

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

ELECTRONIC 2021 JOINT INTEGRATED)	
RESOURCE PLAN OF LOUISVILLE GAS AND)	CASE NO.
ELECTRIC COMPANY AND KENTUCKY)	2021-00393
UTILITIES COMPANY)	

NOTICE OF FILING

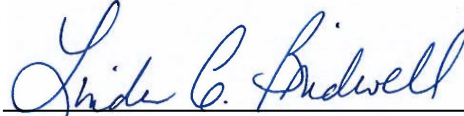
Notice is given to all parties that the following materials have been filed
into the record of this proceeding:

- The digital video recording of the evidentiary hearing conducted on July 12, 2022 in this proceeding;
- Certification of the accuracy and correctness of the digital video recording;
- All exhibits introduced at the evidentiary hearing conducted on July 12, 2022 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 July 12, 2022.

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://www.youtube.com/watch?v=nApfl8KMQ_U.

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 18th day of August 2022.



Linda C. Bridwell

Executive Director

Public Service Commission of Kentucky

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

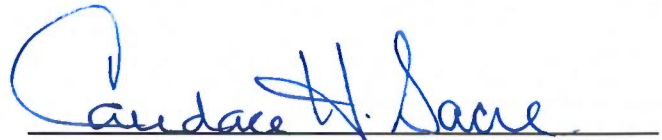
ELECTRONIC 2021 JOINT INTEGRATED)	
RESOURCE PLAN OF LOUISVILLE GAS AND)	CASE NO.
ELECTRIC COMPANY AND KENTUCKY)	2021-00393
UTILITIES COMPANY)	

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 July 12, 2022. The Formal Hearing Log, Exhibits, and Exhibit List are included with the recording on July 12, 2022;
2. I am responsible for the preparation of the digital recording;
3. The digital recording accurately and correctly depicts the Formal Hearing of July 12, 2022; and
4. The Formal Hearing Log attached to this Certificate accurately and correctly states the events that occurred at the Formal Hearing of July 12, 2022, and the time at which each occurred.

Signed this 1st day of August, 2022.



Candace H. Sacre
Administrative Specialist III



Stephanie Schweighardt
Notary Public State at Large
Commission Expires: January 14, 2023
ID# 614400



Session Report - Detail

2021-00393 12Jul2022

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

Date:	Type:	Location:	Department:
7/12/2022	Public Hearing\Public Comments	Hearing Room 1	Hearing Room 1 (HR 1)

Witness: Stewart Sinclair; Stuart Wilson
 Judge: Kent Chandler; Mary Pat Regan
 Clerk: Candace Sacre

Event Time	Log Event	
9:16:57 AM	Session Started	
9:17:16 AM	Chairman Chandler Note: Sacre, Candace H	Good morning. We are on the record in Case No. 2021-00393, Electronic 2021 Integrated Resource Plan of Louisville Gas and Electric Company and Kentucky Utilities Company.
9:17:31 AM	Chairman Chandler Note: Sacre, Candace H	My name is Kent Chandler. I am Chairman of the Kentucky Public Service Commission and will be presiding over the hearing today.
9:17:36 AM	Chairman Chandler Note: Sacre, Candace H	With me today is Commissioner Mary Pat Regan.
9:17:40 AM	Chairman Chandler Note: Sacre, Candace H	Videoconferencing recommendations. (Click on link for further comments.)
9:18:38 AM	Chairman Chandler Note: Sacre, Candace H	The hearing today is for the purpose of taking evidence on LG&E's and KU's Integrated Resource Plans.
9:18:43 AM	Chairman Chandler Note: Sacre, Candace H	Entry of appearance of counsel. (Click on link for further comments.)
9:18:51 AM	Atty Riggs LG&E/KU Note: Sacre, Candace H	Kendrick Riggs and my colleague, Duncan Crosby, also appearing Sarah Judd, in-house counsel, witnesses Mr. Sinclair - I will present, Mr. Wilson - Mr. Crosby will present, Mr. Imber - I will present, Mr. Schram - Mr. Crosby will present, Mr. Bellar - I will present, Mr. Garrett - I will present, Mr. Bevington - Mr. Crosby will present, Ms. Saunders - Mr. Crosby will present, and Mr. Conroy - Mr. Crosby will present.
9:20:17 AM	Asst Atty General Cook Note: Sacre, Candace H	Lawrence Cook.
9:20:27 AM	Atty Kurtz KIUC Note: Sacre, Candace H	Mike Kurtz.
9:20:37 AM	Atty Nguyen Louisville Metro Note: Sacre, Candace H	Quang Nguyen, Jeff Derouen, and Allison Smith.
9:20:51 AM	Atty Childers Sierra Club Note: Sacre, Candace H	Joe Childers.
9:21:09 AM	Atty Fitzgerald Joint Intervenors Note: Sacre, Candace H	Tom Fitzgerald, with me today is Ashley Wilmes.
9:21:23 AM	Atty Spenard SREA Note: Sacre, Candace H	David Spenard and Randy Strobo, with us today witnesses Dr. Jennifer Chen and Miriam Makhyoun.

9:21:59 AM	Staff Atty Bellamy PSC Note: Sacre, Candace H	Ben Bellamy, here with Mary Beth Purvis.
9:22:03 AM	Chairman Chandler Note: Sacre, Candace H	Public notice. (Click on link for further comments.)
9:22:27 AM	Chairman Chandler Note: Sacre, Candace H	Outstanding motions. (Click on link for further comments.)
9:23:00 AM	Chairman Chandler Note: Sacre, Candace H	Public comments. (Click on link for further comments.)
10:39:34 AM	Chairman Chandler Note: Sacre, Candace H	If no one else on line, close phone line. (Click on link for further comments.)
10:39:47 AM	Chairman Chandler Note: Sacre, Candace H	For anybody in room member of public would like to provide public comment, come to microphone and state name, address, and will give you four minutes, first come, first serve. Anybody interested in providing public comment?
10:40:12 AM	Chairman Chandler Note: Sacre, Candace H	Public comments. (Click on link for further comments.)
10:43:07 AM	Chairman Chandler Note: Sacre, Candace H	Is there anyone else that has signed up to provide public comment or did not sign up and would like to provide public comment?
10:43:17 AM	Chairman Chandler Note: Sacre, Candace H	Seeing none and hearing none, will take short recess. Break until five till 11.
10:43:41 AM	Session Paused	
10:59:09 AM	Session Resumed	
11:00:12 AM	Session Paused	
11:03:29 AM	Session Resumed	
11:03:35 AM	Chairman Chandler Note: Sacre, Candace H	Back on the record in Case No. 2021-00393.
11:03:55 AM	Chairman Chandler Note: Sacre, Candace H	Mr. Riggs, ready to call first witness?
11:03:59 AM	Atty Riggs LG&E/KU Note: Sacre, Candace H	Stewart Sinclair.
11:04:11 AM	Chairman Chandler Note: Sacre, Candace H	Witness is sworn.
11:04:19 AM	Chairman Chandler - witness Sinclair Note: Sacre, Candace H	Examination. Name and address?
11:04:39 AM	Atty Riggs LG&E/KU - witness Sinclair Note: Sacre, Candace H	Direct Examination. Responsible for preparation of integrated resource plan filing?
11:04:51 AM	Atty Riggs LG&E/KU - witness Sinclair Note: Sacre, Candace H	Also answer certain data requests?
11:04:59 AM	Atty Riggs LG&E/KU - witness Sinclair Note: Sacre, Candace H	Adopt those as testimony?
11:05:03 AM	Atty Riggs LG&E/KU - witness Sinclair Note: Sacre, Candace H	Have materials with you?
11:05:06 AM	Atty Riggs LG&E/KU - witness Sinclair Note: Sacre, Candace H	Briefly state what those are?
11:05:21 AM	Chairman Chandler Note: Sacre, Candace H	Procedural discussions. (Click on link for further comments.)
11:06:55 AM	Chairman Chandler Note: Sacre, Candace H	Questions?

11:07:00 AM	Asst Atty General Cook - witness Sinclair Note: Sacre, Candace H	Cross Examination. IRP states document only a snapshot in time?
11:07:38 AM	Asst Atty General Cook - witness Sinclair Note: Sacre, Candace H	One of reasons for that because given number of issues and pace of change results of IRP run last year could be different if run today?
11:08:10 AM	Asst Atty General Cook - witness Sinclair Note: Sacre, Candace H	One of issues happened Russia invaded Ukraine, energy crisis gone haywire?
11:08:41 AM	Asst Atty General Cook - witness Sinclair Note: Sacre, Candace H	Any way for anybody keep up with pace of change real time basis?
11:09:00 AM	Asst Atty General Cook - witness Sinclair Note: Sacre, Candace H	Safe to conclude if company performed energy price forecast today likely be a difference from results last year?
11:09:28 AM	Asst Atty General Cook - witness Sinclair Note: Sacre, Candace H	Company did do short and long term, also medium term?
11:10:00 AM	Asst Atty General Cook - witness Sinclair Note: Sacre, Candace H	Describe why takes such large amounts of renewable power replace coal and gas generation?
11:10:20 AM	Asst Atty General Cook - witness Sinclair Note: Sacre, Candace H	Wind and solar?
11:10:32 AM	Asst Atty General Cook - witness Sinclair Note: Sacre, Candace H	You are right, capacity?
11:14:16 AM	Asst Atty General Cook - witness Sinclair Note: Sacre, Candace H	Speaking of comments, refer to those, bottom of page 26, extending to top of next page, sentence begins cost of wind turbine in Kentucky, read that sentence?
11:15:20 AM	Asst Atty General Cook - witness Sinclair Note: Sacre, Candace H	Based on data set forth in IRP, safe conclude wind not be as cost effective of resource in Kentucky as some other locations?
11:16:07 AM	Asst Atty General Cook - witness Sinclair Note: Sacre, Candace H	Given current technology, wind ever be least cost resource for Kentucky within IRP planning period?
11:16:44 AM	Asst Atty General Cook - witness Sinclair Note: Sacre, Candace H	If wind could be least cost resource, based on current IRP, transmission costs not significant if located in state?
11:17:26 AM	Asst Atty General Cook - witness Sinclair Note: Sacre, Candace H	Did any of intervenors including AG perform own resource modeling/reserve margin analyses?
11:17:58 AM	Asst Atty General Cook - witness Sinclair Note: Sacre, Candace H	Any of intervenors studies or analyses impact adoption large amount of renewable energy have on reliability?
11:18:10 AM	Chairman Chandler Note: Sacre, Candace H	Are these questions about data request responses or companies' comments? Not sure appropriate ask company witness what other parties did. (Click on link for further comments.)
11:19:16 AM	Asst Atty General Cook - witness Sinclair Note: Sacre, Candace H	IRP analysis focused on identifying least cost resources?
11:19:38 AM	Asst Atty General Cook - witness Sinclair Note: Sacre, Candace H	Agree Kentucky mandate use least cost resources represents policy effort to keep rates affordable?
11:20:35 AM	Asst Atty General Cook - witness Sinclair Note: Sacre, Candace H	In this IRP, 2028 is pivotal year?
11:21:01 AM	Chairman Chandler - witness Sinclair Note: Sacre, Candace H	Examination. What are three coal units? Mill Creek 1, Mill Creek 2, and what is third?

11:21:25 AM Asst Atty General Cook - witness Sinclair
Note: Sacre, Candace H Cross Examination (cont'd). True one-time LG&E had 13 coal plants in Jefferson County?

11:22:16 AM Asst Atty General Cook - witness Sinclair
Note: Sacre, Candace H Canal?

11:22:38 AM Asst Atty General Cook - witness Sinclair
Note: Sacre, Candace H Paddy's Run?

11:22:49 AM Asst Atty General Cook - witness Sinclair
Note: Sacre, Candace H True as more renewables built into system increasing amount of energy storage be needed?

11:23:21 AM Asst Atty General Cook - witness Sinclair
Note: Sacre, Candace H Lithium ion material going with today?

11:23:41 AM Asst Atty General Cook - witness Sinclair
Note: Sacre, Candace H Lithium scarce material?

11:23:56 AM Asst Atty General Cook - witness Sinclair
Note: Sacre, Candace H Research continues developing more economical ways, until happens, storage expensive?

11:24:35 AM Asst Atty General Cook - witness Sinclair
Note: Sacre, Candace H Factoring into 15 percent energy loss makes using batteries more expensive?

11:24:55 AM Asst Atty General Cook - witness Sinclair
Note: Sacre, Candace H Companies' responsive comments filed April indicate when run Trimble CTs 71 percent runs over eight hours?

11:25:30 AM Asst Atty General Cook - witness Sinclair
Note: Sacre, Candace H If CTs replaced by storage, would take a lot of storage capacity capable of running eight hours or multiple banks of batteries running back to back to match capacity CTs offer?

11:27:12 AM Asst Atty General Cook - witness Sinclair
Note: Sacre, Candace H IRP assumed solar cost of \$28.05 MWh?

11:27:26 AM Asst Atty General Cook - witness Sinclair
Note: Sacre, Candace H Solar plus battery storage system raises cost \$126.66 a megawatt hour?

11:28:46 AM Asst Atty General Cook - witness Sinclair
Note: Sacre, Candace H Difference between \$28.05 solar only and \$126.66 subject to check 350 percent greater differential?

11:29:20 AM Asst Atty General Cook - witness Sinclair
Note: Sacre, Candace H Given big push for EVs and they will be using lithium ion, safe assume lithium in high demand?

11:30:39 AM Asst Atty General Cook - witness Sinclair
Note: Sacre, Candace H Given mismatch supply and demand, certain be price increases?

11:31:30 AM Chairman Chandler
Note: Sacre, Candace H Questions?

11:31:39 AM Atty Nguyen Louisville Metro - witness Sinclair
Note: Sacre, Candace H Cross Examination. Person oversees process for IRP?

11:32:28 AM Atty Nguyen Louisville Metro - witness Sinclair
Note: Sacre, Candace H Talking about overall process, in terms of in companies' responsive comments deals with prestakeholder process recommended by intervenors, be involved in that process or determination whether companies have prestakeholder process?

11:33:17 AM Atty Nguyen Louisville Metro - witness Sinclair
Note: Sacre, Candace H Companies objected to recommendation for prestakeholder process, argument that formal IRP process is stakeholder process, should not be recognition of prefiling stakeholder process, familiar with that objection?

11:33:55 AM Atty Nguyen Louisville Metro - witness Sinclair
Note: Sacre, Candace H Be involved in whether be prefilng stakeholder process for companies in terms of IRP process?

11:34:26 AM Atty Nguyen Louisville Metro - witness Sinclair
Note: Sacre, Candace H Who think would be consulted?

11:34:57 AM Atty Nguyen Louisville Metro - witness Sinclair
Note: Sacre, Candace H Recommendation to whom or what?

11:35:12 AM Chairman Chandler - witness Sinclair
Note: Sacre, Candace H Examination. Used pronoun they, they might include you, they might consult you, who was they referring to, people report to, the C-suite?

11:35:28 AM Chairman Chandler - witness Sinclair
Note: Sacre, Candace H CEO, COO?

11:35:33 AM Atty Nguyen Louisville Metro - witness Sinclair
Note: Sacre, Candace H Cross Examination (cont'd). Be decided by executive leadership team?

11:36:01 AM Atty Nguyen Louisville Metro - witness Sinclair
Note: Sacre, Candace H Have opinion on particular process if initiated?

11:37:47 AM Atty Nguyen Louisville Metro - witness Sinclair
Note: Sacre, Candace H Do see some benefit in that?

11:38:45 AM Atty Nguyen Louisville Metro - witness Sinclair
Note: Sacre, Candace H What saying is that would be open having prefilng stakeholder process but have to be details put into place to determine whether process be beneficial to IRP process?

11:39:40 AM Atty Nguyen Louisville Metro - witness Sinclair
Note: Sacre, Candace H Aware if other IOU electric utilities engage in prefilng stakeholder process?

11:39:57 AM Atty Nguyen Louisville Metro - witness Sinclair
Note: Sacre, Candace H Yes, aware if participate in any prefilng stakeholder process with respect to IRPs filed?

11:40:26 AM Atty Nguyen Louisville Metro - witness Sinclair
Note: Sacre, Candace H Be person knowledgeable about components make up NMS-2 export rate, Net Metering Service 2?

11:41:01 AM Atty Nguyen Louisville Metro - witness Sinclair
Note: Sacre, Candace H With respect to retirement information with coal units, IRP sets forth within time period by 2028 Mill Creek 1 and 2 and Brown 3 be retired?

11:41:33 AM Atty Nguyen Louisville Metro - witness Sinclair
Note: Sacre, Candace H By end of IRP period 2036, is that end of IRP period?

11:41:45 AM Atty Nguyen Louisville Metro - witness Sinclair
Note: Sacre, Candace H Number of other coal retirements as well?

11:42:01 AM Atty Nguyen Louisville Metro - witness Sinclair
Note: Sacre, Candace H Leave only remaining Trimble County 1 and 2?

11:42:40 AM Atty Nguyen Louisville Metro - witness Sinclair
Note: Sacre, Candace H Believe it is Trimble 1, Trimble 2 be 2066?

11:43:18 AM Atty Nguyen Louisville Metro - witness Sinclair
Note: Sacre, Candace H By 2050, LG&E/KU position, even though driven from PPL, by 2050 Trimble County 2 retired unless some abatement process to address emissions of CO2?

11:43:52 AM Atty Nguyen Louisville Metro - witness Sinclair
Note: Sacre, Candace H More specific emissions abatement qualifier, what does that mean?

11:44:41 AM Atty Nguyen Louisville Metro - witness Sinclair
Note: Sacre, Candace H Unabatement of emissions associated with coal unit or natural gas-fired unit?

11:45:55 AM Atty Nguyen Louisville Metro - witness Sinclair
Note: Sacre, Candace H With respect to Trimble County 2 for that goal?

11:46:09 AM Atty Nguyen Louisville Metro - witness Sinclair
Note: Sacre, Candace H Any goals natural gas-fired units?

11:46:33 AM Atty Nguyen Louisville Metro - witness Sinclair
Note: Sacre, Candace H In IRP, discussions about carbon capture from gas unit as well?

11:47:29 AM Atty Nguyen Louisville Metro - witness Sinclair
Note: Sacre, Candace H Ongoing?

11:47:32 AM Atty Nguyen Louisville Metro - witness Sinclair
Note: Sacre, Candace H Know when will be completed?

11:47:52 AM Atty Nguyen Louisville Metro - witness Sinclair
Note: Sacre, Candace H Both capturing and storage with respect to natural gas-fired unit?

11:49:09 AM Atty Nguyen Louisville Metro - witness Sinclair
Note: Sacre, Candace H Focus on storage part, LG&E/KU analysis with respect to CCS for coal units?

11:49:56 AM Atty Nguyen Louisville Metro - witness Sinclair
Note: Sacre, Candace H With respect to coal units, determined not any viable geologic formations allow for storage of captured CO2 from coal units where geographically located?

11:51:07 AM Atty Nguyen Louisville Metro - witness Sinclair
Note: Sacre, Candace H Any geologic studies done with respect where gas plants located and whether viable geologic formations even have CCSB?

11:52:41 AM Chairman Chandler
Note: Sacre, Candace H Questions?

11:52:50 AM Atty Childers Sierra Club - witness Sinclair
Note: Sacre, Candace H Cross Examination. PPL commitment by 2020 carbon neutral?

11:53:10 AM Atty Childers Sierra Club - witness Sinclair
Note: Sacre, Candace H Unclear what happen with gas units if no carbon capture, taken off line?

11:55:08 AM Atty Childers Sierra Club - witness Sinclair
Note: Sacre, Candace H See documents handed you Sierra Club Exhibit 1?

11:55:17 AM Atty Childers Sierra Club - witness Sinclair
Note: Sacre, Candace H News article from June 23 2022 from S&P Capital?

11:55:25 AM Atty Childers Sierra Club - witness Sinclair
Note: Sacre, Candace H Reading third paragraph down, (click on link for further comments), that quote from you?

11:55:55 AM Atty Childers Sierra Club - witness Sinclair
Note: Sacre, Candace H Article states that PPL Utilities seeking to replace coal-fired capacity in Kentucky and Virginia, which LG&E and KU plants does this include and which ones company seeking to replace?

11:57:15 AM Atty Childers Sierra Club - witness Sinclair
Note: Sacre, Candace H Also states PPL committed to net zero emissions by 2050, 70 percent reduction by 2035, and 80 percent reduction by 2040, are these same targets for LG&E and KU, and if not what are companies targeted reductions?

11:58:14 AM Atty Childers Sierra Club - witness Sinclair
Note: Sacre, Candace H Understood say three existing coal units retired 2028, by 2036 additional coal units retired?

11:58:42 AM Atty Childers Sierra Club - witness Sinclair
Note: Sacre, Candace H Allow PPL reach 70 percent reduction carbon emissions by 2035 if LG&E keeps other plants on line?

11:59:14 AM Atty Childers Sierra Club - witness Sinclair
Note: Sacre, Candace H Included assumption paying for power from OVEC in every scenario resource planning analysis 2021 IRP?

11:59:37 AM	Chairman Chandler Note: Sacre, Candace H	Procedural discussions. (Click on link for further comments.)
12:00:28 PM	Atty Fitzgerald Joint Intervenor - witness Sinclair Note: Sacre, Candace H	Cross Examination. At loss who ask questions to, comfortable with topic or punt it, set of questions modeling details, you?
12:01:21 PM	Atty Fitzgerald Joint Intervenor - witness Sinclair Note: Sacre, Candace H	About choice and comparison of portfolios and scenarios, who best on that?
12:01:42 PM	Atty Fitzgerald Joint Intervenor - witness Sinclair Note: Sacre, Candace H	Energy efficiency and DSM and how fits into IRP process, Saunders?
12:02:16 PM	Atty Fitzgerald Joint Intervenor - witness Sinclair Note: Sacre, Candace H	What about RTO questions?
12:02:54 PM	Atty Fitzgerald Joint Intervenor - witness Sinclair Note: Sacre, Candace H	Regarding role distributed energy resources, who best person?
12:03:21 PM	Chairman Chandler Note: Sacre, Candace H	Mr. Childers, like to move entry?
12:03:24 PM	Atty Childers Sierra Club Note: Sacre, Candace H	Move into evidence, please.
12:03:26 PM	Chairman Chandler Note: Sacre, Candace H	Any objection?
12:03:29 PM	Chairman Chandler Note: Sacre, Candace H	Enter into evidence Sierra Club Hearing Exhibit 1. (EXHIBIT LATER DETERMINED TO BE CONFIDENTIAL.)
12:04:08 PM	Chairman Chandler Note: Sacre, Candace H	Procedural discussions. (Click on link for further comments.)
12:05:32 PM	Chairman Chandler Note: Sacre, Candace H	Recess until 1 o'clock.
12:05:43 PM	Session Paused	
1:04:18 PM	Session Resumed	
1:04:20 PM	Chairman Chandler Note: Sacre, Candace H	Back on the record in 2021-00393.
1:04:28 PM	Chairman Chandler Note: Sacre, Candace H	Procedural discussions. (Click on link for further comments.)
1:06:14 PM	Chairman Chandler Note: Sacre, Candace H	Still under oath.
1:06:30 PM	Atty Fitzgerald Joint Intervenor - witness Sinclair Note: Sacre, Candace H	Cross Examination. Stakeholder processes, participated in stakeholder processes on behalf of LG&E and KU?
1:06:46 PM	Atty Fitzgerald Joint Intervenor - witness Sinclair Note: Sacre, Candace H	Aware whether any transmission organizations have stakeholder processes they use?
1:07:14 PM	Atty Fitzgerald Joint Intervenor - witness Sinclair Note: Sacre, Candace H	In past, LG&E has participated?
1:07:33 PM	Atty Fitzgerald Joint Intervenor - witness Sinclair Note: Sacre, Candace H	Specifically, read comments of joint intervenors?
1:07:40 PM	Atty Fitzgerald Joint Intervenor - witness Sinclair Note: Sacre, Candace H	Have occasion look at report of experts appended to back?
1:07:52 PM	Atty Fitzgerald Joint Intervenor - witness Sinclair Note: Sacre, Candace H	Mentioned earlier unfamiliar with any stakeholder processes other utilities in Commonwealth, if recall attachment to comments included Duke and stakeholder process, see that?
1:08:32 PM	Atty Fitzgerald Joint Intervenor - witness Sinclair Note: Sacre, Candace H	What do view goal of IRP process?

1:08:53 PM	Atty Fitzgerald Joint Intervenor - witness Sinclair Note: Sacre, Candace H	How do you view it?
1:09:03 PM	Atty Fitzgerald Joint Intervenor - witness Sinclair Note: Sacre, Candace H	Looking what is reasonable lowest cost service, how does PPL net zero goals, end points in which were projecting or doing resource planning?
1:09:52 PM	Atty Fitzgerald Joint Intervenor - witness Sinclair Note: Sacre, Candace H	Do I understand what expected achieve by retirement rather than new investments in lower cost or no carbon generation?
1:11:05 PM	Atty Fitzgerald Joint Intervenor - witness Sinclair Note: Sacre, Candace H	Who did coordination of various components of IRP?
1:12:13 PM	Atty Fitzgerald Joint Intervenor - witness Sinclair Note: Sacre, Candace H	Particular office or person responsible coordinating all those pieces?
1:13:01 PM	Atty Fitzgerald Joint Intervenor - witness Sinclair Note: Sacre, Candace H	One person or group responsible for inputting assumptions regarding environmental regulation and challenges?
1:13:53 PM	Atty Fitzgerald Joint Intervenor - witness Sinclair Note: Sacre, Candace H	Individual on witness list person could answer questions regarding assumptions regarding pieces of IRP?
1:14:09 PM	Atty Fitzgerald Joint Intervenor - witness Sinclair Note: Sacre, Candace H	RTO issues, did mention you would be person, LG&E and KU not RTO members?
1:14:50 PM	Atty Fitzgerald Joint Intervenor - witness Sinclair Note: Sacre, Candace H	Consider it like a member of RTO?
1:15:15 PM	Atty Fitzgerald Joint Intervenor - witness Sinclair Note: Sacre, Candace H	Question before from AG Office regarding wind and capacity in Kentucky, in terms of long-term planning analysis Table 5-16 Kentucky solar and Kentucky wind, consideration given to purchases of wind, daytime or nighttime, through RTO?
1:16:53 PM	Atty Fitzgerald Joint Intervenor - witness Sinclair Note: Sacre, Candace H	Little unclear, do purchase and sell power outside of balancing area?
1:17:14 PM	Atty Fitzgerald Joint Intervenor - witness Sinclair Note: Sacre, Candace H	Physically capable of being done through transmission network?
1:17:41 PM	Atty Fitzgerald Joint Intervenor - witness Sinclair Note: Sacre, Candace H	Did you say wind purchases outside of that balancing area were considered among future portfolio options?
1:19:04 PM	Chairman Chandler - witness Sinclair Note: Sacre, Candace H	Examination. Dollar per kW, in relation to nameplate, maximum capacity or capacity interconnection rights, what is kilowatt function of that dollar per kW hour?
1:20:14 PM	Chairman Chandler - witness Sinclair Note: Sacre, Candace H	Sell it there, buy it here, individual nodes, generation delivery node verse node buy it from?
1:21:34 PM	Chairman Chandler - witness Sinclair Note: Sacre, Candace H	Get idea of firm point to point as a service, if 100 MW nameplate wind resource in RTO, make sense contract for entirety of nameplate or make sense get firm transmission for deliverable capacity?
1:23:26 PM	Chairman Chandler - witness Sinclair Note: Sacre, Candace H	On paper, electrons yours, contract right to those electrons?

1:24:35 PM	Chairman Chandler - witness Sinclair Note: Sacre, Candace H	Actual practical reality of having what Fitzgerald asking about, generation outside of LG&E/KU balancing area, in order serve load, want product firm point to point, your understanding for 100 MW nameplate solar facility in RTO rules allow actually contract for 100 MW first point to point would get entirety of firm capacity or something less?
1:26:17 PM	Chairman Chandler - witness Sinclair Note: Sacre, Candace H	On a path basis or separate from generator?
1:27:42 PM	Chairman Chandler - witness Sinclair Note: Sacre, Candace H	Or PPAs?
1:27:51 PM	Chairman Chandler Note: Sacre, Candace H	Mr. Fitzgerald?
1:27:56 PM	Atty Fitzgerald Joint Intervenors - witness Sinclair Note: Sacre, Candace H	Cross Examination (cont'd). Assuming only assets can look to are physical assets, generating assets you own?
1:28:53 PM	Atty Fitzgerald Joint Intervenors - witness Sinclair Note: Sacre, Candace H	Non-Kentucky wind or solar, not consider resources outside balancing area?
1:29:22 PM	Atty Fitzgerald Joint Intervenors - witness Sinclair Note: Sacre, Candace H	Most recent RFP LG&E/KU let for potential additions of power was 2021?
1:29:40 PM	Atty Fitzgerald Joint Intervenors - witness Sinclair Note: Sacre, Candace H	One in 2021, familiar with proposals submitted?
1:29:54 PM	Atty Fitzgerald Joint Intervenors - witness Sinclair Note: Sacre, Candace H	Receive any proposing deliver renewable power outside balancing area?
1:30:07 PM	Atty Fitzgerald Joint Intervenors - witness Sinclair Note: Sacre, Candace H	Include transmission?
1:30:39 PM	Atty Fitzgerald Joint Intervenors - witness Sinclair Note: Sacre, Candace H	The IRP not evaluate non-Kentucky wind because assumption transmission cost make it uneconomical?
1:31:06 PM	Atty Fitzgerald Joint Intervenors - witness Sinclair Note: Sacre, Candace H	But those transmission costs just said vary over time?
1:31:13 PM	Atty Fitzgerald Joint Intervenors - witness Sinclair Note: Sacre, Candace H	How know that out of Kentucky wind was not an option if hadn't been analyzed?
1:32:48 PM	Atty Fitzgerald Joint Intervenors - witness Sinclair Note: Sacre, Candace H	Said that dealing with planning world rather than real world, all are here because a plan was submitted, required by regulation, and is there separate planning process that goes on that is different from what reflected in this snapshot in time?
1:34:59 PM	Atty Fitzgerald Joint Intervenors - witness Sinclair Note: Sacre, Candace H	Know total cost to LG&E/KU for IRP process?
1:35:11 PM	Atty Fitzgerald Joint Intervenors - witness Sinclair Note: Sacre, Candace H	Assumptions ratepayers eventually see bill for that?
1:36:30 PM	Chairman Chandler Note: Sacre, Candace H	Mr. Spenard, questions?
1:37:09 PM	Atty Spenard SREA - witness Sinclair Note: Sacre, Candace H	Cross Examination. Companies filed responsive comments of LG&E and KU on May 20 2022, read comments?
1:37:52 PM	Atty Spenard SREA - witness Sinclair Note: Sacre, Candace H	Page 2, second paragraph, is a statement why companies believe helpful recognize what IRP is and what it is not, part of companies' responsive comments, not an application for adjustment of rates?

1:38:41 PM	Atty Spenard SREA - witness Sinclair Note: Sacre, Candace H	Not an application for certificate of convenience and necessity?
1:38:48 PM	Atty Spenard SREA - witness Sinclair Note: Sacre, Candace H	Sometimes response uses CPCN, know talking about certificate application, agree or disagree companies exercise same level care and diligence and same level professionalism putting together IRP as companies' exercise for rate case application or CPCN application?
1:40:00 PM	Atty Spenard SREA - witness Sinclair Note: Sacre, Candace H	Page 11, statement, Part B, reading (click on link for further comments), when talk about care, when talking about IRP, saying do really try to do it better the next time, or is not what is being said on page 11?
1:41:20 PM	Atty Spenard SREA - witness Sinclair Note: Sacre, Candace H	Not an easy process?
1:41:29 PM	Atty Spenard SREA - witness Sinclair Note: Sacre, Candace H	In terms of administrative regulation concerning integrated resource planning, general terms, utility required to file historical information about load forecasts, correct?
1:42:11 PM	Atty Spenard SREA - witness Sinclair Note: Sacre, Candace H	Only if you know, mentioned prior responses, used phrase across the planning horizon period, IRP has planning horizon period?
1:42:39 PM	Atty Spenard SREA - witness Sinclair Note: Sacre, Candace H	Looking out 15 years, from IRP regulation, in each of 15 years succeeding base year, reading (click on link for further comments), understanding what trying to do for planning horizon?
1:43:56 PM	Atty Spenard SREA - witness Sinclair Note: Sacre, Candace H	In basic terms, utility in IRP required include resource assessment and acquisition plan adequate supply of electricity to meet forecasted electricity requirements at lowest price?
1:44:32 PM	Atty Spenard SREA - witness Sinclair Note: Sacre, Candace H	Also have to include list of existing and planned electric generating facilities plans have in service in base year or during any of the 15 years forecast period, correct?
1:45:01 PM	Atty Spenard SREA - witness Sinclair Note: Sacre, Candace H	Responsive comments, Page 2, talks in terms of companies' IRP retires 2,000 megawatts of coal-fired generation and adds 2,100 MW solar generation, identification of retirement of 2,000 MW coal-fired generation and 2,100 MW of solar generation, part of what discussed?
1:45:53 PM	Atty Spenard SREA - witness Sinclair Note: Sacre, Candace H	Another thing, when I say RTO Regional Transmission Organization?
1:46:04 PM	Atty Spenard SREA - witness Sinclair Note: Sacre, Candace H	Page 3, part of discussion, in terms of RTO, cautious, reading (click on link for further comments), sounding familiar?
1:46:57 PM	Atty Spenard SREA - witness Sinclair Note: Sacre, Candace H	Reliability, distinguish between benefits and costs, definition of what you mean by benefit, what is a benefit?
1:47:47 PM	Atty Spenard SREA - witness Sinclair Note: Sacre, Candace H	Not end product of identifying a specific benefit, if comments say, reading (click on link for further comments), reliability identified as a benefit?
1:48:32 PM	Atty Spenard SREA - witness Sinclair Note: Sacre, Candace H	What are other benefits for consideration with regard to the approach for membership in RTO?

1:49:38 PM	Atty Spenard SREA - witness Sinclair Note: Sacre, Candace H	Reliability is identified expressly as benefit, what other things fall into benefit category, what are other named benefits?
1:52:40 PM	Atty Spenard SREA - witness Sinclair Note: Sacre, Candace H	In terms of resource planning maintain low cost reliable service, retiring 2,000 MW coal-fired generation and adding 2,100 MW solar generation consistent with purpose?
1:53:30 PM	Atty Spenard SREA - witness Sinclair Note: Sacre, Candace H	When say simple cycle CTs, also appears as SCCT?
1:53:45 PM	Atty Spenard SREA - witness Sinclair Note: Sacre, Candace H	Page 13, halfway down, reading (click on link for further comments), familiar with that?
1:54:59 PM	Atty Spenard SREA - witness Sinclair Note: Sacre, Candace H	In terms of market data obtained through RFPs, do companies issue resource-related RFPs used for purposes other than CPCN applications?
1:56:37 PM	Atty Spenard SREA - witness Sinclair Note: Sacre, Candace H	When looking at comment, actual market data obtained through RFP more uses than supporting CPCN applications?
1:57:17 PM	Atty Spenard SREA - witness Sinclair Note: Sacre, Candace H	Volume 1 of IRP, page 8-11, Section 8(2)(d), non-utility generation options, included in this section statement that says, reading (click on link for further comments, your understanding something companies do?
1:59:02 PM	Atty Spenard SREA - witness Sinclair Note: Sacre, Candace H	Volume 1 of IRP, page 5-43, Footnote 46, reading (click on link for further comments, consistent with your understanding?
1:59:44 PM	Atty Spenard SREA - witness Sinclair Note: Sacre, Candace H	If you know, on or about latter part of June this year, LG&E or KU or both submit a generation interconnection queue positions for two separate natural gas combined cycle generators?
2:00:17 PM	Atty Spenard SREA - witness Sinclair Note: Sacre, Candace H	Also familiar each of these for 645 MW capacity?
2:00:32 PM	Atty Spenard SREA - witness Sinclair Note: Sacre, Candace H	Queue positions for these two new NGCCs?
2:01:07 PM	Chairman Chandler Note: Sacre, Candace H	Ask clarifying question, when say queue positions, mean relative to other generators in the LG&E queue? (Click on link for further comments.)
2:01:27 PM	Atty Spenard SREA - witness Sinclair Note: Sacre, Candace H	When submit generation interconnection queue position, submitting that for general universe of all queue, or is specific to company? Simply don't know. If witness not know, tell us who might be able to answer.
2:03:00 PM	Atty Spenard SREA - witness Sinclair Note: Sacre, Candace H	In terms of information, what is approximate commercial operation date for two facilities subject interconnection queue application?
2:04:03 PM	Atty Kurtz KIUC - witness Sinclair Note: Sacre, Candace H	Cross Examination. Mean Ghent 2 or Mill Creek 2?
2:04:35 PM	Atty Spenard SREA - witness Sinclair Note: Sacre, Candace H	Cross Examination (cont'd). You are expert, sound consistent with recollection commercial operation dates for two facilities April 2027?

2:05:21 PM	Atty Spenard SREA - witness Sinclair Note: Sacre, Candace H	Volume 1, page 5-43, statement on page that reads, reading (click on link for further comments), solar and SCCTs, predominant resource technology choice?
2:06:13 PM	Atty Spenard SREA - witness Sinclair Note: Sacre, Candace H	Same page, Table 5-19, New Generation and Least Cost Resource Plan Summary, when look under gas all descriptions under gas are SCCTs?
2:06:56 PM	Atty Spenard SREA - witness Sinclair Note: Sacre, Candace H	Table 5-19 summarize NGCCs?
2:08:41 PM	Atty Spenard SREA - witness Sinclair Note: Sacre, Candace H	Table 5-19, gas options, evaluations all CC rather than SCCT?
2:10:24 PM	Atty Spenard SREA - witness Sinclair Note: Sacre, Candace H	On or about June 22 2022, did companies/either company release an RFP?
2:10:43 PM	Atty Spenard SREA - witness Sinclair Note: Sacre, Candace H	What will results of June 2022 be used for?
2:11:30 PM	Atty Spenard SREA - witness Sinclair Note: Sacre, Candace H	From Sierra Club Exhibit 1, reading (click on link for further comments), what megawatt capacity companies seeking in RFP, how characterize in terms of megawatts?
2:13:46 PM	Atty Spenard SREA - witness Sinclair Note: Sacre, Candace H	For example, not using RFP process here's what have in Mill Creek 1, getting a broad spectrum of proposals and see how match up with what need?
2:15:41 PM	Atty Spenard SREA - witness Sinclair Note: Sacre, Candace H	RFP agnostic to generating technology, in terms of responses, what company said proposals have to be at least 100 MW?
2:17:28 PM	Atty Spenard SREA - witness Sinclair Note: Sacre, Candace H	ITC, Investment Tax Credits, Volume 1 of IRP, page 5-27, last sentence above footnote, reading (click on link for further comments), aware of comment?
2:18:15 PM	Atty Spenard SREA - witness Sinclair Note: Sacre, Candace H	For RFPs released in June 2022, any allow for bids be offered contingent upon extension of ITC?
2:19:06 PM	Chairman Chandler - witness Sinclair Note: Sacre, Candace H	Examination. Ask clarifying question, defined sheet respondents have to respond with, location on sheet on which would indicate that?
2:20:20 PM	Chairman Chandler - witness Sinclair Note: Sacre, Candace H	Seem to me given in-depth analysis and ongoing discussions as to availability or quality of responses, is that not necessarily the case?
2:21:41 PM	Chairman Chandler Note: Sacre, Candace H	Will follow up on that. Mr. Spenard?
2:21:47 PM	Atty Spenard SREA - witness Sinclair Note: Sacre, Candace H	Cross Examination (cont'd). Page 18, bottom of page, reading (click on link for further comments), focus on not begin with preference one generating technology over another, when compare NGCC with SCCT, company consider these different types generating technologies?
2:24:11 PM	Atty Spenard SREA - witness Sinclair Note: Sacre, Candace H	When talk about generating technology, what are major elements that render one technology different from another?
2:26:05 PM	Atty Spenard SREA - witness Sinclair Note: Sacre, Candace H	In same sentence, resource neutral approach, what that mean?

2:26:43 PM	Atty Spenard SREA - witness Sinclair Note: Sacre, Candace H	LCOE, levelized cost of energy, page 19, near bottom, reading (click on link for further comments), understanding?
2:27:36 PM	Atty Spenard SREA - witness Sinclair Note: Sacre, Candace H	Is this latter part of it, mentions cannot produce energy at night or during cloudy conditions which any functioning NGC unit can do, is that aid of explaining reliability?
2:28:32 PM	Atty Spenard SREA - witness Sinclair Note: Sacre, Candace H	Something separate from LCOE?
2:29:58 PM	Atty Spenard SREA - witness Sinclair Note: Sacre, Candace H	Companies' responses, companies' position LCOE alone inappropriate or LCOE never appropriate consideration or something else?
2:31:00 PM	Atty Spenard SREA - witness Sinclair Note: Sacre, Candace H	Page 20, reading (click on link for further comments), what you just said a minute filling out analysis, does that dovetail or is something separate?
2:32:23 PM	Atty Spenard SREA - witness Sinclair Note: Sacre, Candace H	Page 29, summarizes point making, reading (click on link for further comments), does that help sum up what testifying?
2:32:58 PM	Atty Riggs LG&E/KU Note: Sacre, Candace H	Like to request a break.
2:33:10 PM	Chairman Chandler Note: Sacre, Candace H	Recess until 2:45.
2:33:23 PM	Session Paused	
2:48:50 PM	Session Resumed	
2:49:02 PM	Chairman Chandler Note: Sacre, Candace H	Back on the record in Case No. 2021-00393.
2:49:07 PM	Chairman Chandler Note: Sacre, Candace H	Mr. Spenard, like to continue?
2:49:09 PM	Chairman Chandler Note: Sacre, Candace H	Mr. Sinclair, still under oath.
2:49:15 PM	Atty Spenard SREA - witness Sinclair Note: Sacre, Candace H	Cross Examination (cont'd). Familiar with PPL 2021 Climate Assessment Report, Energy Forward, mentioned that?
2:49:37 PM	Atty Spenard SREA - witness Sinclair Note: Sacre, Candace H	When companies evaluating resources for purposes of IRP, companies agnostic to decarbonizing PPL generation?
2:50:39 PM	Atty Spenard SREA - witness Sinclair Note: Sacre, Candace H	Companies talk in terms of being agnostic to generation technologies, companies agnostic to framework identified in 2021 Climate Assessment Report, one of goals is decarbonizing of generation?
2:52:08 PM	Atty Spenard SREA - witness Sinclair Note: Sacre, Candace H	Page 39, portion of sentence, reading (click on link for further comments), did companies' modeling relate in any way to one or more of the four parts identified by PPL in 2021 Climate Assessment Report, including decarbonization of generation?
2:54:02 PM	Atty Spenard SREA - witness Sinclair Note: Sacre, Candace H	Looking at pages 24-27, back to statement made previously, reliable low-cost around-the-clock in all weather conditions, one of stated goals, how characterize what need to do?

2:55:39 PM	Atty Spenard SREA - witness Sinclair Note: Sacre, Candace H	For Table 2, page 26, renewable replacement portfolios, solar plus battery storage, portfolio designed to satisfy criteria reliable low-cost around-the-clock all weather conditions requirement?
2:57:30 PM	Atty Spenard SREA - witness Sinclair Note: Sacre, Candace H	In terms of replacement in terms of what replacing, what replacing what is currently in place is meeting that requirement to meet reliable low-cost around-the-clock all weather conditions?
2:59:01 PM	Atty Spenard SREA - witness Sinclair Note: Sacre, Candace H	Can wind generate at night?
2:59:07 PM	Atty Spenard SREA - witness Sinclair Note: Sacre, Candace H	Table 4, page 28, five columns, NGCC, Coal, SCCT, solar, and wind, have table in front of you?
2:59:45 PM	Atty Spenard SREA - witness Sinclair Note: Sacre, Candace H	When looking at column that says SCCT, nine percent capacity factor, get 162 through 188, see that?
3:00:04 PM	Atty Spenard SREA - witness Sinclair Note: Sacre, Candace H	What is 162 to 188 telling you?
3:00:37 PM	Atty Spenard SREA - witness Sinclair Note: Sacre, Candace H	In terms of page 24, 2021 IRP assumed solar energy cost of \$28.05 MWh with added cost of battery storage and 15 percent energy loss as solar plus battery storage dedicated serving nighttime would cost \$126.66 per MWh, how compare to the 162 to 188 MW value on Table 4?
3:03:17 PM	Chairman Chandler Note: Sacre, Candace H	Mr. Kurtz?
3:03:25 PM	Atty Kurtz KIUC - witness Sinclair Note: Sacre, Candace H	Cross Examination. Page 11, IRP, discussion of natural gas combined cycle without carbon capture, reading (click on link for further comments), basically did not model natural gas combined cycle without carbon capture sequestration?
3:04:48 PM	Atty Kurtz KIUC - witness Sinclair Note: Sacre, Candace H	When remove constraint, model picks NGCC under certain scenarios?
3:05:00 PM	Atty Kurtz KIUC - witness Sinclair Note: Sacre, Candace H	Carbon capture and sequestration economically or technologically feasible in Kentucky?
3:05:50 PM	Atty Kurtz KIUC - witness Sinclair Note: Sacre, Candace H	New source performance standard for combined cycle not require carbon capture sequestration?
3:06:06 PM	Atty Kurtz KIUC - witness Sinclair Note: Sacre, Candace H	But could in future?
3:06:37 PM	Atty Kurtz KIUC - witness Sinclair Note: Sacre, Candace H	Page 11 of report, Table 8, Dispatchable Resources, have it?
3:08:50 PM	Atty Kurtz KIUC - witness Sinclair Note: Sacre, Candace H	Natural gas combined cycle with carbon capture sequestration have assumed capital cost of \$2300 per KW?
3:09:06 PM	Atty Kurtz KIUC - witness Sinclair Note: Sacre, Candace H	Without carbon capture sequestration, capital cost be about half of that?
3:09:43 PM	Atty Kurtz KIUC - witness Sinclair Note: Sacre, Candace H	Heat rate with carbon capture sequestration is worse than without, Cane Run 7 is about 6700 heat rate?
3:10:08 PM	Atty Kurtz KIUC - witness Sinclair Note: Sacre, Candace H	Fixed O&M with carbon capture fairly high?

3:10:15 PM	Atty Kurtz KIUC - witness Sinclair Note: Sacre, Candace H	What is that, is that labor, what is the fixed O&M?
3:10:51 PM	Atty Kurtz KIUC - witness Sinclair Note: Sacre, Candace H	Same page, Kentucky solar winter, contribution winter peak is zero, that is because winter peak is in morning before sun comes up?
3:11:17 PM	Atty Kurtz KIUC - witness Sinclair Note: Sacre, Candace H	The RFP that went out on June 22 of this year, natural gas combined cycle without carbon capture sequestration be able to submit bids that technology?
3:11:43 PM	Atty Kurtz KIUC - witness Sinclair Note: Sacre, Candace H	Indicated earlier natural gas combined cycle plant Cane Run 7 dispatches more than any of coal plants because of efficiency and low gas costs?
3:12:15 PM	Atty Kurtz KIUC - witness Sinclair Note: Sacre, Candace H	Dispatch of Cane Run 7 reduced because of natural gas pricing?
3:12:49 PM	Atty Kurtz KIUC - witness Sinclair Note: Sacre, Candace H	Coal supply, not had problems maintaining reasonable supply of coal at coal plants?
3:13:34 PM	Chairman Chandler - witness Sinclair Note: Sacre, Candace H	Examination. Confirm force de jure referring to is somebody else's and not yours?
3:13:44 PM	Atty Kurtz KIUC - witness Sinclair Note: Sacre, Candace H	Cross Examination (cont'd). Willing to pay higher current market price for coal, is it available?
3:14:40 PM	Atty Kurtz KIUC - witness Sinclair Note: Sacre, Candace H	Page 8-13, capacity factor 2021 and projected over next 15 years for all units?
3:15:37 PM	Atty Kurtz KIUC - witness Sinclair Note: Sacre, Candace H	Cane Run 7 combined cycle, verify forecast run that plant harder than any other plants, higher capacity factor?
3:16:07 PM	Atty Kurtz KIUC - witness Sinclair Note: Sacre, Candace H	Ghent 1, 2, 3, and 4, capacity factor 55-65 percent, what would expect for baseload coal plant?
3:16:59 PM	Atty Kurtz KIUC - witness Sinclair Note: Sacre, Candace H	Mill Creek 1, projected be retired 2024, see 2024 80 percent load factor?
3:17:17 PM	Atty Kurtz KIUC - witness Sinclair Note: Sacre, Candace H	What indicate, model thinks unit run extremely hard last year of operation, what reason?
3:18:38 PM	Atty Kurtz KIUC - witness Sinclair Note: Sacre, Candace H	Same explanation for Mill Creek 2 in 2027, last year of projected operations?
3:18:54 PM	Atty Kurtz KIUC - witness Sinclair Note: Sacre, Candace H	Trimble County 1 and 2, why Trimble County 2 have lower projected capacity factor even though better heat rate than Trimble County 1?
3:19:51 PM	Atty Kurtz KIUC - witness Sinclair Note: Sacre, Candace H	What technology difference between Trimble County 1 and 2?
3:20:17 PM	Atty Kurtz KIUC - witness Sinclair Note: Sacre, Candace H	Use same coal?
3:20:46 PM	Atty Kurtz KIUC - witness Sinclair Note: Sacre, Candace H	Powder River Basin moves by rail to plant?
3:21:12 PM	Atty Kurtz KIUC - witness Sinclair Note: Sacre, Candace H	Any rail problems getting coal from out west to Mississippi terminal?

3:21:52 PM	Atty Kurtz KIUC - witness Sinclair Note: Sacre, Candace H	New simple cycle combustion turbines projected on line 2028 and run at 18-21 percent capacity factor, what break-even point between simple cycle combined combustion turbines versus combined cycle plants?
3:22:54 PM	Atty Kurtz KIUC - witness Sinclair Note: Sacre, Candace H	Could new combined cycle plant support intermittent generation and provide reliable service around the clock?
3:23:48 PM	Atty Kurtz KIUC - witness Sinclair Note: Sacre, Candace H	Say combined cycle better at supporting intermittent than combustion turbine?
3:24:28 PM	Atty Kurtz KIUC - witness Sinclair Note: Sacre, Candace H	Page 11, capital cost combustion turbine listed at \$885 KW and just indicated combined cycle modeled \$1,007?
3:24:54 PM	Atty Kurtz KIUC - witness Sinclair Note: Sacre, Candace H	Really not much more expensive build combined cycle versus combustion turbine?
3:25:08 PM	Atty Kurtz KIUC - witness Sinclair Note: Sacre, Candace H	Then add heat recovery steam generator to create combined cycle, but incremental capital cost relatively small?
3:25:47 PM	Atty Kurtz KIUC - witness Sinclair Note: Sacre, Candace H	For that extra incremental capital cost with combined cycle, heat rated 6400 versus ten-five?
3:26:25 PM	Atty Kurtz KIUC - witness Sinclair Note: Sacre, Candace H	If have it and has lowest heat rate, will use it a lot, Cane Run example?
3:27:17 PM	Atty Kurtz KIUC - witness Sinclair Note: Sacre, Candace H	When combined cycle running, emitting less CO2 than combustion turbine and less than coal plants, could have significant CO2 reduction for fleet?
3:27:30 PM	Atty Kurtz KIUC - witness Sinclair Note: Sacre, Candace H	Existing combustion turbines Trimble County 5-10 generally a minimum run time?
3:28:01 PM	Atty Kurtz KIUC - witness Sinclair Note: Sacre, Candace H	What is general minimum run time for turning on combustion turbine?
3:29:22 PM	Atty Kurtz KIUC - witness Sinclair Note: Sacre, Candace H	What are start-up costs for combustion turbine?
3:29:45 PM	Atty Kurtz KIUC - witness Sinclair Note: Sacre, Candace H	In order stay under warranty, only turn units on so many times per year, per month, is that a consideration?
3:30:32 PM	Atty Kurtz KIUC - witness Sinclair Note: Sacre, Candace H	What about environmental permits, limit amount of starts and stops?
3:31:17 PM	Atty Kurtz KIUC - witness Sinclair Note: Sacre, Candace H	Page 8, middle two paragraphs, reading (click on link for further comments), see that sentence?
3:32:36 PM	Atty Kurtz KIUC - witness Sinclair Note: Sacre, Candace H	Efficiency loss of putting energy into battery only 85 percent comes out?
3:32:45 PM	Atty Kurtz KIUC - witness Sinclair Note: Sacre, Candace H	End of next paragraph, another efficiency loss metric, SOC where indicated for storage testing facility 20 percent battery capacity unused, at end use example of ten percent, two concepts additive 15 percent efficiency loss and 10 or 20 percent loss factor SOC?

3:35:20 PM	Atty Kurtz KIUC - witness Sinclair Note: Sacre, Candace H	Very hard to put out a lithium ion battery fire?
3:35:28 PM	Atty Kurtz KIUC - witness Sinclair Note: Sacre, Candace H	Very, very hard, why say like that?
3:36:47 PM	Atty Kurtz KIUC - witness Sinclair Note: Sacre, Candace H	Page 5-1, reading (click on link for further comments), Kentucky was 7th most electricity intensive, concept familiar with?
3:37:20 PM	Atty Kurtz KIUC - witness Sinclair Note: Sacre, Candace H	Energy intensive industries located in service territory result of low cost power from KU and LG&E?
3:38:00 PM	Atty Kurtz KIUC - witness Sinclair Note: Sacre, Candace H	It is \$5.8 billion investment with 6,000 new jobs?
3:38:08 PM	Atty Kurtz KIUC - witness Sinclair Note: Sacre, Candace H	Know how much investment LG&E/KU have in existing generation fleet, net book value of generation?
3:38:41 PM	Atty Kurtz KIUC - witness Sinclair Note: Sacre, Candace H	Nov 30 2021 analysis for reducing underappreciated fossil fuel generation assets, lists net book value of fleet at end of 2022 \$6.26 billion?
3:39:05 PM	Atty Kurtz KIUC - witness Sinclair Note: Sacre, Candace H	Whatever do in future, \$6.2 billion has to be paid for, plus any new/replacement generation?
3:39:21 PM	Atty Kurtz KIUC - witness Sinclair Note: Sacre, Candace H	Keeping low cost reliable electricity under existing system something mindful of?
3:39:51 PM	Atty Kurtz KIUC - witness Sinclair Note: Sacre, Candace H	Right now no price on CO2 or no restriction, when dispatch coal units, no CO2 constraint?
3:40:15 PM	Atty Kurtz KIUC - witness Sinclair Note: Sacre, Candace H	Customers benefit from low cost power, make significant off-system sales with coal generation, 75 percent back to customers?
3:40:46 PM	Atty Kurtz KIUC - witness Sinclair Note: Sacre, Candace H	In May fuel adjustment filing with \$6.2 million combined total profit, fairly significant?
3:41:04 PM	Atty Kurtz KIUC - witness Sinclair Note: Sacre, Candace H	\$2.3 a megawatt hour credit on KU system, \$2.30 for average residential customer, so meaningful?
3:41:25 PM	Atty Kurtz KIUC - witness Sinclair Note: Sacre, Candace H	Good neighbor policy cross-state pollution rule, no NOx concerns with natural gas combined cycle, will have SCRs on them?
3:42:22 PM	Chairman Chandler Note: Sacre, Candace H	Mr. Bellamy?
3:42:32 PM	Staff Atty Bellamy PSC - witness Sinclair Note: Sacre, Candace H	Cross Examination. Joint Intervenors attached report from Energy Futures, criticisms modeling capacity expansion only for 2035 as opposed doing each year letting model select, characterization of how model run accurate?
3:43:12 PM	Staff Atty Bellamy PSC - witness Sinclair Note: Sacre, Candace H	PPL not burn coal by 2050 unless emission abatement, included CCS on that and not allow model select natural combined cycle without CCS, whether due to projected environmental regulation or PPL requirement, seems if planning coal need CCS keep running after 2050, also true simple cycle plants building in next five to ten years?
3:45:31 PM	Staff Atty Bellamy PSC - witness Sinclair Note: Sacre, Candace H	PPL policy apply equally to natural gas combined cycle?

3:46:36 PM Staff Atty Bellamy PSC - witness Sinclair
Note: Sacre, Candace H Goal is get to zero emissions by 2050, PPL corporate goal, assume that is plan whether goal or expect regulation require zero emission, Vol 1 IRP Table 8.1 shows for summer resource summary what projecting to add 2036 base energy requirements and base fuel?

3:47:35 PM Staff Atty Bellamy PSC - witness Sinclair
Note: Sacre, Candace H New simple cycle 1320 megawatts?

3:48:02 PM Staff Atty Bellamy PSC - witness Sinclair
Note: Sacre, Candace H Not nameplate capacity, available capacity in summer?

3:48:12 PM Staff Atty Bellamy PSC - witness Sinclair
Note: Sacre, Candace H What be typical useful life of simple cycle plants?

3:48:33 PM Staff Atty Bellamy PSC - witness Sinclair
Note: Sacre, Candace H If adding between 2028 and 2035, could go about 25 years beyond 2050, assuming do carbon capture sequestration, do on simple cycle also?

3:49:47 PM Staff Atty Bellamy PSC - witness Sinclair
Note: Sacre, Candace H Why treat the simple cycles different from natural gas combined cycles, either carbon capture and sequestration or offset?

3:51:35 PM Staff Atty Bellamy PSC - witness Sinclair
Note: Sacre, Candace H Anything changed from a year ago new source standards?

3:51:51 PM Staff Atty Bellamy PSC - witness Sinclair
Note: Sacre, Candace H Was that issued in August 2021, whitepaper talking about?

3:52:35 PM Staff Atty Bellamy PSC - witness Sinclair
Note: Sacre, Candace H Companies' position recent Supreme Court decision had effect on EPA authority with respect to new source standards?

3:53:00 PM Staff Atty Bellamy PSC - witness Sinclair
Note: Sacre, Candace H Assumption regarding CCS natural gas combined cycle unit only relates new units, what specifically discussions and rumors?

3:54:39 PM Staff Atty Bellamy PSC - witness Sinclair
Note: Sacre, Candace H Staff Second, Item 1, response mentioned, asked about cost combined cycle with and without CCS, just baseload and base fuel, second column, when ran that model allowed model to select with or without?

3:55:36 PM Staff Atty Bellamy PSC - witness Sinclair
Note: Sacre, Candace H Even at \$25 per ton carbon costs, combined cycle without still more economical?

3:57:43 PM Staff Atty Bellamy PSC - witness Sinclair
Note: Sacre, Candace H Expect simple cycle with carbon capture more expensive than combined cycle with carbon capture?

3:59:27 PM Staff Atty Bellamy PSC - witness Sinclair
Note: Sacre, Candace H Mentioned comparing costs different resources using levelized cost of energy and how not appropriate depending on generation profiles, if resources same generation profile levelized cost of energy good metric to compare costs of two resources?

4:00:51 PM Staff Atty Bellamy PSC - witness Sinclair
Note: Sacre, Candace H Consider nuclear have same generation profile as natural gas combined cycle?

4:01:51 PM Staff Atty Bellamy PSC - witness Sinclair
Note: Sacre, Candace H Nuclear need be running pretty much all the time?

4:02:03 PM Staff Atty Bellamy PSC - witness Sinclair
Note: Sacre, Candace H Include natural gas combined cycle with carbon capture, very little chance ever selected based on cost, why exclude resource like nuclear from model and not let pick something like that?

4:04:34 PM Staff Atty Bellamy PSC - witness Sinclair
Note: Sacre, Candace H Statement in IRP nuclear might be economic under future circumstances, dipping toes in water, some utilities start implement small cell nuclear, current plan see how that goes before include as option?

4:06:48 PM Staff Atty Bellamy PSC - witness Sinclair
Note: Sacre, Candace H Currently plan in next three years bring in expertise something viable or so preliminary no time frame?

4:08:14 PM Staff Atty Bellamy PSC - witness Sinclair
Note: Sacre, Candace H LG&E/KU summer reserve margin range 17 to 24 percent?

4:08:33 PM Staff Atty Bellamy PSC - witness Sinclair
Note: Sacre, Candace H 24 percent, ten years with one loss of load, is that the 24 percent reserve margin?

4:09:27 PM Staff Atty Bellamy PSC - witness Sinclair
Note: Sacre, Candace H What look at to project high?

4:10:46 PM Staff Atty Bellamy PSC - witness Sinclair
Note: Sacre, Candace H Given what happened since filed IRP, high gas price in IRP still accurate long term or assessment of gas price changed since IRP filed?

4:12:12 PM Chairman Chandler
Note: Sacre, Candace H Commissioner Regan?

4:12:35 PM Chairman Chandler - witness Sinclair
Note: Sacre, Candace H Examination. Gas for Cane Run 7, contract for that or spot price?

4:13:34 PM Chairman Chandler - witness Sinclair
Note: Sacre, Candace H Just for Cane Run 7 or across gas fleet of LG&E/KU?

4:15:10 PM Chairman Chandler - witness Sinclair
Note: Sacre, Candace H Brown units on different line than Louisville units?

4:15:20 PM Chairman Chandler - witness Sinclair
Note: Sacre, Candace H Said volatility, sort of risk, if had questions risk around modeling, deviation from base to high, something you can speak to whether did this in IRP or Wilson?

4:16:39 PM Chairman Chandler - witness Sinclair
Note: Sacre, Candace H 2,000 megawatts base usage, intervenors took issue with determination of baseload, base amount of demand 2,000 megawatts?

4:17:18 PM Chairman Chandler - witness Sinclair
Note: Sacre, Candace H Instead of 2,000 was 2 gigawatts, page 39, baseload, 2 gigawatts, reading (click on link for further comments), 2,000 megawatts?

4:18:41 PM Chairman Chandler - witness Sinclair
Note: Sacre, Candace H Given retirements Mill Creek 1 and 2 and Brown 3, use old-timey term baseload, still be 2 gigawatts baseload generation serve base amount with retirements?

4:19:53 PM Chairman Chandler - witness Sinclair
Note: Sacre, Candace H Or coincident outages, point of contention in this case?

4:20:19 PM Chairman Chandler - witness Sinclair
Note: Sacre, Candace H Should have enough baseload generation to meet base demand, talking how IRP required 100 MW resources replacing very large resources, should be replacing with like kind or replacements be additive to portfolio meet customer demand?

4:23:25 PM Chairman Chandler - witness Sinclair
Note: Sacre, Candace H When say replace, what saying keep same level of reliability/loss of load reliability in each hour of year, need same amount of energy produced each one of hours removed?

4:24:14 PM	Chairman Chandler - witness Sinclair Note: Sacre, Candace H	LOLP used to create an ELCC calculation for certain types of resources?
4:24:45 PM	Chairman Chandler - witness Sinclair Note: Sacre, Candace H	Aware ELCC way of determining generator contribution to reliability?
4:24:55 PM	Chairman Chandler - witness Sinclair Note: Sacre, Candace H	May be base base scenario for 26 thru 36 picks up 1600 MW solar?
4:25:28 PM	Chairman Chandler - witness Sinclair Note: Sacre, Candace H	Lot of solar, agree as general matter first megawatt of solar out of 1600 and last megawatt solar throughout time period not contribute same to reliability?
4:26:19 PM	Chairman Chandler - witness Sinclair Note: Sacre, Candace H	How big load is in particular hours?
4:26:21 PM	Chairman Chandler - witness Sinclair Note: Sacre, Candace H	And hours producing?
4:26:27 PM	Chairman Chandler - witness Sinclair Note: Sacre, Candace H	Diminishing contribution to reliability as limited duration resources added, getting less benefit from every megawatt added, idea of ELCC, changing nature of it?
4:27:57 PM	Chairman Chandler - witness Sinclair Note: Sacre, Candace H	First question, constant discussing is load staying constant, thing change it load incentivize move to different hours, change contribution for reliability without resources changing output?
4:29:28 PM	Chairman Chandler - witness Sinclair Note: Sacre, Candace H	About to fall into a whole bunch of load data over next few years with AMI deployment?
4:29:47 PM	Chairman Chandler - witness Sinclair Note: Sacre, Candace H	Second question, aware whether megawatts limited duration resources, was that percentage of nameplate pulling from model or did it look at reliability contribution receding as years went on?
4:30:58 PM	Chairman Chandler - witness Sinclair Note: Sacre, Candace H	Qualitative determination DERs more expensive, Wilson question what costs used determine DERs be excluded because of cost determination?
4:32:03 PM	Chairman Chandler - witness Sinclair Note: Sacre, Candace H	Production at the facility, would that facility require transmission interconnection?
4:32:18 PM	Chairman Chandler - witness Sinclair Note: Sacre, Candace H	On utility scale, generation requires transmission interconnection costs?
4:32:27 PM	Chairman Chandler - witness Sinclair Note: Sacre, Candace H	Agree Commission determined are avoidable capacity costs for transmission and generation?
4:32:50 PM	Chairman Chandler - witness Sinclair Note: Sacre, Candace H	Avoided fixed costs and variable costs, your understanding?
4:32:58 PM	Chairman Chandler - witness Sinclair Note: Sacre, Candace H	When do IRP, look at solar costing \$28, not take into account transmission upgrade costs or avoidable transmission expenses running generation?
4:34:02 PM	Chairman Chandler - witness Sinclair Note: Sacre, Candace H	Utility scale generation not include all costs associated with site-specific generation?

4:34:25 PM	Chairman Chandler - witness Sinclair Note: Sacre, Candace H	With DERs, assumptions made utility grade solar cheaper because of economies of scale but on net basis costs avoided, any calculation looked at what overnight KW cost as compared to DERs what production costs are net of cost they avoid to determine whether cost effective?
4:36:52 PM	Chairman Chandler - witness Sinclair Note: Sacre, Candace H	Don't own windows when did window replacement DSM programs or not pay for new refrigerator recycling program, but give certain amount replace refrigerator, different levels be cost effective, gotten to that granular detail?
4:38:31 PM	Chairman Chandler - witness Sinclair Note: Sacre, Candace H	DERs could be batteries, electric vehicles, not just about rooftop solar?
4:38:47 PM	Chairman Chandler - witness Sinclair Note: Sacre, Candace H	Pointing out downside certain intermittent resources unavailability all hours, able to move electricity load have demand, megawatt hour useless can move to hour demand higher, that same megawatt hour providing greater reliability contribution?
4:39:34 PM	Chairman Chandler - witness Sinclair Note: Sacre, Candace H	RFP responses come in for batteries, offers to include electricity or you are responsible for electricity?
4:40:55 PM	Chairman Chandler - witness Sinclair Note: Sacre, Candace H	At a fixed price?
4:41:07 PM	Chairman Chandler - witness Sinclair Note: Sacre, Candace H	Fixed KW per month or megawatt month?
4:41:20 PM	Chairman Chandler - witness Sinclair Note: Sacre, Candace H	Way should look at batteries on a dollar per KW basis?
4:42:31 PM	Chairman Chandler - witness Sinclair Note: Sacre, Candace H	How hard is that to look at on apples to apples cost basis?
4:44:33 PM	Chairman Chandler - witness Sinclair Note: Sacre, Candace H	When talk about losses, transferring energy and not perfect, always going to be loss?
4:45:01 PM	Chairman Chandler - witness Sinclair Note: Sacre, Candace H	Pumped hydro, never understood in a state with as much change in elevation as Kentucky has and shoreline, why pumped hydro not possible or likely to occur, what qualitative determination takes pumped hydro out of question, completely takes it out of consideration in IRP?
4:49:25 PM	Chairman Chandler - witness Sinclair Note: Sacre, Candace H	Be premium for dispatchable longer than 4-8 hour zero carbon electricity, why not include that and have price and cost shake out as part of analysis?
4:50:45 PM	Chairman Chandler - witness Sinclair Note: Sacre, Candace H	Have approval build natural gas combined cycle, from making decision to build it until operation, how many years how many months talking about?
4:51:31 PM	Chairman Chandler - witness Sinclair Note: Sacre, Candace H	Four to five years natural gas combined cycle, simple cycle CT about a year or two?
4:51:41 PM	Chairman Chandler - witness Sinclair Note: Sacre, Candace H	Pumped hydro ten, 12 years?
4:51:52 PM	Chairman Chandler - witness Sinclair Note: Sacre, Candace H	Got to go to FERC, probably Corps of Engineers, more significant process than simple cycle CT?

4:52:22 PM Chairman Chandler - witness Sinclair
Note: Sacre, Candace H Nuclear still talking 10, 12, 14 years from start to operation?

4:52:39 PM Chairman Chandler - witness Sinclair
Note: Sacre, Candace H AP 1,000 units costing \$34 billion two units has taken about ten years?

4:52:52 PM Chairman Chandler - witness Sinclair
Note: Sacre, Candace H Not talking about today, talking about system might look like in 6-10 years?

4:53:08 PM Chairman Chandler - witness Sinclair
Note: Sacre, Candace H With that, even base base amount brought in hundreds of megawatts of solar in current IRP?

4:53:21 PM Chairman Chandler
Note: Sacre, Candace H Back at five after 5.

4:53:40 PM Session Paused

5:06:35 PM Session Resumed

5:06:53 PM Chairman Chandler - witness Sinclair
Note: Sacre, Candace H Examination (cont'd). Page 17 PDF, Volume 1 IRP, 5-11, company conducted resource screening analysis, see that?

5:07:38 PM Chairman Chandler - witness Sinclair
Note: Sacre, Candace H What analysis refer to?

5:08:07 PM Chairman Chandler - witness Sinclair
Note: Sacre, Candace H Whole section in IRP called Resource Screening Analysis Models and Methods, see that?

5:08:56 PM Chairman Chandler - witness Sinclair
Note: Sacre, Candace H Section should describe model and method if that's what it's entitled?

5:09:19 PM Chairman Chandler - witness Sinclair
Note: Sacre, Candace H If want to ask questions about analysis, question for Wilson?

5:09:40 PM Chairman Chandler - witness Sinclair
Note: Sacre, Candace H Generally aware CPCN proceedings?

5:10:17 PM Chairman Chandler - witness Sinclair
Note: Sacre, Candace H From participation, your understanding or aware of fact those proceedings revolve around need and absence wasteful duplication?

5:10:42 PM Chairman Chandler - witness Sinclair
Note: Sacre, Candace H Talking about meeting customer demand every hour lowest most reasonable cost, what analysis companies conduct to determine need?

5:11:27 PM Chairman Chandler - witness Sinclair
Note: Sacre, Candace H So demand exceeding generation because of increase in demand?

5:12:31 PM Chairman Chandler - witness Sinclair
Note: Sacre, Candace H Demand exceeding generation because of reduction in generation?

5:12:50 PM Chairman Chandler - witness Sinclair
Note: Sacre, Candace H Those fairly straightforward determinations, if negative integer or number not big enough give cushion, then there's a need?

5:13:21 PM Chairman Chandler - witness Sinclair
Note: Sacre, Candace H Plus a reasonable cushion for that generation?

5:13:38 PM Chairman Chandler - witness Sinclair
Note: Sacre, Candace H Just math, difference between demand and generation, analysis to determining need, cost of abatement environmental rules required made determination retire those and seeking CPCN for generation, impossible to comply, one of those or both of those?

5:16:47 PM Chairman Chandler - witness Sinclair
Note: Sacre, Candace H For second one, fair to say initial need being able produce electricity with compliant resources?

5:17:31 PM	Chairman Chandler - witness Sinclair Note: Sacre, Candace H	Need was producing electricity compliant generation, least cost most reasonable alternative proved retire generation, replacement capacity for new generation?
5:18:29 PM	Chairman Chandler - witness Sinclair Note: Sacre, Candace H	When Commission gets CPCN, after company determine have need and come up with proposed solution, requesting build something, application that we receive?
5:19:27 PM	Chairman Chandler - witness Sinclair Note: Sacre, Candace H	Been part of cases in which CPCN standard came up, 2020 case regarding Ridge Creek Solar facility, absence can be shown by demonstrating all reasonable alternatives considered prior to selection of proposal?
5:20:08 PM	Atty Riggs LG&E/KU Note: Sacre, Candace H	Respectfully, what is purpose of asking witness about statements may have made in a brief in another case? (Click on link for further comments.)
5:20:23 PM	Chairman Chandler - witness Sinclair Note: Sacre, Candace H	So it's the reasonable alternatives looking for in wasteful duplication?
5:21:22 PM	Chairman Chandler - witness Sinclair Note: Sacre, Candace H	Wasteful duplication analysis more easily understood in comparison of competing proposals on cost basis, determined need, trying to find best solution, least cost, most reasonable option, need determination is what I want to get to, a need determination cost effectiveness not jump out at me as analysis conducted outside IRP, exception Green no longer need based on reliability, fair characterization of internal review?
5:24:15 PM	Chairman Chandler - witness Sinclair Note: Sacre, Candace H	Thinking about same way I am, in IRP, heat rates, cost of fuel, current generation, in IRP if generating unit not make sense economically to leave open would show up in IRP analysis?
5:24:49 PM	Chairman Chandler - witness Sinclair Note: Sacre, Candace H	Wanting to understand what that analysis is?
5:25:52 PM	Chairman Chandler - witness Sinclair Note: Sacre, Candace H	Include variable O&M, is that one of stay-open costs?
5:26:32 PM	Chairman Chandler - witness Sinclair Note: Sacre, Candace H	Is that calculation similar to one Bellar used to update his retirement study filed as part of last rate case?
5:26:57 PM	Chairman Chandler - witness Sinclair Note: Sacre, Candace H	That stay-open cost, one reason plants are retired prior significant upgrade, stay open cost so expensive, is that why people do that?
5:28:11 PM	Chairman Chandler - witness Sinclair Note: Sacre, Candace H	Think going to break down to point not be repaired?
5:28:25 PM	Chairman Chandler - witness Sinclair Note: Sacre, Candace H	Need analysis, similar what Bellar did, shows up in analysis in IRP, lots made in company comments what least cost resource might be, other than companies' internal determinations retire resources, change depreciation dates, and IRPs, anywhere else companies doing need analysis and providing to Commission?
5:30:08 PM	Chairman Chandler - witness Sinclair Note: Sacre, Candace H	Those three items, would you say going back to your conversation around need led to Cane Run 7, very similar calculation, determination is need, comparing cost of capital upgrades verse retiring those and replacing with other generation, fair to look at those in same way?

5:31:42 PM	Chairman Chandler - witness Sinclair Note: Sacre, Candace H	ECR cases, with those, which witness speak about current plans Brown 3 and Mill Creek 2, going forward with complying with ELG and putting in what needed apply ELG for Mill Creek 2?
5:33:05 PM	Chairman Chandler - witness Sinclair Note: Sacre, Candace H	If planning on retiring Brown 3 in 2028, not be in compliance, not make updates, still retire Dec 31 2028?
5:33:42 PM	Chairman Chandler - witness Sinclair Note: Sacre, Candace H	Talked in past about mythical low-cost load-following dispatchable resource?
5:34:22 PM	Chairman Chandler - witness Sinclair Note: Sacre, Candace H	Assuming not exist, have a capacity need before 2028?
5:34:52 PM	Chairman Chandler - witness Sinclair Note: Sacre, Candace H	Have expectation of needs at some point in planning horizon for IRP?
5:35:10 PM	Chairman Chandler - witness Sinclair Note: Sacre, Candace H	Talked about fastest natural gas combined cycle take, could include CCS at time of operation?
5:35:52 PM	Chairman Chandler - witness Sinclair Note: Sacre, Candace H	This IRP looks at meeting need in 2028, saying one of resources chose to model not be built in 2028?
5:36:23 PM	Chairman Chandler - witness Sinclair Note: Sacre, Candace H	Technology exist today for you start planning to build for immediate need in '26 or '28 natural gas combined cycle plant that has full CCS?
5:37:41 PM	Chairman Chandler - witness Sinclair Note: Sacre, Candace H	Could you do break-even determination as to what carbon price would be make abatement technology break even?
5:38:21 PM	Chairman Chandler - witness Sinclair Note: Sacre, Candace H	Response stated perfectly, assuming \$25 carbon tax not enough make do upgrade to CCS?
5:38:35 PM	Chairman Chandler - witness Sinclair Note: Sacre, Candace H	See when resources chosen with CCS what breakeven would be?
5:39:07 PM	Chairman Chandler - witness Sinclair Note: Sacre, Candace H	DSM, expecting '28, good neighbor push to '26, whatever need is, whenever occurs wanted to ask witness about ability to reduce demand side demand, which witness?
5:40:18 PM	Chairman Chandler - witness Sinclair Note: Sacre, Candace H	As result of RFP have better ideas of what avoided overnight capacity costs are?
5:41:26 PM	Chairman Chandler Note: Sacre, Candace H	Mr. Riggs?
5:41:31 PM	Chairman Chandler Note: Sacre, Candace H	Procedural discussions. (Click on link for further comments.)
5:42:08 PM	Chairman Chandler Note: Sacre, Candace H	Next witness?
5:42:10 PM	Atty Crosby LG&E/KU Note: Sacre, Candace H	Stuart Wilson.
5:43:05 PM	Chairman Chandler Note: Sacre, Candace H	Witness is sworn.
5:43:13 PM	Chairman Chandler - witness Wilson Note: Sacre, Candace H	Examination. Name and address?
5:43:27 PM	Atty Crosby LG&E/KU - witness Wilson Note: Sacre, Candace H	Direct Examination. By whom employed and what capacity?

5:43:39 PM Atty Crosby LG&E/KU - witness Wilson
Note: Sacre, Candace H Cause be filed responses?

5:43:45 PM Atty Crosby LG&E/KU - witness Wilson
Note: Sacre, Candace H Adopt as testimony today?

5:43:50 PM Atty Crosby LG&E/KU - witness Wilson
Note: Sacre, Candace H Have materials?

5:44:06 PM Chairman Chandler
Note: Sacre, Candace H Questions?

5:45:20 PM Atty Fitzgerald Joint Intervenor - witness Wilson
Note: Sacre, Candace H Cross Examination. Person to ask modeling assumptions?

5:45:55 PM Atty Fitzgerald Joint Intervenor - witness Wilson
Note: Sacre, Candace H Did IRP identify particular least cost plan or preferred resource plan?

5:46:19 PM Atty Fitzgerald Joint Intervenor - witness Wilson
Note: Sacre, Candace H Did it run costs for each one of scenarios?

5:46:36 PM Atty Fitzgerald Joint Intervenor - witness Wilson
Note: Sacre, Candace H How can fairly compare nine scenarios when only run detailed production costs for one?

5:47:15 PM Atty Fitzgerald Joint Intervenor - witness Wilson
Note: Sacre, Candace H Was PLEXOS identification best plan based on inputs?

5:47:28 PM Atty Fitzgerald Joint Intervenor - witness Wilson
Note: Sacre, Candace H Same model for capacity expansion and production cost modeling or use different models?

5:47:38 PM Atty Fitzgerald Joint Intervenor - witness Wilson
Note: Sacre, Candace H Models have same assumptions and constraints across the board?

5:48:00 PM Atty Fitzgerald Joint Intervenor - witness Wilson
Note: Sacre, Candace H Companies use capacity expansion modeling to look at what considered optimum portfolio each year planning period or final year?

5:48:33 PM Atty Fitzgerald Joint Intervenor - witness Wilson
Note: Sacre, Candace H Talking 15 years out?

5:48:55 PM Atty Fitzgerald Joint Intervenor - witness Wilson
Note: Sacre, Candace H Mentioned were nine different scenarios and individual expansion portfolios for each one?

5:49:11 PM Atty Fitzgerald Joint Intervenor - witness Wilson
Note: Sacre, Candace H Test how any might perform under future conditions?

5:49:28 PM Atty Fitzgerald Joint Intervenor - witness Wilson
Note: Sacre, Candace H Stress testing do there not do here, do that testing for how might perform, before or after select what seeking CPCN for?

5:50:56 PM Atty Fitzgerald Joint Intervenor - witness Wilson
Note: Sacre, Candace H Not always do RFP as prelude to CPCN, do you?

5:51:11 PM Atty Fitzgerald Joint Intervenor - witness Wilson
Note: Sacre, Candace H Way describe RFP not include some of options?

5:51:24 PM Atty Fitzgerald Joint Intervenor - witness Wilson
Note: Sacre, Candace H Correct production cost modeling runs done just one portfolio, baseload base fuel?

5:51:38 PM Atty Fitzgerald Joint Intervenor - witness Wilson
Note: Sacre, Candace H Software, are models use for modeling runs, open source or proprietary?

5:52:19 PM Atty Fitzgerald Joint Intervenor - witness Wilson
Note: Sacre, Candace H PLEXOS is proprietary?

5:52:22 PM Atty Fitzgerald Joint Intervenor - witness Wilson
Note: Sacre, Candace H And ProSim is also, only two used or third one?

5:52:35 PM Atty Fitzgerald Joint Intervenor - witness Wilson
Note: Sacre, Candace H And both are proprietary?

5:52:53 PM Atty Fitzgerald Joint Intervenors - witness Wilson
Note: Sacre, Candace H 2020-00349, LG&E rate case, Sept 24 2021 order, reading (click on link for further comments), were inputs and assumptions in native format in initial filing?

5:55:14 PM Atty Fitzgerald Joint Intervenors - witness Wilson
Note: Sacre, Candace H LG&E/KU offer rerun ProSim or PLEXOS models for intervenors or Commission?

5:55:51 PM Atty Fitzgerald Joint Intervenors - witness Wilson
Note: Sacre, Candace H Offer rerun one scenario per intervening party as Commission directed in Order?

5:56:13 PM Atty Fitzgerald Joint Intervenors - witness Wilson
Note: Sacre, Candace H Plan filed within 90 days of Sept 24 2021 Order addressing transparency issues Commission raised?

5:56:29 PM Atty Fitzgerald Joint Intervenors - witness Wilson
Note: Sacre, Candace H Include one rerunning model in future cases?

5:56:55 PM Atty Fitzgerald Joint Intervenors - witness Wilson
Note: Sacre, Candace H The PVRR not calculated for multiple portfolios in future scenarios?

5:57:20 PM Atty Fitzgerald Joint Intervenors - witness Wilson
Note: Sacre, Candace H Develop capital cost assumptions for each resource?

5:57:36 PM Atty Fitzgerald Joint Intervenors - witness Wilson
Note: Sacre, Candace H Looked at variations resource type capital cost assumptions, each one needs own capital cost assumptions, look at variations among those?

5:58:05 PM Atty Fitzgerald Joint Intervenors - witness Wilson
Note: Sacre, Candace H Define operational parameters for each resource option?

5:58:16 PM Atty Fitzgerald Joint Intervenors - witness Wilson
Note: Sacre, Candace H Determined maintenance intervals, maintenance expenses?

5:58:27 PM Atty Fitzgerald Joint Intervenors - witness Wilson
Note: Sacre, Candace H Forecast fuel costs and load and peak demand?

5:58:38 PM Atty Fitzgerald Joint Intervenors - witness Wilson
Note: Sacre, Candace H What other assumptions inputting?

5:59:40 PM Atty Fitzgerald Joint Intervenors - witness Wilson
Note: Sacre, Candace H In modeling, looked at high and low load?

5:59:49 PM Atty Fitzgerald Joint Intervenors - witness Wilson
Note: Sacre, Candace H High, medium, low?

5:59:53 PM Atty Fitzgerald Joint Intervenors - witness Wilson
Note: Sacre, Candace H Also fuel prices?

5:59:57 PM Atty Fitzgerald Joint Intervenors - witness Wilson
Note: Sacre, Candace H Input any other variables like cost of carbon?

6:00:09 PM Atty Fitzgerald Joint Intervenors - witness Wilson
Note: Sacre, Candace H What value assign initial modeling cost of carbon?

6:00:26 PM Atty Fitzgerald Joint Intervenors - witness Wilson
Note: Sacre, Candace H Rerun model, did that change the composition in portfolio?

6:00:50 PM Atty Fitzgerald Joint Intervenors - witness Wilson
Note: Sacre, Candace H Did ask program to develop optimum portfolio based on achieving 70 percent reduction CO2 in 2025?

6:01:09 PM Atty Fitzgerald Joint Intervenors - witness Wilson
Note: Sacre, Candace H Or 80 percent in 2040?

6:01:16 PM Atty Fitzgerald Joint Intervenors - witness Wilson
Note: Sacre, Candace H As alternatives to new combustion turbine identified or combined cycle unit identified potentially future need?

6:01:53 PM Atty Fitzgerald Joint Intervenors - witness Wilson
Note: Sacre, Candace H More efficient than a simple?

6:02:08 PM	Atty Fitzgerald Joint Intervenor - witness Wilson Note: Sacre, Candace H	As alternative, model co-locating renewables and storage?
6:03:13 PM	Atty Fitzgerald Joint Intervenor - witness Wilson Note: Sacre, Candace H	That was stand-alone storage?
6:04:20 PM	Atty Fitzgerald Joint Intervenor - witness Wilson Note: Sacre, Candace H	What asked of model include determining when optimal time to retire coal-fired units as when most economically retire and replace with replacement source lighter in carbon footprint or retire at end of useful life?
6:05:34 PM	Atty Fitzgerald Joint Intervenor - witness Wilson Note: Sacre, Candace H	Capacity need in future, is the modeling robust enough let you know when capacity opportunities, make sense retire unit earlier than to run it into ground?
6:06:49 PM	Atty Fitzgerald Joint Intervenor - witness Wilson Note: Sacre, Candace H	Assumption in modeling of levelized cost of gas through 2050 between \$2.18 and \$4.66?
6:07:39 PM	Atty Fitzgerald Joint Intervenor - witness Wilson Note: Sacre, Candace H	Done prior to invasion Ukraine, is it correct lower the value used the more attractive the CT alternative would look?
6:08:19 PM	Atty Fitzgerald Joint Intervenor - witness Wilson Note: Sacre, Candace H	Since filing of IRP, go back and look and revise assumptions regarding range of natural gas prices between now and 2050?
6:09:04 PM	Chairman Chandler Note: Sacre, Candace H	Questions?
6:09:26 PM	Atty Kurtz KIUC - witness Wilson Note: Sacre, Candace H	Cross Examination. LG&E and KU summer peak about 600 megawatts greater than winter peak?
6:09:38 PM	Atty Kurtz KIUC - witness Wilson Note: Sacre, Candace H	Ever make sense look to other utilities for combined ownership of generating unit or sell them energy/capacity longer term basis?
6:10:03 PM	Atty Kurtz KIUC - witness Wilson Note: Sacre, Candace H	On RFP process, discount or take into account counter-party risk, factor into consideration?
6:10:32 PM	Chairman Chandler Note: Sacre, Candace H	Procedural discussions. (Click on link for further comments.)
6:15:07 PM	Chairman Chandler Note: Sacre, Candace H	Anything?
6:15:19 PM	Chairman Chandler Note: Sacre, Candace H	See you at 8 o'clock in the morning.
6:15:29 PM	Session Ended	



Exhibit List Report

2021-00393 12Jul2022

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

Name:	Description:
SIERRA CLUB CONFIDENTIAL EXHIBIT 1	S&P CAPITAL IQ ARTICLE PPL UTILITIES SEEK PROPOSALS TO REPLACE COAL-FIRED CAPACITY FOR KY., VA. DATED JUNE 23 2022

SIERRA CLUB CONFIDENTIAL
EXHIBIT 1
CASE NO. 2021-00393 FORMAL HEARING
HELD ON
July 12, 2022

*Angela M Goad
Assistant Attorney General
Office of the Attorney General Office of Rate
700 Capitol Avenue
Suite 20
Frankfort, KENTUCKY 40601-8204

*Jody Kyler Cohn
Boehm, Kurtz & Lowry
36 East Seventh Street
Suite 1510
Cincinnati, OHIO 45202

*J. Michael West
Office of the Attorney General Office of Rate
700 Capitol Avenue
Suite 20
Frankfort, KENTUCKY 40601-8204

*Ashley Wilmes
Kentucky Resources Council, Inc.
Post Office Box 1070
Frankfort, KENTUCKY 40602

*Joe F. Childers
Childers & Baxter PLLC
300 Lexington Building, 201 West Sho
Lexington, KENTUCKY 40507

*Honorable Michael L Kurtz
Attorney at Law
Boehm, Kurtz & Lowry
36 East Seventh Street
Suite 1510
Cincinnati, OHIO 45202

*Honorable Allyson K Sturgeon
Managing Senior Counsel - Regulatory &
LG&E and KU Energy LLC
220 West Main Street
Louisville, KENTUCKY 40202

*John G Horne, II
Office of the Attorney General Office of Rate
700 Capitol Avenue
Suite 20
Frankfort, KENTUCKY 40601-8204

*Quang Nguyen
Assistant County Attorney
Louisville/Jefferson County Metro Government
First Trust Centre
200 South 5th Street, Suite 300N
Louisville, KENTUCKY 40202

*Clay A. Barkley
Strobo Barkley PLLC
239 South 5th Street
Ste 917
Louisville, KENTUCKY 40202

*Honorable Kurt J Boehm
Attorney at Law
Boehm, Kurtz & Lowry
36 East Seventh Street
Suite 1510
Cincinnati, OHIO 45202

*Rick E Lovekamp
Manager - Regulatory Affairs
LG&E and KU Energy LLC
220 West Main Street
Louisville, KENTUCKY 40202

*Honorable David Edward Spenard
Strobo Barkley PLLC
239 South 5th Street
Ste 917
Louisville, KENTUCKY 40202

*Honorable Kendrick R Riggs
Attorney at Law
Stoll Keenon Ogden, PLLC
2000 PNC Plaza
500 W Jefferson Street
Louisville, KENTUCKY 40202-2828

*Robert Conroy
Vice President, State Regulation and Rates
LG&E and KU Energy LLC
220 West Main Street
Louisville, KENTUCKY 40202

*Tom Fitzgerald
Kentucky Resources Council, Inc.
Post Office Box 1070
Frankfort, KENTUCKY 40602

*Kristin Henry
Staff Attorney
Sierra Club Environmental Law Program
2101 Webster Street
Suite 1300
Oakland, CALIFORNIA 94612

*Randal A. Strobo
Strobo Barkley PLLC
239 South 5th Street
Ste 917
Louisville, KENTUCKY 40202

*Jeff Derouen
Assistant County Attorney
Louisville/Jefferson County Metro Government
First Trust Centre
200 South 5th Street, Suite 300N
Louisville, KENTUCKY 40202

*Larry Cook
Assistant Attorney General
Office of the Attorney General Office of Rate
700 Capitol Avenue
Suite 20
Frankfort, KENTUCKY 40601-8204

*Kentucky Utilities Company
220 W. Main Street
P. O. Box 32010
Louisville, KY 40232-2010

*Louisville Gas and Electric Company
220 W. Main Street
P. O. Box 32010
Louisville, KY 40232-2010