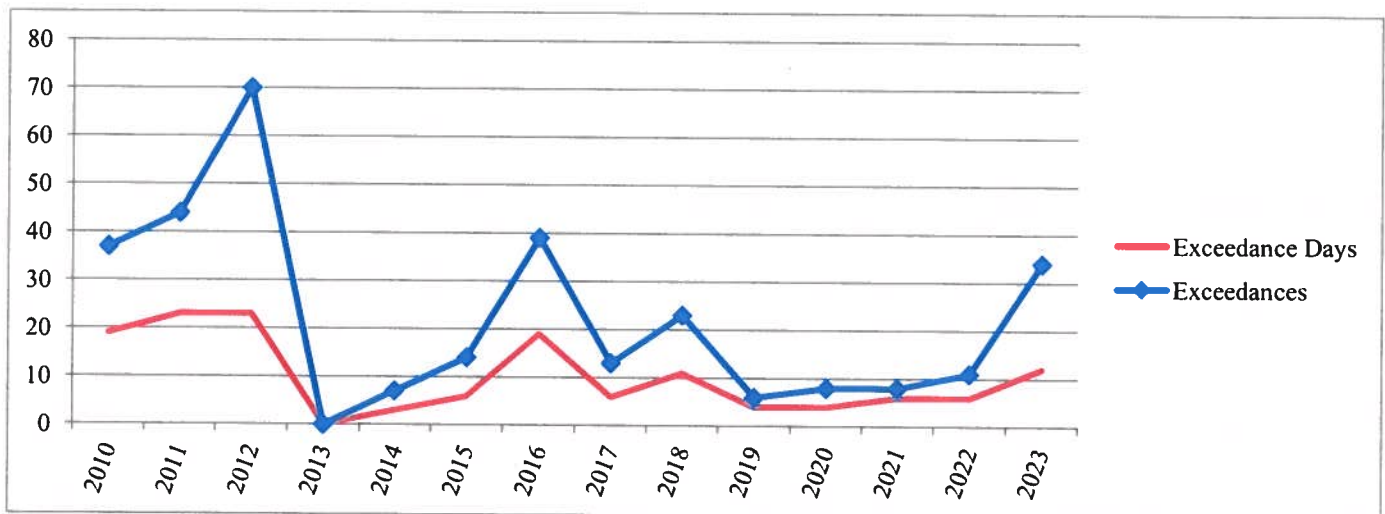
2010-2023 8-Hour Ozone Exceedance Summary through August 9th

Year	Charles-town	New Albany	Bates & Carrithers	Watson	WLKY & Cannons Lane	Buckner	Shepherds-ville	Louisville MSA Total		Jefferson County Total	
								Exceedances	Days	Exceedances	Days
2010	4	2	3	3	15	8	2	37	19	21	15
2011	6	5	6	5	8	13	1	44	23	19	14
2012	8	13	7	11	13	14	4	70	23	31	17
2013	0	0	0	0	0	0	0	0	0	0	0
2014	1	2	0	2	2	0	0	7	3	4	3
2015	3	0	4	1	4	2	0	14	6	9	5
2016	7	6	5	3	14	3	1	39	19	22	16
2017	1	5	1	1	4	1	0	13	6	6	4
2018	4	5	3	2	6	1	2	23	11	11	8
2019	1	0	2	0	2	1	0	6	4	4	2
2020	0	1	1	1	4	0	1	8	4	6	4
2021	0	0	4	1	1	1	1	8	6	6	5
2022	1	0	1	1	6	2	0	11	6	8	6
2023	4	4	6	5	8	1	6	34	12	19	11

* Cannons Lane replaced WLKY in 2010. Data through 2009 are from WLKY.

** Carrithers replaced Bates in 2018. Data through 2017 are from Bates.

Historical Graph of 8-Hour Ozone Exceedances



National Ambient Air Quality Standard for Ozone - 8-Hour Standard:

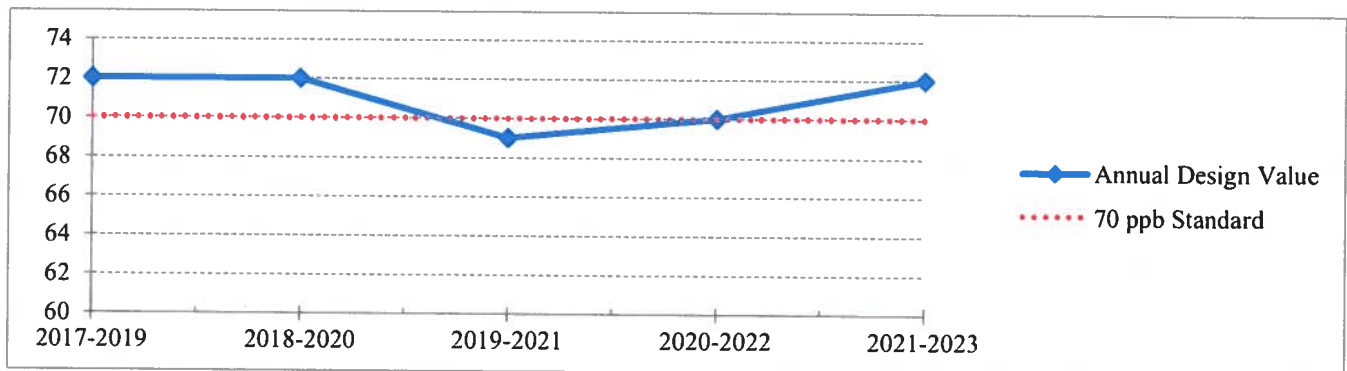
Attainment of the 8-hour standard for ozone at an individual monitor is achieved when the three-year average of the annual fourth-highest daily maximum (4th maximum) 8-hour average ozone concentration is less than 71 ppb. This three-year average is the design value for that monitor. The Louisville MSA row represents the largest 4th maximum and design value* for all monitors within the MSA.

8-Hour Ozone 4th Maximums and Design Values through August 9th

Site Name	4 th Maximums							8-Hour Design Values				
	2017	2018	2019	2020	2021	2022	2023	2017-2019	2018-2020	2019-2021	2020-2022	2021-2023
Charlestown	68	71	64	63	63	64	71	67	66	63	63	66
New Albany	74	73	63	66	64	63	71	70	67	64	64	66
Bates/Carrithers	65	70	64	68	73	67	72	66	67	68	69	70
Watson Lane	66	69	65	63	67	67	71	66	65	65	65	68
Cannons Lane	72	77	68	71	69	72	75	72	72	69	70	72
Algonquin	NA	NA	NA	NA	NA	NA	71	NA	NA	NA	NA	
Buckner	64	69	65	61	65	63	68	66	65	63	63	65
Shepherdsville	63	68	63	65	65	63	74	64	65	64	64	67
Louisville MSA	74	77	68	71	73	72	75	72	72	69	70	72

* Design Value calculations are approximations based on preliminary summary data and may differ from official design value calculations

8-Hour Ozone Design Value Trend Chart



**Louisville Metro Air Pollution Control District
Air Monitoring Report for Sulfur Dioxide (SO₂)
August 2023**

On June 2, 2010, EPA strengthened the primary National Ambient Air Quality Standard for SO₂. Specifically, EPA replaced the existing annual (30 ppb) and 24-hour (140 ppb) primary standards with a new 1-hour standard set at 75 ppb. The 1-hour standard was set to better protect public health by reducing exposure to high short-term concentrations of SO₂. The new standard took effect August 23, 2010.

Exceedances of the 1-Hour SO₂ Standard:

An exceedance occurs when a measured 1-hour average is greater than 75 ppb. Since up to twenty-four 1-hour averages are recorded each day, multiple exceedances may occur in one day. However, only the maximum 1-hour average (Daily Max) for each day is used in determining if the area is in compliance with the standard. The table below indicates the number of exceedances and the daily maximums reported thus far this year. The data are subject to further quality assurance checks and are not final.

SO₂ Daily Maximums and Exceedances through July 31st

Date	Algonquin Parkway		Watson Lane Elementary		Cannons Lane NCore		New Albany Indiana	
	Exceeds	Daily Max	Exceeds	Daily Max	Exceeds	Daily Max	Exceeds	Daily Max
01/10/23		1.4		4.1		1.8		NA
01/19/23		3.5		3.7		1.4		NA
01/24/23		1.5		2.7		4.2		NA
02/02/23		3.6		4.0		2.4		3.6
02/05/23		1.3		4.4		1.7		1.4
02/19/23		3.6		0.8		4.8		2.1
02/23/23		4.7		1.9		2.3		1.1
03/01/23		3.6		6.5		5.4		5.4
03/16/23		7.1		1.9		2.7		3.8
03/18/23		1.9		0.7		7.6		1.2
03/20/23		1.9		10.3		3.5		1.5
04/01/23		1.5		3.6		4.6		1.0
04/13/23		3.4		4.2		1.0		5.3
04/18/23		1.0		12.6		0.5		0.8
05/04/23		2.7		3.4		-0.2		2.7
05/19/23		0.7		0.6		3.3		1.2
05/23/23		1.5		7.9		0.7		1.4
06/04/23		1.3		1.0		2.8		2.1
06/10/23		3.3		14.9		3.4		1.6
Totals/Max	0	7.1	0	14.9	0	10.5	0	5.4
99th Percentile		4.1		10.9		7.6		3.8

NA - Indicates data were not available

Attainment of the SO₂ Standard:

Attainment of the new standard is achieved when the 3-year average of the 99th percentile annual distribution of the daily maxima is less than or equal to 75 ppb. Since this value can be calculated from historical data, the table below indicates those values based on 2017-2023 data.

SO₂ Annual 99th Percentiles and Annual Design Values

Site Name	Annual 99 th Percentiles (ppb)							Annual Design Values				
	2017	2018	2019	2020	2021	2022	2023	2017-2019	2018-2020	2019-2021	2020-2022	2021-2023
Watson Lane	14	16	15	15	13	12	11	15	15	14	13	12
Algonquin	11	12	6	5	4	4	4	10	8	5	4	4
Cannons Lane	7	8	9	8	9	8	8	8	8	9	8	8
New Albany	8	9	7	4	4	5	4	8	7	5	4	4

* Design Value calculations are approximations based on preliminary summary data and may differ from official design value calculations



**KENTUCKY UTILITIES COMPANY
AND
LOUISVILLE GAS AND ELECTRIC COMPANY**

**Response to Attorney General's Initial Request for Information
Dated February 17, 2023**

Case No. 2022-00402

Question No. 1

Responding Witness: Philip A. Imber

- Q-1. Reference the Wilson testimony beginning at 4:4. Confirm that compliance with the Environmental Protection Agency's ("EPA") Good Neighbor Plan ("GNP") would require that the Companies install new selective catalytic reduction ("SCR") technology to Mill Creek Unit 2 and Ghent Unit 2, which would require capital investments of \$110 million, and \$126 million, respectively.
- a. If confirmed, explain the reasoning for the conclusion that the GNP requires the installation of new SCR.
- A-1. See Imber testimony beginning at 3:11. The EPA's GNP implements a NOx trading plan. The GNP trading program includes the state of Kentucky. The GNP allocates NOx emissions credits to electric generating units based on past heat input to the unit and implementation of NOx controls. As the rule is proposed, Mill Creek Unit 2 and Ghent Unit 2 will be allocated NOx credits based on state-of-the-art combustion controls starting in 2024 (0.199 lbs of NOx/mmbtu) and new SCR controls in 2026 (0.05 lbs of NOx/mmbtu). Section VI.B.1.e of the proposed rule explains the basis for new SCR control technology. The combination of NOx allocations based on new SCR, dynamic budgeting, backstop limit, and bank recalibration effectively require non-SCR-equipped coal units to cease operating, or operate only at very minimal levels, during each year's ozone season beginning in 2026 or implement new SCR technology.
- a. Mill Creek Unit 2 and Ghent Unit 2 operate at approximately 0.3 lbs of NOx/mmbtu. With allocations based on 0.05 lbs of NOx/mmbtu, these units can at most only operate one-sixth of the time. Implementing the 3:1 allocation surrender penalty for exceeding the daily backstop limit is expected to decrease the unit availability further. Given the CSAPR trading season, i.e., about 150 days from May to September, there are approximately 8 days of ozone season allocations available for the operation of these units; $150/6/3 \sim 8$ in 2027. Eight days results in a low heat input for the calculation of future year allocations, thus dynamic budgeting results in dramatically less allocations in the following years. These units will be completely unavailable

during the ozone season in a short period of time unless new SCR technology is implemented.

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 60

[EPA-HQ-OAR-2023-0072; FRL-8536-02-OAR]

RIN 2060-AV09

New Source Performance Standards for Greenhouse Gas Emissions from New, Modified, and Reconstructed Fossil Fuel-Fired Electric Generating Units; Emission Guidelines for Greenhouse Gas Emissions From Existing Fossil Fuel-Fired Electric Generating Units; and Repeal of the Affordable Clean Energy Rule

AGENCY: Environmental Protection Agency (EPA).

ACTION: Proposed rule.

SUMMARY: In this document, the Environmental Protection Agency (EPA) is proposing five separate actions under section 111 of the Clean Air Act (CAA) addressing greenhouse gas (GHG) emissions from fossil fuel-fired electric generating units (EGUs). The EPA is proposing revised new source performance standards (NSPS), first for GHG emissions from new fossil fuel-fired stationary combustion turbine EGUs and second for GHG emissions from fossil fuel-fired steam generating units that undertake a large modification, based upon the 8-year review required by the CAA. Third, the EPA is proposing emission guidelines for GHG emissions from existing fossil fuel-fired steam generating EGUs, which include both coal-fired and oil/gas-fired steam generating EGUs. Fourth, the EPA is proposing emission guidelines for GHG emissions from the largest, most frequently operated existing stationary combustion turbines and is soliciting comment on approaches for emission guidelines for GHG emissions for the remainder of the existing combustion turbine category. Finally, the EPA is proposing to repeal the Affordable Clean Energy (ACE) Rule.

DATES: *Comments.* Comments must be received on or before July 24, 2023. Comments on the information collection provisions submitted to the Office of Management and Budget (OMB) under the Paperwork Reduction Act (PRA) are best assured of consideration by OMB if OMB receives a copy of your comments on or before June 22, 2023.

Public Hearing. The EPA will hold a virtual public hearing on June 13, 2023 and June 14, 2023. See **SUPPLEMENTARY INFORMATION** for information on registering for a public hearing.

ADDRESSES: You may send comments, identified by Docket ID No. EPA-HQ-OAR-2023-0072, by any of the following methods:

- *Federal eRulemaking Portal:* <https://www.regulations.gov> (our preferred method). Follow the online instructions for submitting comments.
- *Email:* a-and-r-docket@epa.gov. Include Docket ID No. EPA-HQ-OAR-2023-0072 in the subject line of the message.
- *Fax:* (202) 566-9744. Attention Docket ID No. EPA-HQ-OAR-2023-0072.
- *Mail:* U.S. Environmental Protection Agency, EPA Docket Center, Docket ID No. EPA-HQ-OAR-2023-0072, Mail Code 28221T, 1200 Pennsylvania Avenue NW, Washington, DC 20460.
- *Hand/Courier Delivery:* EPA Docket Center, WJC West Building, Room 3334, 1301 Constitution Avenue NW, Washington, DC 20004. The Docket Center's hours of operation are 8:30 a.m.–4:30 p.m., Monday–Friday (except Federal holidays).

Instructions: All submissions received must include the Docket ID No. for this rulemaking. Comments received may be posted without change to <https://www.regulations.gov>, including any personal information provided. For detailed instructions on sending comments and additional information on the rulemaking process, see the **SUPPLEMENTARY INFORMATION** section of this document.

FOR FURTHER INFORMATION CONTACT: For questions about these proposed actions, contact Mr. Christian Fellner, Sector Policies and Programs Division (D243-02), Office of Air Quality Planning and Standards, U.S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711; telephone number: (919) 541-4003; and email address: fellner.christian@epa.gov or Ms. Lisa Thompson, Sector Policies and Programs Division (D243-02), Office of Air Quality Planning and Standards, U.S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711; telephone number: (919) 541-9775; and email address: thompson.lisa@epa.gov.

SUPPLEMENTARY INFORMATION:

Participation in virtual public hearing. The public hearing will be held via virtual platform on June 13, 2023 and June 14, 2023 and will convene at 11:00 a.m. Eastern Time (ET) and conclude at 7:00 p.m. ET each day. If the EPA receives a high volume of registrations for the public hearing, the EPA may continue the public hearing on June 15, 2023. On each hearing

EPA may close a session 15 minutes after the last pre-registered speaker has testified if there are no additional speakers. The EPA will announce further details at <https://www.epa.gov/stationary-sources-air-pollution/greenhouse-gas-standards-and-guidelines-fossil-fuel-fired-power>.

The EPA will begin pre-registering speakers for the hearing no later than 1 business day following the publication of this document in the Federal Register. The EPA will accept registrations on an individual basis. To register to speak at the virtual hearing, please use the online registration form available at <https://www.epa.gov/stationary-sources-air-pollution/greenhouse-gas-standards-and-guidelines-fossil-fuel-fired-power> or contact the public hearing team at (888) 372-8699 or by email at SPPDpublichearing@epa.gov. The last day to pre-register to speak at the hearing will be June 6, 2023. Prior to the hearing, the EPA will post a general agenda that will list pre-registered speakers in approximate order at: <https://www.epa.gov/stationary-sources-air-pollution/greenhouse-gas-standards-and-guidelines-fossil-fuel-fired-power>.

The EPA will make every effort to follow the schedule as closely as possible on the day of the hearing; however, please plan for the hearings to run either ahead of schedule or behind schedule.

Each commenter will have 4 minutes to provide oral testimony. The EPA encourages commenters to provide the EPA with a copy of their oral testimony by submitting the text of your oral testimony as written comments to the rulemaking docket.

The EPA may ask clarifying questions during the oral presentations but will not respond to the presentations at that time. Written statements and supporting information submitted during the comment period will be considered with the same weight as oral testimony and supporting information presented at the public hearing.

Please note that any updates made to any aspect of the hearing will be posted online at <https://www.epa.gov/stationary-sources-air-pollution/greenhouse-gas-standards-and-guidelines-fossil-fuel-fired-power>. While the EPA expects the hearing to go forward as described in this section, please monitor our website or contact the public hearing team at (888) 372-8699 or by email at SPPDpublichearing@epa.gov to determine if there are any updates. The EPA does not intend to post this document in the Fed

required starting in 2035. For the subcategory of base load units that are adopting the low-GHG hydrogen co-firing pathway, the EPA is proposing that the BSER includes co-firing 30 percent (by volume) low-GHG hydrogen with an associated standard of 680 lb CO₂/MWh-gross, compliance with which would be required starting in 2032, and co-firing 96 percent (by volume) low-GHG hydrogen by 2038, which corresponds to a standard of performance of 90 lb CO₂/MWh-gross. In both cases, the second (and sometimes third) phase standard of performance would be applicable to all combustion turbines that were subject to the first phase standards of performance.

Existing and Modified Fossil Fuel-Fired Steam Generating Units and ACE Repeal

With respect to existing coal-fired steam generating units, the EPA is proposing to repeal and replace the existing ACE Rule emission guidelines. The EPA recognizes that, since it promulgated the ACE Rule, the costs of CCS have decreased due to technology advancements as well as new policies including the expansion of the Internal Revenue Code section 45Q tax credit for CCS in the Inflation Reduction Act (IRA); and the costs of natural gas co-firing have decreased as well, due in large part to a decrease in the difference between coal and natural gas prices. As a result, the EPA considered both CCS and natural gas co-firing as candidates for BSER for existing coal-fired steam EGUs.

Based on the latest information available to the Agency on cost, emission reductions, and other statutory criteria, the EPA is proposing that the BSER for existing coal-fired steam EGUs that expect to operate in the long-term is CCS with 90 percent capture of CO₂. The EPA has determined that CCS satisfies the BSER criteria for these sources because it is adequately demonstrated, achieves significant reductions in GHG emissions, and is highly cost-effective.

Although the EPA considers CCS to be a broadly applicable BSER, the Agency also recognizes that CCS will be most cost-effective for existing steam EGUs that are in a position to recover the capital costs associated with CCS over a sufficiently long period of time. During the early engagement process (see Docket ID No. EPA-HQ-OAR-2022-0723-0024), industry stakeholders requested that the EPA “[p]rovide approaches that allow for the retirement of units as opposed to investments in new control technologies, which could prolong the lives of higher-emitting

EGUs; this will achieve maximum and durable environmental benefits.” Industry stakeholders also suggested that the EPA recognize that some units may remain operational for a several-year period but will do so at limited capacity (in part to assure reliability), and then voluntarily cease operations entirely (see Docket ID No. EPA-HQ-OAR-2022-0723-0029).

In response to this industry stakeholder input and recognizing that the cost effectiveness of controls depends on the unit’s expected operating time horizon, which dictates the amortization period for the capital costs of the controls, the EPA believes it is appropriate to establish subcategories of existing steam EGUs that are based on the operating horizon of the units. The EPA is proposing that for units that expect to operate in the long-term (*i.e.*, those that plan to operate past December 31, 2039), the BSER is the use of CCS with 90 percent capture of CO₂ with an associated degree of emission limitation of an 88.4 percent reduction in emission rate (lb CO₂/MWh-gross basis). As explained in detail in this proposal, CCS with 90 percent capture of CO₂ is adequately demonstrated, cost reasonable, and achieves substantial emissions reductions from these units.

The EPA is proposing to define coal-fired steam generating units with medium-term operating horizons as those that (1) Operate after December 31, 2031, (2) have elected to commit to permanently cease operations before January 1, 2040, (3) elect to make that commitment federally enforceable and continuing by including it in the State plan, and (4) do not meet the definition of near-term operating horizon units. For these medium-term operating horizon units, the EPA is proposing that the BSER is co-firing 40 percent natural gas on a heat input basis with an associated degree of emission limitation of a 16 percent reduction in emission rate (lb CO₂/MWh-gross basis). While this subcategory is based on a 10-year operating horizon (*i.e.*, January 1, 2040), the EPA is specifically soliciting comment on the potential for a different operating horizon between 8 and 10 years to define the threshold date between the definition of medium-term and long-term coal-fired steam generating units (*i.e.*, January 1, 2038 to January 1, 2040), given that the costs for CCS may be reasonable for units with amortization periods as short as 8 years. For units with operating horizons that are imminent-term, *i.e.*, those that (1) Have elected to commit to permanently cease operations before January 1, 2032, and (2) elect to make that commitment

federally enforceable and continuing by including it in the State plan, the EPA is proposing that the BSER is routine methods of operation and maintenance with an associated degree of emission limitation of no increase in emission rate (lb CO₂/MWh-gross basis). The EPA is proposing the same BSER determination for units in the near-term operating horizon subcategory, *i.e.*, units that (1) Have elected to commit to permanently cease operations by December 31, 2034, as well as to adopt an annual capacity factor limit of 20 percent, and (2) elect to make both of these conditions federally enforceable by including them in the State plan. The EPA is also soliciting comment on a potential BSER based on low levels of natural gas co-firing for units in these last two subcategories.

The EPA is not proposing to revise the NSPS for newly constructed or reconstructed fossil fuel-fired steam generating units, which it promulgated in 2015 (80 FR 64510; October 23, 2015). This is because the EPA does not anticipate that any such units will construct or reconstruct and is unaware of plans by any companies to construct or reconstruct a new coal-fired EGU. The EPA is proposing to revise the standards of performance that it promulgated in the same 2015 action for coal-fired steam generators that undertake a large modification (*i.e.*, a modification that increases its hourly emission rate by more than 10 percent) to mirror the emissions guidelines, discussed below, for existing coal-fired steam generators. This will ensure that all existing fossil fuel-fired steam generating sources are subject to the emission controls whether they modify or not.

The EPA is also proposing emission guidelines for existing natural gas-fired and oil-fired steam generating units. Recognizing that virtually all of these units have limited operation, the EPA is, in general, proposing that the BSER is routine methods of operation and maintenance with an associated degree of emission limitation of no increase in emission rate (lb CO₂/MWh-gross).

3. Existing Fossil Fuel-Fired Stationary Combustion Turbines

The EPA is also proposing emission guidelines for large (*i.e.*, greater than 300 MW), frequently operated (*i.e.*, with a capacity factor of greater than 50 percent), existing fossil fuel-fired stationary combustion turbines. Because these existing combustion turbines are similar to new stationary combustion turbines, the EPA is proposing a BSER that is similar to the BSER for new base load combustion turbines. The EPA is

implemented to ensure equivalency with the emission reductions that would be achieved if each affected source was achieving its applicable standard of performance.

The ACE Rule's flawed legal interpretation that CAA section 111(d) universally precludes States from emissions trading is incorrect and adds to EPA's rationale for proposing to repeal the rule.

X. Proposed Regulatory Approach for Existing Fossil Fuel-Fired Steam Generating Units

A. Overview

In this section of the preamble, the EPA explains the basis for its proposed emission guidelines for GHG emissions from existing fossil fuel-fired steam generating units for States' use in plan development. This includes proposing different subcategories of designated facilities, the BSER for each subcategory, and the degree of emission limitation achievable by application of each proposed BSER. The EPA is proposing subcategories for steam generating units based on the type and amount of fossil fuel (*i.e.*, coal, oil, and natural gas) fired in the unit.

For existing coal-fired steam generating units that plan to operate in the long-term, the EPA is proposing CCS with 90 percent capture as BSER, based on a review of emission control technologies detailed further in this section of the preamble and accompanying TSDs, available in the docket. The EPA is soliciting comment on a range of maximum capture rates (90 to 95 percent or greater) and, to potentially account for the amount of time the capture equipment operates relative to operation of the steam generating unit, a slightly lower achievable degree of emission limitation (75 to 90 percent reduction in average annual emission rate, defined in terms of pounds of CO₂ per unit of generation).

During the EPA's engagement with stakeholders to inform this proposed rule, industry stakeholders noted that many coal-fired sources have plans to permanently cease operation in the coming years, and that GHG control technologies might not be cost reasonable for those units operating on shorter timeframes. These stakeholders recommended that the emission guidelines account for industry plans for permanently ceasing operation of coal-fired steam generating units by establishing a "subcategory pathway" with less stringent requirements.

Consistent with this stakeholder input, the EPA proposes to provide

subcategories for coal-fired steam generating units planning to permanently cease operations in the 2030s. The EPA recognizes that the cost reasonableness of GHG control technology options differ depending on a coal-fired steam generating unit's expected operating time horizon. Accordingly, the EPA is proposing to divide the subcategory for coal-fired units into additional subcategories based on operating horizon (*i.e.*, dates for electing to permanently cease operation) and, for one of those subcategories, load level (*i.e.*, annual capacity factor), with a separate BSER and degree of emission limitation corresponding to each subcategory. For long-term coal-fired units, the EPA is proposing that CCS satisfies the BSER criteria, as noted above. For medium-term units, the EPA is proposing natural gas co-firing at 40 percent of annual heat input as BSER. The EPA is soliciting comment on the percent of natural gas co-firing from 30 to 50 percent and the degree of emission limitation defined by a reduction in emission rate from 12 to 20 percent. For imminent-term and near-term coal-fired steam generating units, the EPA is proposing a BSER of routine methods of operation and maintenance. Because of differences in performance between units, the EPA is proposing to determine the associated degree of emission limitation as no increase in emission rate. For imminent-term and near-term coal-fired steam generating units, the EPA is also soliciting comment on a potential BSER based on low levels of natural gas co-firing.

For natural gas- and oil-fired steam generating units, the EPA is proposing a BSER of routine methods of operation and maintenance and a degree of emission limitation of no increase in emission rate. Further, the EPA is proposing to divide subcategories for oil- and natural gas-fired units based on capacity and, in some cases, geographic location. Because natural gas- and oil-fired steam generating units with similar annual capacity factors perform similarly to one another, the EPA is proposing presumptive standards of performance of 1,300 lb CO₂/MWh-gross for base load units (*i.e.*, those with annual capacity factors greater than 45 percent) and 1,500 lb CO₂/MWh-gross for intermediate load units (*i.e.*, those with annual capacity factors between 8 and 45 percent). Because natural gas- and oil-fired steam generating units with low load have large variations in emission rate, the EPA is not proposing a BSER or degree of emission limitation for those units in this action. However,

the EPA is soliciting comment on a potential BSER of "uniform fuels" and degree of emission limitation defined on a heat input basis by 120 to 130 lb CO₂/MMBtu for low load natural gas-fired steam generating units and 150 to 170 lb CO₂/MMBtu for low load oil-fired steam generating units. Also, because non-continental oil-fired steam generating units operate at intermediate and base load, and because there are relatively few of those units for which to define a limit on a fleet-wide basis, the EPA is proposing a degree of emission limitation for those units of no increase in emission rate and presumptive standards based on unit-specific emission rates, as detailed in section XII of this preamble. The EPA is soliciting comment on ranges of annual capacity factors to define the thresholds between the load levels and ranges in the degrees of emission limitation, as specified in section X.E of this preamble.

It should be noted that the EPA is proposing a compliance date of January 1, 2030, as discussed in section XII of this preamble on State plan development.

The remainder of this section is organized into the following subsections. Subsection B describes the proposed applicability requirements for existing steam generating units. Subsection C provides the explanation for the proposed subcategories. Subsection D contains, for coal-fired steam generating units, a summary of the systems considered for the BSER, detailed discussion of the systems and other options considered, and explanation and justification for the determination of BSER and degree of emission limitation. Subsection E contains, for natural gas- and oil-fired steam generating units, a summary of the systems considered for the BSER, detailed discussion of the systems and other options considered, and explanation and justification for the determination of BSER and degree of emission limitation.

B. Applicability Requirements for Existing Fossil Fuel-Fired Steam Generating Units

For the emission guidelines, the EPA is proposing that a designated facility⁵²⁴ is any fossil fuel-fired electric utility steam generating unit (*i.e.*, utility boiler or IGCC unit) that: (1) Was in operation or had commenced construction on or

⁵²⁴ The term "designated facility" means "any existing facility . . . which emits a designated pollutant and which would be subject to a standard of performance for that pollutant if the existing facility were an affected facility." See 40 CFR 60.21a(b).

before January 8, 2014;⁵²⁵ (2) serves a generator capable of selling greater than 25 MW to a utility power distribution system; and (3) has a base load rating greater than 260 GJ/h (250 MMBtu/h) heat input of fossil fuel (either alone or in combination with any other fuel). Consistent with the implementing regulations, the term “designated facility” is used throughout this preamble to refer to the sources affected by these emission guidelines.⁵²⁶ For this action, consistent with prior CAA section 111 rulemakings concerning EGUs, the term “designated facility” refers to a single EGU that is affected by these emission guidelines. The rationale for this proposal concerning applicability is the same as that for 40 CFR part 60, subpart TTTT (80 FR 64543–44; October 23, 2015). The EPA incorporates that discussion by reference here.

Section 111(a)(6) of the CAA defines an “existing source” as “any stationary source other than a new source.” Therefore, the emission guidelines would not apply to any EGUs that are new after January 8, 2014, or reconstructed after June 18, 2014, the applicability dates of 40 CFR part 60, subpart TTTT. Moreover, because the EPA is now proposing revised standards of performance for coal-fired steam generating units that undertake a modification, a modified source would be considered “new,” and therefore not subject to these emission guidelines, if the modification occurs after the date this proposal is published in the *Federal Register*. Any source that has modified prior to that date would be considered an existing source that is subject to these emission guidelines.

In addition, the EPA is proposing to include in the applicability requirements of the emission guidelines the same exemptions as discussed for 40 CFR part 60, subpart TTTT in section VII.E.1 of this preamble. Designated EGUs that may be excluded from a State plan are: (1) Units that are subject to 40 CFR part 60, subpart TTTT, as a result of commencing a qualifying modification or reconstruction; (2) steam generating units subject to a federally enforceable permit limiting net-electric sales to one-third or less of their potential electric output or 219,000

MWh or less on an annual basis and annual net-electric sales have never exceeded one-third or less of their potential electric output or 219,000 MWh; (3) non-fossil fuel units (*i.e.*, units that are capable of deriving at least 50 percent of heat input from non-fossil fuel at the base load rating) that are subject to a federally enforceable permit limiting fossil fuel use to 10 percent or less of the annual capacity factor; (4) CHP units that are subject to a federally enforceable permit limiting annual net-electric sales to no more than either 219,000 MWh or the product of the design efficiency and the potential electric output, whichever is greater; (5) units that serve a generator along with other steam generating unit(s), where the effective generation capacity (determined based on a prorated output of the base load rating of each steam generating unit) is 25 MW or less; (6) municipal waste combustor units subject to 40 CFR part 60, subpart Eb; (7) commercial or industrial solid waste incineration units that are subject to 40 CFR part 60, subpart CCCC; or (8) EGUs that derive greater than 50 percent of the heat input from an industrial process that does not produce any electrical or mechanical output or useful thermal output that is used outside the affected EGU. The EPA solicits comment on the proposed definition of “designated facility” and applicability exemptions for fossil fuel-fired steam generating units.

The exemptions listed above at (4), (5), (6), and (7) are among the current exemptions at 40 CFR 60.5509(b), as discussed in section VII.E.1 of this preamble. The exemptions listed above at (2), (3), and (8) are exemptions the EPA is proposing to revise for 40 CFR part 60, subpart TTTT, and the rationale for proposing the exemptions is in section VII.E.1 of this preamble. For consistency with the applicability requirements in 40 CFR part 60, subpart TTTT, we are proposing these same exemptions for the applicability of the emission guidelines.

The EPA is, in general, proposing the same emission guidelines for fossil fuel-fired steam generating units in non-contiguous areas (*i.e.*, Hawaii, the Virgin Islands, Guam, American Samoa, the Commonwealth of Puerto Rico, and the Northern Mariana Islands) and non-contiguous areas (non-contiguous areas and Alaska) as the EPA is proposing for comparable units in the contiguous 48 States. However, units in non-contiguous and non-contiguous areas operate on small, isolated electric grids, may operate differently from units in the contiguous 48 States, and may have limited access to certain components of

the proposed BSER due to their uniquely isolated geography or infrastructure. Therefore, the EPA is soliciting comment on the proposed BSER and degrees of emission limitation for units in non-contiguous and non-contiguous areas, and the EPA is soliciting comment on whether those units in non-contiguous and non-contiguous areas should be subject to different, if any, requirements.

The EPA notes that existing IGCC units are included in the proposed applicability requirements and that, in section X.C.1 of this preamble, the EPA is proposing to include those units in the subcategory of coal-fired steam generating units. IGCC units gasify coal or solid fossil fuel (*e.g.*, pet coke) to produce syngas (a mixture of carbon monoxide and hydrogen), and either burn the syngas directly in a combined cycle unit or use a catalyst for water-gas shift (WGS) to produce a pre-combustion gas stream with a higher concentration of CO₂ and hydrogen, which can be burned in a hydrogen turbine combined cycle unit. As described in section X.D of this preamble, the proposed BSER for coal-fired steam generating units includes co-firing natural gas and CCS, depending on their operating horizon. The few IGCC units that now operate in the U.S. either burn natural gas exclusively—and as such operate as natural gas combined cycle units—or in amounts near to the 40 percent level of the natural gas co-firing BSER. Additionally, IGCC units are suitable for pre-combustion CO₂ capture. Because the CO₂ concentration in the pre-combustion gas, after WGS, is high relative to coal-combustion flue gas, pre-combustion CO₂ capture for IGCC units can be performed using either an amine-based capture process or a physical absorption capture process. For these reasons, the EPA is not proposing to distinguish IGCC units from other coal-fired steam generating EGUs, so that the BSER of co-firing for medium-term coal-fired units and CCS for long-term coal-fired units apply to IGCC units.⁵²⁷

C. Subcategorization of Fossil Fuel-Fired Steam Generating Units

Steam generating units can have a broad range of technical and operational differences. Based on these differences, they may be subcategorized, and different BSER and degrees of emission limitation may be applicable to different subcategories. Subcategorizing allows for determining the most appropriate

⁵²⁷ For additional details on pre-combustion CO₂ capture, please see the *GHG Mitigation Measures for Steam Generating Units TSD*.

⁵²⁵ Under CAA section 111, the determination of whether a source is a new source or an existing source (and thus potentially a designated facility) is based on the date that the EPA proposes to establish standards of performance for new sources.

⁵²⁶ The EPA recognizes, however, that the word “facility” is often understood colloquially to refer to a single power plant, which may have one or more EGUs co-located within the plant’s boundaries.

control requirements for a given class of steam generating unit. Therefore, the EPA is proposing subcategories for steam generating units based on fossil fuel type, operating horizon and load level, and is proposing different BSER and degrees of emission limitation for those different subcategories. The EPA notes that in section XII.B of this preamble comment is solicited on the compliance deadline (*i.e.*, January 1, 2030), for imminent-term and near-term coal-fired steam generating units, and different subcategories of natural gas- and oil-fired steam generating units.

1. Subcategorization by Fossil Fuel Type

In this action, the EPA is proposing definitions for subcategories of existing fossil fuel-fired steam generating units based on the type and amount of fossil fuel used in the unit. The subcategory definitions proposed for these emission guidelines are based on the definitions in 40 CFR part 63, subpart UUUUU, and using the fossil fuel definitions in 40 CFR part 60, subpart TTTT.

A coal-fired steam generating unit is an electric utility steam generating unit or IGCC unit that meets the definition of “fossil fuel-fired” and that burns coal for more than 10.0 percent of the average annual heat input during the 3 calendar years prior to the proposed compliance deadline (*i.e.*, January 1, 2030), or for more than 15.0 percent of the annual heat input during any one of those calendar years, or that retains the capability to fire coal after December 31, 2029.

An oil-fired steam generating unit is an electric utility steam generating unit meeting the definition of “fossil fuel-fired” that is not a coal-fired steam generating unit and that burns oil for more than 10.0 percent of the average annual heat input during the 3 calendar years prior to the proposed compliance deadline (*i.e.*, January 1, 2030), or for more than 15.0 percent of the annual heat input during any one of those calendar years, and that no longer retains the capability to fire coal after December 31, 2029.

A natural gas-fired steam generating unit is an electric utility steam generating unit meeting the definition of “fossil fuel-fired” that is not a coal-fired or oil-fired steam generating unit and that burns natural gas for more than 10.0 percent of the average annual heat input during the 3 calendar years prior to the proposed compliance deadline (*i.e.*, January 1, 2030), or for more than 15.0 percent of the annual heat input during any one of those calendar years, and that no longer retains the capability to fire coal after December 31, 2029.

2. Subcategorization of Natural Gas- and Oil-Fired Steam Generating Units by Load Level

The EPA is also proposing additional subcategories for oil-fired and natural gas-fired steam generating units, based on load levels: “low” load, defined by annual capacity factors less than 8 percent; “intermediate” load, defined by annual capacity factors greater than or equal to 8 percent and less than 45 percent; and “base” load, defined by annual capacity factors greater than or equal to 45 percent. In addition, the EPA is soliciting comment on a range from 5 to 20 percent to define the threshold value between low and intermediate load and a range from 40 to 50 percent to define the threshold value between intermediate and base load. Because non-continental oil-fired units may operate differently, the EPA is proposing a separate subcategory for intermediate and base load non-continental oil-fired units. The rationale for the proposed load thresholds and other subcategories is detailed in the description of the BSER for oil- and natural gas-fired steam generating units in section X.E of this preamble.

3. Subcategorization of Coal-Fired Steam Generating Units by Operating Horizon and Load Level

The EPA is proposing CCS with 90 percent capture as BSER for existing coal-fired steam generating units that will operate in the long-term (*i.e.*, those that intend to operate on or after January 1, 2040), as detailed in section X.D of this preamble. CCS is adequately demonstrated at coal-fired steam generating units, is cost reasonable, achieves meaningful reductions in GHG emissions, and meets the other criteria for the BSER. The EPA is soliciting comment on a range of maximum capture rates (90 to 95 percent or greater) and, to potentially account for the amount of time the capture equipment operates relative to operation of the steam generating unit, a slightly lower achievable degree of emission limitation (75 to 90 percent reduction in average annual emission rate, defined in terms of pounds of CO₂ per unit of generation).

During the EPA’s engagement with stakeholders to inform this proposed rule, industry commenters to the pre-proposal docket noted that many sources have plans to permanently cease operation in the coming years, and that GHG control technologies might not be cost reasonable for those units operating on shorter timeframes. Further, industry stakeholders recommended that the emission guidelines account for

industry plans for permanently ceasing operation of coal-fired steam generating units by establishing a “subcategory pathway.” Specifically, industry stakeholders requested that, “[The] EPA should provide a subcategory pathway for units to decommission/repower into the early 2030s, which would include enforceable shutdown obligations, as part of an approach to existing unit guidelines.” The stakeholders cited, as a precedent, the EPA’s creation of—

targeted subcategories for unit closures in other contexts, most notably the cessation of coal subcategory in the 2020 Clean Water Act (CWA) steam electric effluent guidelines . . . that allows for decommissioning/repowering by December 31, 2028. This subcategory allows those facilities that have already filed closure commitments to continue on a path to decommission/repower these assets without installing additional control equipment that could extend the lives of these units to support cost recovery.

EPA-HQ-OAR-2022-0723-0024. In subsequent comment, industry stakeholders reiterated that, “[The] EPA should proactively include a subcategory that allows for units to opt-in to a federally enforceable retirement commitment as part of compliance with regulations for existing sources under CAA section 111(d).” EPA-HQ-OAR-2022-0723-0038. Thus, industry stakeholders recommended that EPA allow existing sources that are on a path to near term retirement to continue on that path without having to install additional control equipment.

The proposed emission guidelines are aligned with this recommendation. Many fossil fuel-fired steam generating units have plans to cease operations, are part of utilities with commitments to net zero power by certain dates, or are in States or localities with commitments to net zero power by certain dates. Over one-third of existing coal-fired steam generating capacity has planned to cease operation by 2032, and approximately half of the capacity has planned to cease operations by 2040.⁵²⁸ These plans are part of the industry trend, described in section IV.F and IV.I, in which owners and operators of the nation’s coal fleet, much of it aging, are replacing their units with natural gas combustion turbines and, increasingly, renewable energy.

As industry stakeholders have pointed out, in previous rulemakings, the EPA has allowed coal-fired EGUs with plans to voluntarily cease operations in the near future to continue with their plans without having to install pollution control equipment. In addition to the 2020 CWA steam electric

⁵²⁸ See the *Power Sector Trends TSD*.

effluent guidelines these stakeholders cite, the EPA has also approved regional haze State implementation plans in which coal-fired EGUs that voluntarily committed to cease operations by a certain date were not subject to more stringent controls.⁵²⁹

The EPA proposes to take the approach requested by industry stakeholders in this rulemaking. The EPA recognizes that the cost reasonableness of GHG control technology options differ depending on a coal-fired steam generating unit's expected operating time horizon. Certain technologies that are cost reasonable for EGUs that intend to operate for the long term are less cost reasonable for EGUs with shorter operating horizons because of shorter amortization periods and, for CCS, less time to utilize the IRC section 45Q tax credit.

Accordingly, the EPA is proposing to divide the subcategory for coal-fired units into additional subcategories based on operating horizon (*i.e.*, dates for electing to permanently cease operation) and, for one of those subcategories, load level (*i.e.*, annual capacity factor), with a separate BSER and degree of emission limitation corresponding to each subcategory. Coal-fired steam generating units would be able to opt into these subcategories if they elect to commit to permanently ceasing operations by a certain date (and, in the case of one subcategory, elect to commit to an annual capacity factor limitation), and also elect to make such commitments federally enforceable and continuing by including them in the State plan.

Specifically, the EPA is proposing four subcategories for steam generating units by operating horizon (*i.e.*, enforceable commitments to permanently cease operations) and, in one case, by load level (*i.e.*, annual capacity factor) as well. "Imminent-term" steam generating units are those that (1) Have elected to commit to permanently cease operations prior to January 1, 2032, and (2) elect to make that commitment federally enforceable and continuing by having it included in the State plan.⁵³⁰ "Near-term" steam

generating units are those that (1) Have elected to commit to permanently cease operations by December 31, 2034, as well as to adopt an annual capacity factor limit of 20 percent, and (2) elect to make both conditions federally enforceable and continuing by having them included in the State plan. "Medium-term" steam generating units are those that (1) Operate after December 31, 2031, (2) have elected to commit to permanently cease operations prior to January 1, 2040, (3) elect to make that commitment federally enforceable and continuing by having it included in the State plan, and (4) do not meet the definition of near-term units. "Long-term" steam generating units are those that have not elected to commit to permanently cease operations prior to January 1, 2040. Details regarding the implementation of subcategories in State plans are available in section XII.D of this preamble.

The EPA is proposing the imminent-term subcategory based on a 2-year operating horizon from the proposed compliance deadline (January 1, 2030, see section XII.B for additional details). This proposed subcategory is designed to accommodate units with operating horizons short enough that no additional CO₂ control measures would be cost reasonable. The EPA is proposing the near-term subcategory to provide an alternative option for units that intend to operate for a slightly longer horizon but as peaking units, *i.e.*, that intend to run at lower load levels. The load level of 20 percent for the near-term subcategory is based on spreading an average 2 years of generation (*i.e.*, 50 percent in each year, a typical load level) that would occur under the imminent-term subcategory over the 5-year operating horizon of the near-term subcategory. The EPA also solicits comment on whether the existence of the near-term subcategory makes the imminent-term subcategory unnecessary. More specifically, the EPA

federally enforceable in state implementation plan); Guidance on Regional Haze State Implementation Plans for the Second Implementation Period at 34, EPA-457/B-19-003, August 2019 (to the extent a state relies on an enforceable shutdown date for a reasonable progress determination, that measure would need to be included in the SIP and/or be federally enforceable); 84 FR 32520, 32558 (July 8, 2019) (to the extent a state relies on a source's retirement date for a standard of performance under 111(d), that date must be included in the state plan and will thus be made federally enforceable); 87 FR 79176, 79200-01 (December 23, 2022) (proposed revisions to CAA section 111(d) implementing regulations would require States to include operating conditions, including retirements, in their state plans whenever the state seeks to rely on that operating condition as the basis for a less stringent standard).

requests comment on the potential to remove the imminent-term subcategory, which as proposed includes coal-fired steam generating units that have elected to commit to permanently cease operations prior to January 1, 2032. The EPA is considering an option in which these units would instead be included in the near-term subcategory (units that have elected to commit to permanently cease operations before January 1, 2035 and commit to adopt an annual capacity factor limit of 20 percent) or the medium-term subcategory (units that have elected to commit to permanently cease operations before January 1, 2040 and that are not near-term units). The EPA further requests comment on an alternative, modified approach for units in the imminent-term subcategory that could take into account how units intending to cease operations operate in practice in the period leading up to such cessation. For instance, in their last few years of operation, those units may operate less than they have historically operated, lowering their total CO₂ mass emissions, but at the same time raising their emission rate (because lower utilization may result in lower efficiency). The EPA solicits comment on whether it would be appropriate for the imminent-term units' standards of performance to reflect the reduced utilization and higher emission rates through the use of an annual mass emission limitation. Such a limitation would account for lower utilization, but also allow greater flexibility with regard to hourly emission rate.

The EPA is proposing the 10-year operating horizon (*i.e.*, January 1, 2040) as the threshold between medium-term and long-term subcategories because long-term units will have a longer amortization period and may be better able to fully utilize the IRC section 45Q tax credit. For the analysis of BSER costs of CCS for long-term units, the EPA assumes a 12-year amortization period as this is commensurate with the time period the IRC section 45Q tax credit would be available. Based on the cost analysis performed under that assumption, the EPA is proposing the costs of CCS for long-term coal-fired units are reasonable, as detailed in section X.D.1.a.ii of this preamble. To support the 10-year operating horizon threshold, the costs for a 10-year amortization period are shown here. For a 10-year amortization period, assuming a 50 percent capacity factor, costs of CCS for a representative unit are \$31/ton of CO₂ reduced or \$27/MWh of generation. Assuming a 70 percent capacity factor, costs of CCS for a representative unit are \$6/ton of CO₂

⁵²⁹ See, e.g., 76 FR 12651, 12660-63 (March 8, 2011) (best available retrofit technology requirements for Oregon source based on enforceable retirement that were to be made federally enforceable in state implementation plan).

⁵³⁰ Operating conditions that are within the control of a source must, under a range of CAA programs, be made federally enforceable in order for a source to rely on them as the basis for a less stringent standard. See, e.g., 76 FR 12651, 12660-63 (March 8, 2011) (best available retrofit technology requirements for Oregon source based on enforceable retirement that were to be made

reduced or \$5/MWh of generation. For the population of units planning to operate on or after January 1, 2030, the fleet average costs assuming a 50 percent capacity factor are \$24/ton of CO₂ reduced or \$22/MWh. For the population of units planning to operate on or after January 1, 2030, the fleet average costs assuming a 70 percent capacity factor are – \$3/ton of CO₂ reduced or – \$2/MWh. Costs vary depending on capacity factor assumptions, but are in either case generally comparable to the costs detailed in section VII.F.3.b.iii(B)(5) of this preamble of other controls on EGUs (\$10.60 to \$29.00/MWh) and less than the costs in the 2016 NSPS regulating GHGs for the Crude Oil and Natural Gas source category of \$98/ton of CO_{2e} reduced (80 FR 56627; September 18, 2015). The EPA is soliciting comment on the dates and load levels used to define the coal-fired subcategories and is seeking data and analysis on the impact of those alternative dates and load levels on the compliance requirements. As noted in section X.D.1.a.ii(C) of this preamble, the costs for CCS may be reasonable for units with amortization periods as short as 8 years. Therefore, the EPA is specifically soliciting comment on an operating horizon of between 8 and 10 years (*i.e.*, January 1, 2038, to January 1, 2040) to define the date for the threshold between medium-term and long-term coal-fired steam generating units.

4. Legal Basis for Subcategorization

As noted in section V of this preamble, the EPA has broad authority under CAA section 111(d) to identify subcategories. As also noted in section V, the EPA's authority to "distinguish among classes, types, and sizes within categories," as provided under CAA section 111(b)(2) and as we interpret CAA section 111(d) to provide as well, generally allows the Agency to place types of sources into subcategories when they have characteristics that are relevant to the controls that the EPA may determine to be the BSER for those sources. One element of the BSER is cost reasonableness. See CAA section 111(d)(1) (requiring the EPA, in setting the BSER, to "tak[e] into account the cost of achieving such reduction"). As noted in section V, the EPA's long-standing regulations under CAA section 111(d) explicitly recognize that subcategorization may be appropriate for sources based on the "costs of control."⁵³¹ Subcategorizing on the basis of operating horizon is consistent with a central characteristic of the coal-

fired power industry that is relevant for determining the cost reasonableness of control requirements: A large percentage of the industry has announced, or is expected to announce, dates for ceasing operation, and the fact that many coal-fired steam generating units intend to cease operation affects what controls are "best" for different subcategories. Whether the costs of control are reasonable depends in part on the period of time over which the affected sources can amortize those costs. Sources that have shorter operating horizons will have less time to amortize capital costs and the controls will thereby be less cost-effective and therefore may not qualify as the BSER.⁵³²

In addition, subcategorizing by length of period of continued operation is similar to two other bases for subcategorization on which the EPA has relied in prior rules, each of which implicates the cost reasonableness of controls: The first is load level, noted in section X.C of this preamble. For example, in the 2015 NSPS, the EPA divided new natural gas-fired combustion turbines into the subcategories of base load and non-base load. 80 FR 64510, 64602 (table 15) (October 23, 2015). The EPA did so because the control technologies that were "best"—including consideration of feasibility and cost-reasonableness—depended on how much the unit operated. The load level, which relates to the amount of product produced on a yearly or other basis, bears similarity to a limit on a period of continued operation, which concerns the amount of time remaining to produce the product. In both cases, certain technologies may not be cost reasonable because of the capacity to produce product—*i.e.*, because the costs are spread over less product produced.

The second is fuel type, as also noted in section X.C of this preamble. The 2015 NSPS provides an example of this type of subcategorization as well. There, the EPA divided new combustion turbines into subcategories on the basis of type of fuel combusted. *Id.* Subcategorizing on the basis of the type of fuel combusted may be appropriate when different controls have different costs, depending on the type of fuel, so that the cost-reasonableness of the control depends on the type of fuel. In that way, it is similar to subcategorizing by operating horizon because in both cases, the subcategory is based upon the

cost reasonableness of controls. Subcategorizing by fuel type presents an additional analogy to the present case of subcategorizing on the basis of the length of time when the source will continue to operate because this timeframe is tantamount to the length of time when the source will continue to combust the fuel. Subcategorizing on this basis may be appropriate when different controls for a particular fuel have different costs, depending on the length of time when the fuel will continue to be combusted, so that the cost-reasonableness of controls depends on that timeframe. Some prior EPA rules for coal-fired sources have made explicit the link between length of time for continued operation and type of fuel combusted by codifying federally enforceable retirement dates as the dates by which the source must "cease burning coal."⁵³³

It should be noted that subcategorizing on the basis of operating horizon does not preclude a State from considering RULOF in applying a standard of performance to a particular source. EPA's authority to set BSER for a source category (including subcategories) and a State's authority to invoke RULOF for individual sources within a category or subcategory are distinct. EPA's statutory obligation is to determine a generally applicable BSER for a source category, and where that source category encompasses different classes, types, or sizes of sources, to set generally applicable BSERs for subcategories accounting for those differences. By contrast, States' authority to invoke RULOF is premised on the State's ability to take into account the characteristics of a particular source that may differ from the assumptions EPA made in determining BSER generally. As noted above, the EPA is proposing these subcategories in response to requests by power sector representatives that this rule accommodate the fact that there is a class of sources that plans to voluntarily cease operations in the near term. Although the EPA has designed the subcategories to accommodate those requests, a particular source may still present source-specific considerations—whether related to its remaining useful life or other factors—that the State may consider relevant for the application of that particular source's standard of performance, and that the State should

⁵³³ See 79 FR 5031, 5192 (January 30, 2014) (explaining that "[t]he construction permit issued by Wyoming requires Naughton Unit 3 to *cease burning coal* by December 31, 2017 and to be retrofitted to natural gas as its fuel source by June 30, 2018" (emphasis added)).

⁵³² Steam Electric Reconsideration Rule, 85 FR 64650, 64679 (October 13, 2020) (distinguishes between EGUs retiring before 2028 and EGUs remaining in operation after that time).

⁵³¹ 40 CFR 60.22(b)(5), 60.22a(b)(5).

On the other hand, for those units, a BSER of “uniform fuels” and an associated presumptive standard of performance based on a heat input basis, as described in section XII.D of this preamble, may be reasonable. The EPA is soliciting comment on the fuel types that would constitute “uniform fuels” specific to low load natural gas- and oil-fired steam generating units.

2. Degree of Emission Limitation

As discussed above, because the proposed BSER for base load and intermediate load natural gas- and oil-fired steam generating plants is routine operation and maintenance, which the units are, by definition, already employing, the degree of emission limitation by application of this BSER is no increase in emission rate on a lb CO₂/MWh-gross basis over an extended period of time (e.g., an annual calendar year).

F. Summary

The EPA has evaluated options for BSER for GHG emissions for fossil fuel-fired steam generating units. The EPA is proposing subcategorization of steam generating units by the type of fossil fuel fired in the unit, and, for each fuel type, further levels of subcategorization. For each subcategory, the EPA is proposing a BSER and resulting degree of emission limitation achievable by application of that BSER, as summarized in table 5, with presumptively approvable standards of performance for use in State plan development (see section XII of this preamble for details) included for completeness. For coal-fired steam generating units that plan to operate in the long-term, the EPA is proposing a BSER of CCS with 90 percent capture of CO₂. In response to industry stakeholder input and recognizing that the cost effectiveness of controls depends on a unit’s expected operating time horizon, which dictates the amortization period

for the capital costs of the controls, the EPA is proposing other BSER for coal-fired units with shorter operating horizons while taking comment on what dates most appropriately define the thresholds between these different subcategories. For the different subcategories of natural gas- and oil-fired units, the EPA is proposing BSERs based on routine methods of operation and maintenance. The EPA solicits comment on the proposed BSER and degrees of emission limitation, as well as the proposed subcategorization, including the potential to remove the imminent-term subcategory and include units with earlier commitments to permanently cease operations in either the near-term or medium-term subcategory. It is noted that for imminent-term and near-term coal-fired steam generating units, the EPA is also soliciting comment on potential BSERs based on co-firing low levels of natural gas.

TABLE 5—SUMMARY OF PROPOSED BSER, SUBCATEGORIES, AND DEGREES OF EMISSION LIMITATION FOR AFFECTED EGUS

Affected EGUs	Subcategory definition	BSER	Degree of emission limitation	Presumptively approvable standard of performance ⁵⁶¹	Ranges in values on which the EPA is soliciting comment
Long-term existing coal-fired steam generating units.	Coal-fired steam generating units that have not elected to commit to permanently cease operations by January 1, 2040.	CCS with 90 percent capture of CO ₂ .	88.4 percent reduction in emission rate (lb CO ₂ /MWh-gross).	88.4 percent reduction in annual emission rate (lb CO ₂ /MWh-gross) from the unit-specific baseline.	The achievable capture rate from 90 to 95 percent or greater and the achievable degree of emission limitation defined by a reduction in emission rate from 75 to 90 percent.
Medium-term existing coal-fired steam generating units.	Coal-fired steam generating units that have elected to commit to permanently cease operations after December 31, 2031, and before January 1, 2040, and that are not near-term units.	Natural gas co-firing at 40 percent of the heat input to the unit.	A 16 percent reduction in emission rate (lb CO ₂ /MWh-gross).	A 16 percent reduction in annual emission rate (lb CO ₂ /MWh-gross) from the unit-specific baseline.	The percent of natural gas co-firing from 30 to 50 percent and the degree of emission limitation from 12 to 20 percent.
Near-term existing coal-fired steam generating units.	Coal-fired steam generating units that have elected to commit to permanently cease operations after December 31, 2031, and before January 1, 2035, and commit to adopt an annual capacity factor limit of 20 percent.	Routine methods of operation.	No increase in emission rate (lb CO ₂ /MWh-gross).	An emission rate limit (lb CO ₂ /MWh-gross) defined by the unit-specific baseline.	The presumptive standard: 0 to 2 standard deviations in annual emission rate above or 0 to 10 percent above the unit-specific baseline.
Imminent-term existing coal-fired steam generating units.	Coal-fired steam generating units that have elected to commit to permanently cease operations before January 1, 2032.	Routine methods of operation.	No increase in emission rate (lb CO ₂ /MWh-gross).	An emission rate limit (lb CO ₂ /MWh-gross) defined by the unit-specific baseline.	The presumptive standard: 0 to 2 standard deviations in annual emission rate above or 0 to 10 percent above the unit-specific baseline.

⁵⁶¹ Presumptive standards of performance are discussed in detail in section XII of the preamble. While States establish standards of performance for

sources the EPA provides presumptively approvable standards of performance based on the degree of emission limitation achievable through

application of the BSER for each subcategory. Inclusion in this table is for completeness.

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