COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

JOINT APPLICATION OF LOUISVILLE GAS AND ELECTRIC COMPANY AND KENTUCKY UTILITIES COMPANY FOR CERTIFICATES OF PUBLIC CONVENIENCE AND NECESSITY FOR THE CONSTRUCTION OF A COMBINED CYCLE COMBUSTION TURBINE AT THE GREEN RIVER GENERATING STATION AND A SOLAR PHOTOVOLTAIC FACILITY AT THE E.W. BROWN GENERATING STATION	**)**	**CASE NO. 2014-00002**

RESPONSE OF
LOUISVILLE GAS AND ELECTRIC COMPANY
AND KENTUCKY UTILITIES COMPANY
TO WALLACE MCMULLEN AND SIERRA CLUB'S
SUPPLEMENTAL DATA REQUESTS
DATED APRIL 10, 2014

FILED: APRIL 24, 2014

VERIFICATION

COMMONWEALTH OF KENTUCKY)
) SS:
COUNTY OF JEFFERSON)

The undersigned, **David S. Sinclair**, being duly sworn, deposes and says that he is Vice President, Energy Supply and Analysis for Kentucky Utilities Company and Louisville Gas and Electric Company and an employee of LG&E and KU Services Company, and that he has personal knowledge of the matters set forth in the responses for which he is identified as the witness, and the answers contained therein are true and correct to the best of his information, knowledge and belief.

David S. Sinclair

Subscribed and sworn to before me, a Notary Public in and before said County and State, this 23rd day of April 2014.

Notary Public (SEAL)

My Commission Expires:

SUSAN M. WATKINS
Notary Public, State at Large, KY
My Commission Expires Mar. 10, 2017
Notary ID # 485723

VERIFICATION

COMMONWEALTH OF KENTUCKY)
) SS:
COUNTY OF JEFFERSON)

The undersigned, **Edwin R. Staton**, being duly sworn, deposes and says that he is Vice President, State Regulation and Rates, for Louisville Gas and Electric Company and Kentucky Utilities Company and an employee of LG&E and KU Services Company, and that he has personal knowledge of the matters set forth in the responses for which he is identified as the witness, and the answers contained therein are true and correct to the best of his information, knowledge and belief.

Edwin R. Staton

Subscribed and sworn to before me, a Notary Public in and before said County and State, this 23rd day of April 2014.

Notary Public (SEAL)

My Commission Expires:

SUSAN M. WATKINS
Notary Public, State at Large, KY
My Commission Expires Mar. 19, 2017
Notary ID # 485723

VERIFICATION

COMMONWEALTH OF KENTUCKY)
) **SS:**
COUNTY OF JEFFERSON)

The undersigned, **Paul W. Thompson**, being duly sworn, deposes and says that he is Chief Operating Officer for Kentucky Utilities Company and Louisville Gas and Electric Company and an employee of LG&E and KU Services Company, and that he has personal knowledge of the matters set forth in the responses for which he is identified as the witness, and the answers contained therein are true and correct to the best of his information, knowledge and belief.

Paul W. Thompson

Subscribed and sworn to before me, a Notary Public in and before said County and State, this 23rd day of April 2014.

(SEAL)
Notary Public

My Commission Expires:

SUSAN M. WATKINS
Notary Public, State at Large, KY
My Commission Expires Mar. 10, 2017
Notary ID # 485729

VERIFICATION

COMMONWEALTH OF KENTUCKY)
) SS:
COUNTY OF JEFFERSON)

The undersigned, **John N. Voyles, Jr.**, being duly sworn, deposes and says that he is the Vice President, Transmission and Generation Services for Louisville Gas and Electric Company and Kentucky Utilities Company and an employee of LG&E and KU Services Company, that he has personal knowledge of the matters set forth in the responses for which he is identified as the witness, and the answers contained therein are true and correct to the best of his information, knowledge and belief.

John N. Voyles, Jr.

Subscribed and sworn to before me, a Notary Public in and before said County and State, this 23rd day of April 2014.

(SEAL)
Notary Public

My Commission Expires:

SUSAN M. WATKINS
Notary Public, State at Large, KY
My Commission Expires Mar. 19, 2017
Notary ID # 485723

LOUISVILLE GAS AND ELECTRIC COMPANY
KENTUCKY UTILITIES COMPANY

Response to Wallace McMullen and Sierra Club's
Supplemental Data Requests
Dated April 10, 2014

Case No. 2014-00002

Question No. 1

Witness: David S. Sinclair

Q2.1. Please refer to the confidential attachment submitted in response to Sierra Club's initial information request 5(c).

a. Please provide the source, basis and detailed explanation for the assumptions regarding Variable Operating and Maintenance costs and Fixed Operating and Maintenance for the listed solar projects.

b. Please explain how these assumptions are updated and kept current.

A2.1.

a. In the 2011 resource assessment, fixed and variable operating and maintenance costs were not considered in the analysis of the solar alternative. In the 2013 resource assessment, fixed and variable operating and maintenance costs were taken from the HDR study (see response to AG 1-137). The variable operating and maintenance cost was inadvertently omitted from the Phase 1 screening analysis. This omission had no impact on the Phase 1 screening analysis since all renewable alternatives passed the Phase 1 screening analysis.

b. The Companies rely on the RFP process to assess the market for renewable proposals. The Companies' self-build options are developed by a reputable engineering firm. If approved, the EPC for the Brown Solar Facility will be the subject of an RFP, which will ensure the most current and competitive pricing.

LOUISVILLE GAS AND ELECTRIC COMPANY
KENTUCKY UTILITIES COMPANY

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Question No. 2

Witness: David S. Sinclair

Q2.2. Please refer to the response to Sierra Club's initial information request 7. Please provide the data for all twelve scenarios (in electronic, machine-readable format).

A2.2. See attached. The information requested is confidential and proprietary, and is being provided under seal pursuant to a petition for confidential treatment.

LOUISVILLE GAS AND ELECTRIC COMPANY
KENTUCKY UTILITIES COMPANY

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Question No. 3

Witness: David S. Sinclair

Q2.3. Please refer to the response to Sierra Club's initial information request 1.18(b) and the direct testimony of David Sinclair

a. Please explain the apparent discrepancy between the 2014 LF in the Excel sheets and the totals provided in Table 4 of Mr. Sinclair's testimony.

b. Please provide the data and analyses used to calculate the "2014 LOW Scenario" referenced on page 14, Fig. 1-2013 LF.

c. Please provide the data and analyses used to calculate the "2014 LOW Scenario" referenced on page 15, Fig. 2 – 2013 LF.

d. Please provide Figure 1 on page 14 and Figure 2 on page 15 with the "2014 LOW Scenario" plotted in the graph.

e. Have the Companies evaluated distributed solar as a demand side resource?
   i. If so, please provide all relevant studies and analyses, including all assumptions used in the studies and analyses.
   ii. If not, please explain why not.

A2.3.

a. Table 4 of Mr. Sinclair's testimony shows Energy Requirements (Sales + Line Losses); the 2014 LF in the Excel sheets show sales which exclude line losses.

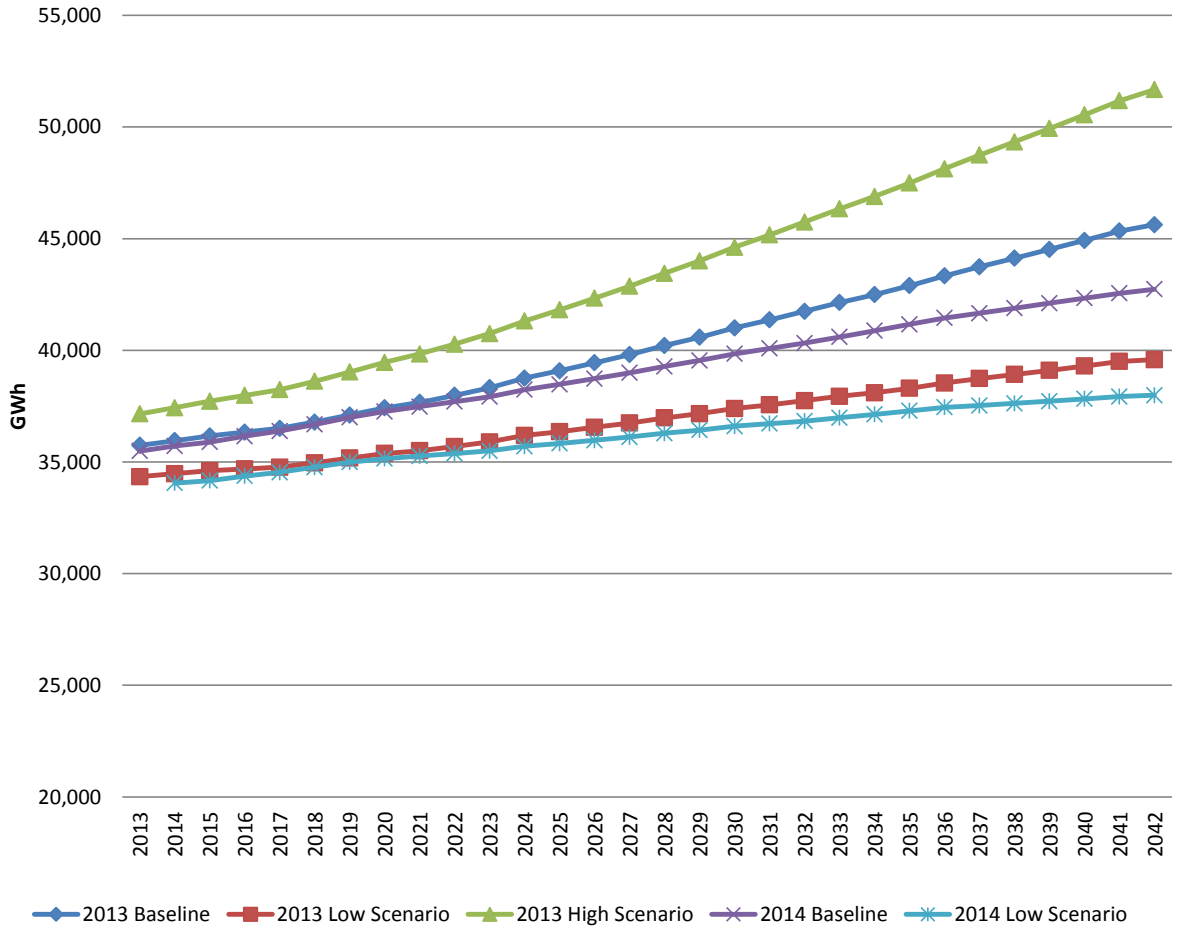
b. There is no reference to the "2014 LOW Scenario" in Figure 1 on page 14. For the data and analyses used to calculate the "2013 Low Scenario" referenced on page 14, Fig.1, see Attachment to Sierra Club 1.23(a) HighLowScenarios. For the data and analyses used to calculate the 2014 Low Scenario, see attached.

c. There is no reference to the "2014 LOW Scenario" in Figure 2 on page 15. For the data and analyses used to calculate the "2013 Low Scenario" referenced on page 15, Fig.2, see Attachment to Sierra Club 1.23(a) HighLowScenarios. For the data and analyses used to calculate the 2014 Low Scenario, see attached.

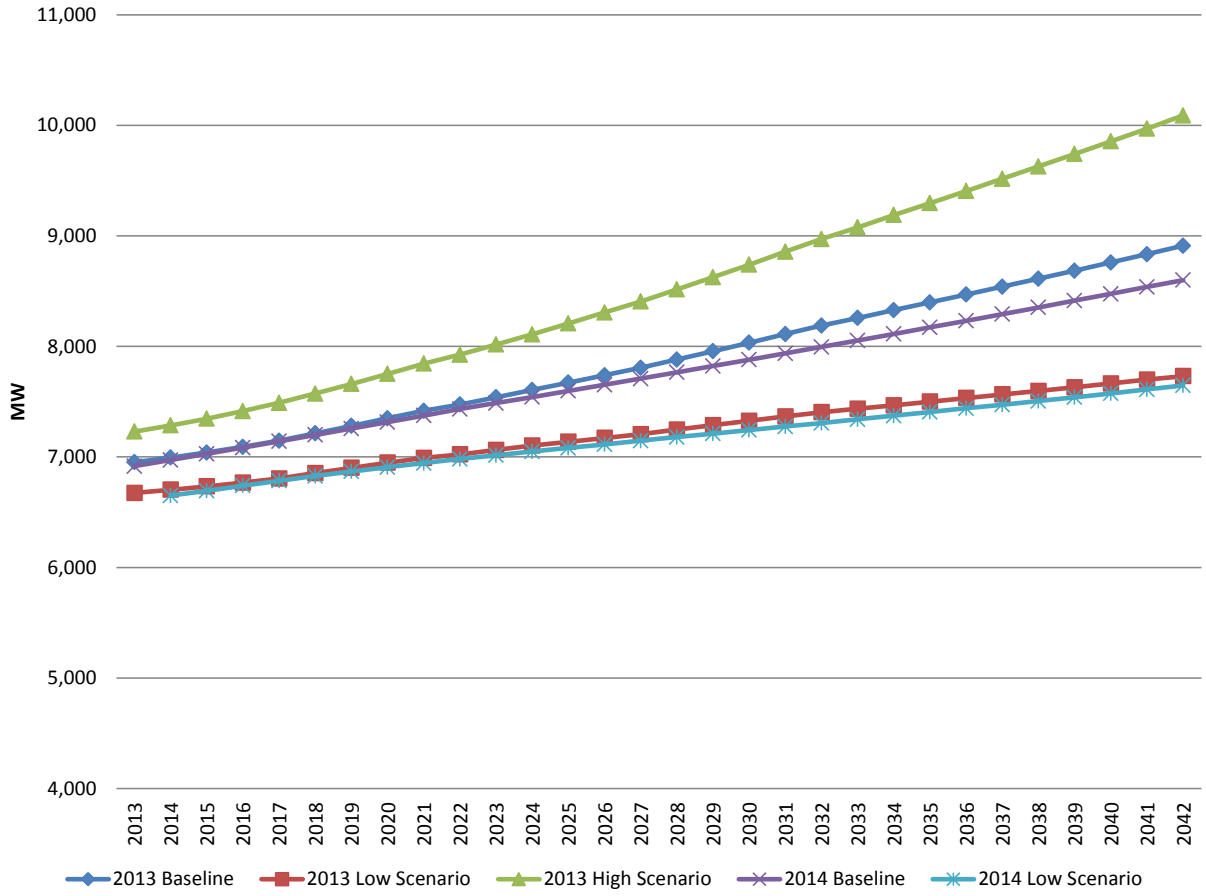
d. See attached.

e. No. The Companies' DSM programs are focused on reducing customers' energy needs, not on building generation.

2013 LF Energy Requirements Scenarios and 2014 LF Baseline and Low Scenario



2013 LF Peak Demand Scenarios and 2014 LF Baseline and Low Scenario



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Question No. 4

Witnesses: David S. Sinclair

Q2.4. Please refer to the response to Sierra Club's initial information request 19.

a. Did the Companies review short-term market energy purchases as an option in their analysis?
   i. If so, please provide any analyses and workpapers used to evaluate short-term energy purchases.
   ii. If not, why not?

b. Did the Companies review short-term market capacity purchases as an option in their analysis?
   i. If so, please provide any analyses and workpapers used to evaluate short-term capacity purchases.
   ii. If not, why not?

c. Are the Companies able to purchase capacity from the PJM capacity auction?
   i. If so, have the Companies evaluated PJM capacity market purchases as a future option?
      1. If so, please provide any analyses and workpapers used to evaluate PJM capacity market purchases.
      2. If not, explain why not.
   ii. Please provide historical PJM capacity market sales and purchases made by the Companies (from 2004 to present).

d. Are the Companies able to purchase capacity from the MISO capacity auction?
   i. If so, have the Companies evaluated MISO capacity market purchases as a future option?
      1. If so, please provide any analyses and workpapers used to evaluate PJM energy market purchases.
      2. If not, explain why not.
   ii. Please provide historical MISO capacity market sales and purchases made by the Companies (from 2004 to present).

e. Have the Companies developed or reviewed capacity market price forecasts for PJM or MISO?
   i. If so, please provide those forecasts with supporting analyses and workpapers.
   ii. If not, explain why not.

f. Did the Companies evaluate pairing the proposed self-build NGCC with a combination of DSM and/or one or more of the wind PPA bids?
   i. If yes, please provide all supporting analyses and documents.
   ii. If no, explain why not.

g. Did the Companies evaluate pairing a smaller NGCC with a combination of DSM and/or one or more of the wind PPA bids?
   i. If yes, please provide all supporting analyses and documents.
   ii. If no, explain why not.

h. Did the companies evaluate any DSM and/or renewable options for deferring the proposed NGCC other than the "EE/DSM and Renewable, GR '20" option listed in Tables 29-33 of Exhibit DSS-1?
   i. If yes, please provide all supporting analyses and documents.
   ii. If no, explain why not.

A2.4.

a. If "short-term market energy purchases" means buying hourly energy at a future date the answer is "no." The Companies are seeking to procure future capacity and energy in order to reliably serve their customers' future energy needs. NERC Reliability Standards and Good Utility Practice necessitate prudent long-term resource planning to ensure continued reliability of the bulk electric system and to serve the electrical demand and energy requirements of customers. Planning to rely on short-term market energy purchases would not be consistent with prudent long-term resource planning.

b. Yes. See Section 4.5.2 of Exhibit DSS-1 and the response to KPSC 1-22.

c. No. The Companies cannot purchase capacity in PJM's capacity auction because they are not Load Serving Entities ("LSEs") in PJM. PJM's capacity auction is designed to ensure adequate resources to meet the needs of LSEs serving load in the PJM region. For more information, see PJM's "PJM Manual 18: PJM Capacity Market," effective January 30, 2014, at http://www.pjm.com/~/media/documents/manuals/m18.ashx.[1]
   i. Not applicable.

[1] For PJM's full set of manuals, *see* http://www.pjm.com/documents/manuals.aspx.

ii. The Companies have not made any PJM capacity market sales or purchases.

d. No. The Companies cannot purchase capacity in MISO's capacity auction because they are not LSEs in MISO. MISO's capacity auction is designed to ensure adequate resources to meet the needs of LSEs serving load in the MISO region. For more information, see MISO's "Resource Adequacy Business Practice Manual, BPM-011-r13," effective January 1, 2014 at https://www.misoenergy.org/_layouts/MISO/ECM/Redirect.aspx?ID=19206.[2]

i. Not applicable.

ii. The Companies have not made any MISO capacity market sales or purchases.

e. The Companies are aware of the results of PJM's capacity auctions which are available at PJM's website.

i. Not applicable.

ii. The Companies' load is not in PJM or MISO.

f. Yes. See Table 24 in Exhibit DSS-1 at page 31. In the Phase 3, Iteration 1 analysis, the proposed self-build NGCC was paired in turn with each of the DSM and wind proposals. See the response to PSC 1-22. Supporting analyses and documents are located in the 02_Analysis\Phase2\Iteration3 folder.

g. No. The present value of revenue requirements ("PVRR") for the Green River 1x1 alternative is more than $100 million unfavorable to the PVRR of the Green River 2x1 alternative (see Table 19 on page 25 of Exhibit DSS-1). Based on this result and the results of the Phase 3, Iteration 1 analysis, the addition of one or more DSM or renewable alternatives to the smaller NGCC alternative will not offset this difference.

h. Yes. See Table 26 of Exhibit DSS-1 at page 34. The "Small Proposals (w/ DSM CNC Only), GR '19" and "Small Proposals (w/ All DSM), GR '19" alternatives both include a solar proposal and one or more DSM alternatives. See the response to PSC 1-22. Supporting analyses and documents are located in the 02_Analysis\Phase3\Iteration1 folder.

[2] For MISO's full set of Business Practice Manuals, *see* https://www.misoenergy.org/Library/BusinessPracticesManuals/Pages/BusinessPracticesManuals.aspx.

LOUISVILLE GAS AND ELECTRIC COMPANY
KENTUCKY UTILITIES COMPANY

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Question No. 5

Witness: David S. Sinclair

Q2.5. Please refer to the response to Sierra Club's initial information request 19(e).

a. Have the Companies compared their electricity price forecast under CO2 price scenarios to similar electricity price forecasts from any agencies, forecasting firms, or other utilities?

b. If so, please provide any analyses and/or documents relating to this comparison.

A2.5.

a. No.

b. Not applicable.

LOUISVILLE GAS AND ELECTRIC COMPANY
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Question No. 6

Witness: John N. Voyles, Jr.

Q2.6. Please refer to the response to Sierra Club's initial information request 28(d). Please explain why the proposed self-build solar project has a higher contingency rate (15%) than the proposed self-build NGCC project (10%).

A2.6. The level of contingency assigned to an estimate is based on professional judgment. In exercising that judgment, factors such as the quality of information available to feed the estimate, market conditions for the relevant equipment and direct experience in the construction and operation of the equipment are considered. The Companies are currently building Cane Run 7 and have first-hand access to real time construction cost data. The Companies do not have any first-hand data or construction experience to support the solar estimate. The market for combustion turbines and steam turbines has been relatively stable and thus the Companies have a high degree of confidence that the equipment quotes received to support the Green River NGCC estimate are close to the ultimate price that will be paid for that equipment. Although recently the price of solar panels has been relatively stable, solar panels are the subject of multiple fair trade inquiries. The outcome of these legal cases could substantially impact the cost of solar panels. Considering these factors the Companies used their professional judgment and assigned a 10 percent contingency to the Green River NGCC estimate and a 15 percent contingency to the Brown solar estimate.

CONFIDENTIAL INFORMATION REDACTED

LOUISVILLE GAS AND ELECTRIC COMPANY
KENTUCKY UTILITIES COMPANY

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Question No. 7

Witness: David S. Sinclair

Q2.7. Please refer to the response to Sierra Club's initial information request 35.

a. Is it the Companies' position that the costs of the RFP bids do not reflect their respective capital and O&M environmental compliance costs, with the exception of CO2 costs and the cost per ton or NOx and SO2 emissions?

b. [redacted]

c. [redacted]

A2.7.

a. Whether the RFP bids reflect these costs is unclear. Any additional environmental costs would further advantage the Companies' recommendation.

b. According to [redacted] proposal, the PPA price includes MATS compliance costs.

c. See the response to PSC 1-22. [redacted] proposal specifically states that the non-fuel variable O&M forecast provided is "post MATS" beginning in 2015 (see 01_Correspondence\RFPResponses\Coal\04_B[redacted]\[redacted] 1.pdf on page 2, in answer to "Additional Questions" #3).

LOUISVILLE GAS AND ELECTRIC COMPANY
KENTUCKY UTILITIES COMPANY

Response to Wallace McMullen and Sierra Club's
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Question No. 8

Witness: David S. Sinclair

Q2.8. Please refer to the response to Sierra Club's initial information request 43. Please provide all of the inputs used to calculate the PVRR for the proposed self-build solar project. If the information requested has already been provided, please refer to the relevant document.

A2.8. See the response to PSC 1-31 and PSC 1-35. The input files were provided in the response to PSC 1-22 in the following folder: 02_Analysis\Phase3\Iteration3.

- The capital cost inputs for the self-build solar project are contained in the following file: 02_Analysis\Phase3\Iteration3\Strategist\CER\ 2013CPCN_P3Solar.cer. This file has the base, low, and high capital cost estimates.
- The hourly forecasted solar generation and variable operating and maintenance cost inputs are contained in the following file: 02_Analysis\ModelInputs\PROSYM\C57A.dat.
- The alternatives in the resource assessment that include Brown Solar are listed in Tables 35, 36, and 37 in Exhibit DSS-1. Beginning with the Phase 2 analysis, the alternatives evaluated in the resource assessment consisted of one or more "responses." Responses include RFP responses, self-build proposals, and DSM proposals. Each of the alternatives as well as the responses included in each alternative are listed in the following Excel workbook: 02_Analysis\20130905_CaseNamesandCombos_0073D16.xlsx (see "Cases" worksheet; the columns on the right side of the worksheet indicate the responses included in each alternative). The "Responses" worksheet contains more information about each response. Fixed operating and maintenance costs for the Brown Solar response ID (R35E) are included in the following file:
  02_Analysis\Phase3\Iteration3\20130916_P3I3_OutputTemplate_0073_D17.xlsx.

LOUISVILLE GAS AND ELECTRIC COMPANY
KENTUCKY UTILITIES COMPANY

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Case No. 2014-00002

Question No. 9

Witness: David S. Sinclair

Q2.9. Please refer to the response to Sierra Club's initial information request 44.

a. Are the Companies stating that the variable cost to operate environmental controls, from past capital investments, is reflected in the economic analysis in this case?

b. Are the Companies stating that the variable cost to operate environmental controls, as a result of future capital investments necessary to comply with environmental regulations, is not reflected in the economic analysis in this case?
   i. If no, please explain how the economic analysis in this case accounts for the effect of anticipated environmental compliance spending on variable operating costs.

c. Regarding the environmental regulations listed in the question, please provide the "impacts associated with these regulations to variable operating costs and operating characteristics" annually by unit and specific regulation.

A2.9.

a. Yes.

b. Yes. The proposed Green River NGCC unit and Brown Solar facility will be fully compliant with the environmental regulations listed in Sierra Club 1-44. The Companies are not aware of any investments or potential changes in variable operating costs for these units that would be needed to comply with other potential future environmental regulations. The consideration of any such costs for the Companies' existing units would further advantage the recommendation to build the Green River NGCC unit and Brown Solar facility.

c. The requested information is not available by specific regulations. The attachment summarizes the impact of MATS, NAAQS, CSAPR, and CAIR on

the Companies' existing units' net capacity, heat rate, and variable operating costs. The impact of potential carbon regulations is modeled in the Mid CO_2 scenario as a price per ton of carbon emitted (see Exhibit DSS-1 at page 13). The analysis does not contemplate the impact of the Effluent Limitations Guidelines or the 316(b) cooling water intake rule. The proposed Green River NGCC unit and Brown Solar facility will comply with these rules. As mentioned previously, the consideration of the impact of these rules on the Companies' existing units would further advantage the Companies' recommendation.

Additional Variable Operating Costs Due to MATS, NAAQS, CSAPR, and CAIR Regulations ($/MWh)

Unit Name	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Brown 1		1.94	1.99	2.03	2.07	2.11	2.15	2.20	2.24	2.29	2.33	2.38	2.43	2.47	2.52
Brown 2		1.94	1.69	2.28	2.33	2.38	2.42	2.47	2.52	2.57	2.62	2.68	2.73	2.78	2.84
Brown 3		3.21	3.65	3.47	3.54	3.61	3.68	3.76	3.83	3.91	3.99	4.06	4.15	4.23	4.31
Ghent 1		1.78	1.92	2.17	2.21	2.26	2.30	2.35	2.40	2.45	2.49	2.54	2.59	2.65	2.70
Ghent 2		1.56	1.69	1.86	1.90	1.94	1.98	2.02	2.06	2.10	2.14	2.18	2.22	2.27	2.31
Ghent 3	1.85	1.64	2.23	2.56	2.61	2.66	2.72	2.77	2.83	2.88	2.94	3.00	3.06	3.12	3.18
Ghent 4	1.73	2.52	2.51	3.13	3.19	3.25	3.32	3.39	3.45	3.52	3.59	3.66	3.74	3.81	3.89
Mill Creek 1		1.13	1.82	2.03	2.07	2.11	2.15	2.19	2.24	2.28	2.33	2.37	2.42	2.47	2.52
Mill Creek 2		1.30	2.28	2.28	2.32	2.37	2.42	2.47	2.51	2.56	2.62	2.67	2.72	2.78	2.83
Mill Creek 3		4.27	4.49	4.95	5.05	5.15	5.25	5.36	5.47	5.58	5.69	5.80	5.92	6.03	6.16
Mill Creek 4	3.70	3.40	3.45	3.46	3.53	3.60	3.67	3.74	3.82	3.89	3.97	4.05	4.13	4.21	4.30
Trimble County 1		0.76	0.81	0.85	0.86	0.88	0.90	0.92	0.93	0.95	0.97	0.99	1.01	1.03	1.05

Additional Variable Operating Costs Due to MATS, NAAQS, CSAPR, and CAIR Regulations ($/MWh)

Unit Name	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042
Brown 1	2.57	2.63	2.68	2.73	2.79	2.84	2.90	2.96	3.02	3.08	3.14	3.20	3.26	3.33
Brown 2	2.90	2.96	3.01	3.07	3.14	3.20	3.26	3.33	3.39	3.46	3.53	3.60	3.67	3.75
Brown 3	4.40	4.49	4.58	4.67	4.76	4.86	4.96	5.05	5.16	5.26	5.36	5.47	5.58	5.69
Ghent 1	2.75	2.81	2.86	2.92	2.98	3.04	3.10	3.16	3.23	3.29	3.36	3.42	3.49	3.56
Ghent 2	2.36	2.41	2.46	2.51	2.56	2.61	2.66	2.71	2.77	2.82	2.88	2.94	2.99	3.05
Ghent 3	3.25	3.31	3.38	3.45	3.52	3.59	3.66	3.73	3.80	3.88	3.96	4.04	4.12	4.20
Ghent 4	3.97	4.05	4.13	4.21	4.29	4.38	4.47	4.56	4.65	4.74	4.84	4.93	5.03	5.13
Mill Creek 1	2.57	2.62	2.67	2.73	2.78	2.84	2.89	2.95	3.01	3.07	3.13	3.20	3.26	3.33
Mill Creek 2	2.89	2.95	3.01	3.07	3.13	3.19	3.25	3.32	3.38	3.45	3.52	3.59	3.66	3.74
Mill Creek 3	6.28	6.40	6.53	6.66	6.80	6.93	7.07	7.21	7.36	7.50	7.65	7.81	7.96	8.12
Mill Creek 4	4.38	4.47	4.56	4.65	4.74	4.84	4.94	5.04	5.14	5.24	5.34	5.45	5.56	5.67
Trimble County 1	1.07	1.09	1.12	1.14	1.16	1.19	1.21	1.23	1.26	1.28	1.31	1.33	1.36	1.39

Heat Rate Increase Due to MATS, NAAQS, CSAPR, and CAIR Regulations

Unit Name	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Brown 1															
Brown 2															
Brown 3		1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%
Ghent 1		1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%
Ghent 2		1.9%	1.9%	1.9%	1.9%	1.9%	1.9%	1.9%	1.9%	1.9%	1.9%	1.9%	1.9%	1.9%	1.9%
Ghent 3	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%
Ghent 4	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%
Mill Creek 1		1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
Mill Creek 2		1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%
Mill Creek 3		1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%
Mill Creek 4	0.6%	0.6%	0.6%	0.6%	0.6%	0.6%	0.6%	0.6%	0.6%	0.6%	0.6%	0.6%	0.6%	0.6%	0.6%
Trimble County 1		0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%

Heat Rate Increase Due to MATS, NAAQS, CSAPR, and CAIR Regulations

Unit Name	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042
Brown 1														
Brown 2														
Brown 3	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%
Ghent 1	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%
Ghent 2	1.9%	1.9%	1.9%	1.9%	1.9%	1.9%	1.9%	1.9%	1.9%	1.9%	1.9%	1.9%	1.9%	1.9%
Ghent 3	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%
Ghent 4	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%
Mill Creek 1	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
Mill Creek 2	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%
Mill Creek 3	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%
Mill Creek 4	0.6%	0.6%	0.6%	0.6%	0.6%	0.6%	0.6%	0.6%	0.6%	0.6%	0.6%	0.6%	0.6%	0.6%
Trimble County 1	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%

Capacity Derate Due to MATS, NAAQS, CSAPR, and CAIR Regulations (MW)

Unit Name	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Brown 1															
Brown 2															
Brown 3		5	5	5	5	5	5	5	5	5	5	5	5	5	5
Ghent 1		6	6	6	6	6	6	6	6	6	6	6	6	6	6
Ghent 2		9	9	9	9	9	9	9	9	9	9	9	9	9	9
Ghent 3	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
Ghent 4	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
Mill Creek 1		3	3	3	3	3	3	3	3	3	3	3	3	3	3
Mill Creek 2		4	4	4	4	4	4	4	4	4	4	4	4	4	4
Mill Creek 3		6	6	6	6	6	6	6	6	6	6	6	6	6	6
Mill Creek 4	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
Trimble County 1		4	4	4	4	4	4	4	4	4	4	4	4	4	4

Capacity Derate Due to MATS, NAAQS, CSAPR, and CAIR Regulations (MW)

Unit Name	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042
Brown 1														
Brown 2														
Brown 3	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Ghent 1	6	6	6	6	6	6	6	6	6	6	6	6	6	6
Ghent 2	9	9	9	9	9	9	9	9	9	9	9	9	9	9
Ghent 3	6	6	6	6	6	6	6	6	6	6	6	6	6	6
Ghent 4	6	6	6	6	6	6	6	6	6	6	6	6	6	6
Mill Creek 1	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Mill Creek 2	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Mill Creek 3	6	6	6	6	6	6	6	6	6	6	6	6	6	6
Mill Creek 4	11	11	11	11	11	11	11	11	11	11	11	11	11	11
Trimble County 1	4	4	4	4	4	4	4	4	4	4	4	4	4	4

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Question No. 10

Witness: David S. Sinclair

Q2.10. Please refer to the response to the AG's initial information request 15.

a. Please explain what the Companies mean by "pure costs," stated in "actual, definitive, quantifiable dollars."

b. Please explain what is included and excluded from "extrapolation of dollar value of other factors."

A2.10.

a. The quoted phraseology was used by the AG in question AG 1-15(a). The question referred to a statement from Mr. Sinclair's testimony on page 2, line 17 regarding "…meet(ing) customers' future capacity and energy needs in a lowest-cost manner." All of the options considered in Exhibit DSS-1 used revenue requirements analysis that evaluated the financial cost of serving load.

b. See response to AG 1-15(b).

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Question No. 11

Witnesses: John N. Voyles, Jr.

Q2.11. Please refer to the response to the AG's initial information request 137, E.W. Brown 10 MW PV Solar Siting Study, Appendices E and F. Please provide the data tables in these appendices in Excel format.

A2.11. See attached.

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Question No. 12

Witness: David S. Sinclair

Q2.12. Please refer to the response to the AG's initial information request 161.

a. Please list the economic, operating, financial, and economic benefits and costs considered in the Companies' analysis of the proposed self-build solar project.

b. Please list the economic, operating, financial, and economic benefits and costs quantified in the Companies' calculation of the PVRR of the proposed self-build solar project.
   i. Please provide the value for each cost and benefit used in the PVRR calculation.

A2.12.

a. All of the financial analysis contained in Exhibit DSS-1 is based on revenue requirements of serving customers' load.

b. No such analysis has been performed. See response to Question No. 12(a).

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Question No. 13

Witness: David S. Sinclair

Q2.13. Please refer to the response to the AG's initial information request 168. Please list and detail the estimated or assumed value of all avoided carbon or other emissions and other environmental impacts associated with and/or attributable to the proposed self-build solar facility.

A2.13. The cost (in $/ton) of CO_2, Annual NO_x, Ozone NO_x, SO_2, and Hg used in the resource assessment can be found in the table below:

	CO_2		Annual NO_x		Ozone NO_x		SO_2		Hg	
	0C	MC	0C	MC	0C	MC	0C	MC	0C	MC
2013	0	0	30	30	42.5	42.5	1	1	0	0
2014	0	0	30	30	42.5	42.5	1	1	0	0
2015	0	0	30	30	42.5	42.5	1	1	0	0
2016	0	0	30	30	42.5	42.5	1	1	0	0
2017	0	0	30	30	42.5	42.5	1	1	0	0
2018	0	0	30	30	42.5	42.5	1	1	0	0
2019	0	0	30	30	42.5	42.5	1	1	0	0
2020	0	23	30	30	42.5	42.5	1	1	0	0
2021	0	26	30	30	42.5	42.5	1	1	0	0
2022	0	29	30	30	42.5	42.5	1	1	0	0
2023	0	33	30	30	42.5	42.5	1	1	0	0
2024	0	36	30	30	42.5	42.5	1	1	0	0
2025	0	39	30	30	42.5	42.5	1	1	0	0
2026	0	43	30	30	42.5	42.5	1	1	0	0
2027	0	47	30	30	42.5	42.5	1	1	0	0
2028	0	51	30	30	42.5	42.5	1	1	0	0
2029	0	55	30	30	42.5	42.5	1	1	0	0
2030	0	59	30	30	42.5	42.5	1	1	0	0
2031	0	63	30	30	42.5	42.5	1	1	0	0
2032	0	67	30	30	42.5	42.5	1	1	0	0

	CO_2		Annual NO_x		Ozone NO_x		SO_2		Hg	
	0C	**MC**	**0C**	**MC**	**0C**	**MC**	**0C**	**MC**	**0C**	**MC**
2033	0	72	30	30	42.5	42.5	1	1	0	0
2034	0	76	30	30	42.5	42.5	1	1	0	0
2035	0	81	30	30	42.5	42.5	1	1	0	0
2036	0	86	30	30	42.5	42.5	1	1	0	0
2037	0	91	30	30	42.5	42.5	1	1	0	0
2038	0	96	30	30	42.5	42.5	1	1	0	0
2039	0	102	30	30	42.5	42.5	1	1	0	0
2040	0	107	30	30	42.5	42.5	1	1	0	0
2041	0	113	30	30	42.5	42.5	1	1	0	0
2042	0	119	30	30	42.5	42.5	1	1	0	0

CO_2 Prices: Zero CO_2 Price (0C); Mid CO_2 Price (MC)

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Question No. 14

Witness: John N. Voyles, Jr.

Q2.14. Please refer to the response to the AG's initial information request 177. Please provide the Life Cycle Cost Analysis for the Solar Facility.

A2.14. The response to AG 1-177 does not reference the solar facility. The life cycle cost analysis of the solar facility is provided in the response to Question No. 11.

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Question No. 15

Witness: David S. Sinclair

Q2.15. Please refer to the response to the AG's initial information request 187. Have the Companies conducted any evaluation of wholesale price impacts resulting from the Solar Facility over the life of the plant?

a. If so, please provide all analyses conducted.

b. If not, please explain why not.

A2.15. No.

a. Not applicable.

b. It is implausible that the Brown Solar Facility with only 10 MW of capacity could have an appreciable impact on wholesale power markets. Furthermore, since the marginal energy cost of the Brown Solar facility will be very low, all of the energy it produces will go to serve native load customers.

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Question No. 16

Witness: David S. Sinclair

Q2.16. Please refer to page 239 of the confidential attachment labeled KIUC 1-6 #1, which is an e-mail from David Sinclair to Brad Rives dated October 2, 2013. Please provide all analyses, including any updated analyses, relating to calculations of the capacity value for the proposed self-build solar project.

A2.16. With the proposed Green River NGCC unit, the next need for generating capacity in the 2013 LF load scenario is 2025 (assuming no retirements of existing units). In the 2013 LF load scenario, peak demand is projected to grow by approximately 65 MW per year between 2018 and 2025. If an additional resource is added to the Companies' generating portfolio with a capacity greater than 65 MW, the need for additional generating capacity would be deferred by one or more years. Over the twelve scenarios considered, the average value of deferring future generating capacity by one year is approximately $40 million. At one point in the analysis, the Companies contemplated crediting the Brown Solar facility with a portion of this deferral value. Ultimately, however, since the facility is less than 65 MW, the Companies chose not to do this. The attachment provides the derivation of the $40 million. As the email indicates, the revenue requirements for the Brown Solar facility have since been updated.

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Question No. 17

Witness: Paul W. Thompson

Q2.17. Please refer to the table on page 6 of the confidential attachment submitted in response to KIUC 1-6 # 2.

a. Please provide detailed explanations for all differences between column and row entries under each scenario/column.

b. Please explain the basis for the changes in the cost estimates under the different scenarios.

A2.17.

a. Column 1 is a high level cost estimate prepared by HDR, the Companies' owner's engineer, for a generic level site. Column 2 is an internally developed estimate by the Companies, which identifies areas for investigation where project cost reductions may be possible. Column 3 was a calculation of the amount of project cost necessary to justify a solar project as least cost. Column 4 is a Brown site specific HDR cost estimate. Column 5 is similar to column 2 in that it identifies areas for investigation where project cost reductions may be possible.

b. Significant changes to Column 2 from Column 1 are noted in the comment column. The direct construction cost was reduced by 10%. In March of 2013 PV panel prices were still falling so lower PV panel prices had the potential to lower overall direct construction cost by 10%. The cost of land was removed by assuming the use of land already owned by the Companies. Other owner's costs, which are managed by the Companies, were also reduced. Contingency was reduced from 20% to 10%.

Significant changes to Column 5 from Column 4 are also noted in the last column. Site preparation was removed from the direct construction cost. This allowed a better comparison to reported project costs in areas of the country with flat topography. Owner's costs were set equal to Column 2. Contingency was reduced to approximately 7.5 per cent of direct construction cost. This level of contingency would be very aggressive but would be necessary for the project to approach the calculated least cost value in Column 3.

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Question No. 18

Witness: Paul W. Thompson

Q2.18. Please refer to page 9 of the attachment submitted in response to KIUC's initial information request 2.

a. Please elaborate on and explain the statement that "it is likely that more of Kentucky's regulatory paradigm and LKE's traditional regulated utility business model would be accommodated in MISO versus PJM."
   i. Please provide any documents that support this statement

b. Please elaborate on and explain the statement that "membership in PJM would almost certainly pit LKE interests against those of the traditional PPL companies on matters of significance to all concerned."
   i. Please provide any documents that support this reference to conflicts between LKE and PPL interests in PJM.

A2.18.

a(i). The quoted statement follows the observation on page 9 that the RTO membership realignment which has taken place over the past few years has resulted in utilities located in jurisdictions with non-contestable load, like that of the Companies, remaining in or joining MISO, with transmission owners in retail access states concentrating in PJM. The statement immediately precedes a second observation that one result of utilities leaving MISO to join PJM is MISO member support for PJM-style capacity markets is not at the level it may have been in the past.
   i. There are no additional documents.

b(i). See the response to KIUC 2-11(f). There are no additional documents.

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Question No. 19

Witnesses: John N. Voyles, Jr.

Q2.19. Please refer to the response to Staff's initial information request 19.

a. Please explain why contingency costs increase from 10% to 15% between the September 2013 and December 2013 cost estimates. Please provide all supporting analyses and documents

b. Please explain the basis for the increase in site development costs between the September 2013 and December 2013 cost estimates. Please provide all supporting analyses and documents.

A2.19.

a. Assigning a particular level of contingency to an estimate is an exercise in professional judgment. Some of the factors that go into the exercise of that judgment are shown in the response to Question No. 6.

b. The estimated site development costs were increased after reviewing preliminary soil boring information obtained when the property was initially purchased to use for cover soil excavation. In combination with the topographic data and solar panel installation parameters, the soil boring information was used to develop a conceptual engineering estimate for site preparation. A preliminary wetlands survey was also completed. Avoiding impacts to wetlands changed the facility layout which increased site development costs.

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Question No. 20

Witness: David S. Sinclair

Q2.20. Please refer to the response to Staff's initial information requests 28 and 35.

a. Have the Companies compared solar facility output to hourly marginal energy prices?
    i. If yes, please provide all supporting analyses, including the data and assumptions used.
    ii. If not, please explain why not.

b. Have the Companies developed a solar heat rate calculation or equivalent analysis of performance against fleet operating performance?
    i. If yes, please provide all supporting analyses, including the data and assumptions used.
    ii. If not, please explain why not.

c. Have the Companies developed an Equivalent Load Carrying Capability analysis or similar assessment of capacity value for the solar facility?
    i. If yes, please provide all supporting analyses, including the data and assumptions used.
    ii. If not, please explain why not.

A2.20.

a. No.
    i. Not applicable.
    ii. This analysis would be irrelevant because (1) market electricity prices were not used in the final analysis and (2) the very low-cost energy produced by the Brown Solar facility will "sink" to native load and not to energy markets.

b. The Companies have not performed nor are they aware of the meaning of a solar heat rate calculation.

c. The Companies have not performed nor are they aware of the meaning of an Equivalent Load Carrying Capability analysis.

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Question No. 21

Witness: Paul W. Thompson

Q2.21. Please refer to the response to Staff's initial information request 6. Did the Companies allow for interactions between the team developing self-build proposals (Business Development and Project Engineering) and the Generation Planning Department?

a. If so, please explain the extent of those interactions and what steps were taken by the Companies to avoid conflicts of interest between the two groups.

A2.21. The Companies disagree with the suggestion that a potential conflict of interest might exist between the Generation Planning Department and the teams that developed the Companies' self-build options. All of the people who work in these departments are employees of the Companies and, as such, are charged with finding the lowest cost resource to reliably and economically meet customers' future energy needs. The teams that developed the self-build options were expected to and did present the lowest cost proposals they could in the same way bidders who responded to the Companies September 2012 Request for Proposals were expected to bid.

As described in response to PSC 1-6, the primary responsibilities of the Business Development and Project Engineering staff that report to Mr. Voyles include cross-functional major project development, large capital project engineering and large capital project construction and implementation. As such, staff from these teams was asked to provide capital and operating parameter data on certain equipment configurations so that the details of self-build options could be developed. Those teams developed those responses based upon their work with data sourced from their own databases and other external parties with the goal of providing the lowest-cost self-build technology options. After that occurred, the Generation Planning Department evaluated those options along with the bids received in response to the Companies' RFP to identify the lowest reasonable cost solution as discussed in Exhibit DSS-1.

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Question No. 22

Witness: Edwin R. Staton

Q2.22. Please refer to the response to Staff's initial information request 11. Please provide any documents and analysis supporting the Companies' claim that "the achievable energy efficiency potential will be limited after 2018 based on current energy efficiency technologies."

A2.22. The Companies commissioned and filed an independent study of the long-run technical, economic, and achievable potential for electric and natural gas energy efficiency associated with Case No. 2011-00375. This study can be located on the following Kentucky Public Service Commission web site link:
https://psc.ky.gov/Home/Library?type=Cases&folder=Post Case Referenced Correspondence/2011 cases/2011-00375

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Question No. 23

Witness: David S. Sinclair

Q2.23. Please refer to the response to Staff's initial information request 16.

a. Please describe how the Companies would treat the excess capacity in 2018, 2019, 2020, and any other years with a projected capacity surplus (as shown in the table).

b. Have the Companies evaluated the potential to offer this surplus capacity on the PJM or MISO capacity markets?
   i. If so, please provide supporting analyses and workpapers, including (not limited to) projected capacity price assumptions.
   ii. If not, do the Companies project not receiving capacity revenue from this surplus?

A2.23.

a. See response to PSC 2-1(a).

b. No. The Companies do not consider selling surplus capacity into these markets since Open Access Transmission Tariff (OATT) rules and FERC orders specify that resources being sold would have to be "undesignated" as a resource used to serve the Companies' native load customers. When a resource is undesignated the associated Network Integrated Transmission Service (NITS) from the resource to the native load is also released. Transmission Service may not be available if the Companies wish to use undesignated resources to serve native load at a later date. Transmission upgrades may be required at a later date with associated additional costs incurred.

   Concerning the need to un-designate resources see Section 1.28 of the Companies' OATT which states that a Network Resource is "Any designated generating resource owned, purchased or leased by a Network Customer under the Network Integration Transmission Service Tariff. Network Resources do not include any resource, or any portion thereof, that is

committed for sale to third parties or otherwise cannot be called upon to meet the Network Customer's Network Load on a non-interruptible basis, except for purposes of fulfilling obligations under a reserve sharing program."

Also see FERC Order 890-C, paragraph 17 which states "The Commission affirms the requirement that network resources used to supply sales of system power to off-system buyers must first be undesignated". In the same Order paragraph 22 states, "…the Commission clearly stated that firm third-party sales may be made only from an undesignated portion of network resources and that a network customer must submit undesignations for each portion of each resource supporting the third-party sale."

i. Not applicable.
ii. Not applicable.

CONFIDENTIAL INFORMATION REDACTED

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Question No. 24

Witness: David S. Sinclair

Q2.24. Please refer to the response to Staff's initial information request 22 and Exhibit DSS-1, page 21.

a. Please provide the date each RFP response was submitted.

b. Please provide the dates of contact between the Companies and bidder for each RFP response.

c. Have the Companies solicited updates to any of the RFP responses?
   i. If so, please provide those correspondences and the changes to the original bids.
   ii. If not, why not?

d. With regards to the Companies having "met with the RFP respondents that submitted the most economic short- and long-term alternatives," state whether the Companies had meetings and/or discussions with each of the following respondents after the initial bids were submitted:
   i. [redacted]
   ii.
   iii.
   iv.

e. For each of the above listed respondents that the Companies met with, please explain:
   i. When all such meetings and/or discussions occurred;
   ii. The substance of the meetings and/or discussions; and
   iii. The results of such meeting(s) and/or discussions and how the bids were updated.

f. For each of the above listed respondents that the Companies did not meet with, explain

A2.24.

a. See attached table for dates responses were received. Note that the Companies entertained and evaluated proposals for supply that were received after the November 2, 2012 RFP deadline. The information requested is confidential and proprietary, and is being provided under seal pursuant to a petition for confidential treatment.

b. There is no formal log of times of contact with each bidder by various parties of the evaluation team. The time of the response to each bidder after the initial evaluation was performed was logged and see attached in subpart (a). The time of the last response to each bidder on the short list is included in attachment to subpart (a).

c. Per paragraph 3.1 of the RFP the Companies request guaranteed proposals by 11/2/12. In the Companies answer to PSC 1-22 the Companies provided copies of all original proposals. The Companies conducted telephonic discussion with some of the bidders in order to gain clarity about the terms of their proposals. After modeling and evaluating all proposals, the Companies determined the bidders on the short list. The short listed bidders meet face to face with the Companies to discuss terms of the proposal(s). At the conclusion of each meeting the Companies invited the short listed bidder to update their proposal(s) if necessary and provide the best and final offer. Copies of the best and final offers are also contained in the Companies answer to PSC 1-22
    i. See answer above.
    ii. See answer above.

d. The Companies had discussions with each of the 4 respondents listed.

e. See answers below.
    i. Discussions were conducted in November and December of 2012.
    ii. Discussions were focused on gaining clarity about the terms being proposed.
    iii. Discussions were only focused on gaining clarity on the terms being proposed.

f. Meetings were only conducted with the short listed bidders.

	9/7/12 RFP: Responses due 11/2/12 at 4pm EDT				
			29 parties responded with various proposals. The proposals and several technical options were studied in various combinations from a lowest reasonable cost - revenue requirement perspective. Several parties were on the short list.	Date and time of the initial evaluation response	Date and time of the final response to short listed bidders noting that their proposal was not a lowest reasonable cost solution
	Company	**Date submitted**	**Intital evaluation response**	**Date/time**	**Date/time**
1	[redacted]	10/29/2012	[redacted]	12/20/12 @ 1:50pm	10/3/13 @10:45am
2		11/2/2012		12/21/12 @3:55pm	
3		11/2/2012		12/20/12 @2:37pm	10/3/13 @10:11am
3		11/2/2012		12/20/12 @2:37pm	
4		11/1/2012		12/20/12 @5:15pm	10/3/13 @11:07am
5		11/2/2012		12/21/12 @3:15pm	
6		11/2/2012		12/21/12 @3:30pm	
7		11/2/2012		12/21/12 @4:02pm	
8		11/2/2012		12/21/12 @3:46pm	
9		11/2/2012		12/21/12 @4:04pm	
10		11/2/2012		12/21/12 @3:58pm	
11		10/26/2012		12/20/12 @5:45pm	10/3/13 @10:42am
12		11/2/2012			
12		11/2/2012		12/20/12 @4:45pm	10/3/13 @10:50am
13		11/2/2012		12/21/12 @4:05pm	
14		11/2/2012		12/20/12 @ 6:05pm	10/3/13 @10:10am
15		11/2/2012		12/20/12 7:00am	
16		11/2/2012		12/21/12 @4:10pm	
17		11/2/2012		12/21/12 @4:12pm	
18		11/1/2012		12/21/12 @3:40pm	
19		11/2/2012		12/21/12 @4:13pm	
20		11/2/2012		12/21/12 @4:14pm	
21		11/2/2012		12/21/12 @4:15pm	
22		11/2/2012		12/21/12 @4:17pm	
23		11/2/2012		12/20/12 6:25pm	
23		11/2/2012		12/20/12 6:25pm	
24		11/2/2012		12/21/12 @4:19pm	
25		11/1/2012		12/21/12 @4:19pm	
26		11/2/2012		12/21/12 @4:24pm	
24		11/2/2012		12/21/12 @4:27pm	
28		11/30/2012		12/21/12 @4:29pm	
29		11/29/2012		12/21/12 @4:30pm	

LOUISVILLE GAS AND ELECTRIC COMPANY
KENTUCKY UTILITIES COMPANY

Response to Wallace McMullen and Sierra Club's
Supplemental Data Requests
Dated April 10, 2014

Case No. 2014-00002

Question No. 25

Witness: David S. Sinclair

Q2.25 Please refer to the response to Staff's initial information request 22, EDPR_LG&E RFP Response 11022012.

a. Did the Companies include the bidder in the group of RFP respondents the Companies met with in the beginning of the Phase 2 analysis?
   i. If not, why not?

b. Are any of the three projects included in this proposal not deliverable to Companies' system?
   i. If so, please provide any supporting analyses performed by or for the Companies.

c. Did the Companies' include the revenue from Renewable Energy Credits (REC's) generated by each project in any phase of economic analysis?
   i. If so, please provide supporting analyses and workpapers for REC revenue assumptions.
   ii. If not, why not?

d. Confirm or deny that the Companies would retain the REC's generated by each of the projects.

e. Have the Companies altered the costs provided in the proposal for the three projects in any phase of analysis?
   i. If so, please provide those costs along with supporting analyses and workpapers.

A2.25.

a. No. The Phase 2 analysis evaluated RFP proposals and self-build alternatives that – on a stand-alone basis – could meet the Companies' long-term capacity and energy needs. According to the proposal, approximately 30% of the capacity for wind alternatives C28E and C28F is expected to be available at the time of the Companies' summer peak demand. Alternative C28G is a more traditional wind proposal; the Companies assumed 10% of its capacity

would be available at the time of peak. Because the capacities of these options (at the time of the Companies' peak) range from approximately 10 MW to approximately 45 MW, these proposals were considered as enhancements to the Green River NGCC proposal in the Phase 3 analysis (see Section 4.5 of Exhibit DSS-1 at page 30).

b. No.

c. No. The value of RECs from wind energy generated in Oklahoma was not assumed to materially impact the results of the analysis.

d. The Companies would retain the RECs generated by each of the projects.

e. No.

LOUISVILLE GAS AND ELECTRIC COMPANY
KENTUCKY UTILITIES COMPANY

Response to Wallace McMullen and Sierra Club's
Supplemental Data Requests
Dated April 10, 2014

Case No. 2014-00002

Question No. 26

Witness: David S. Sinclair

Q2.26. Please refer to the response to Staff's initial information request 22, 20130110 2013 RFP Natural Gas Price Forecasts. Have the Companies conducted (or had conducted) a natural gas price forecast subsequent to the data in this file (1/10/13)?

a. If so, please provide this forecast with supporting analyses and workpapers.

b. If not, why not?

A2.26. Yes.

a. See attached. This forecast was developed in November 2013 for use in the Companies' 2014 Integrated Resource Plan filed on April 21, 2014. It is derived from the EIA's 2013 Annual Energy Outlook "Reference," "Low Oil and Gas Resource," and "High Oil and Gas Resource," cases for the Companies' Mid, High, and Low natural gas price forecasts, respectively. At each price forecast level, the natural gas price forecast has decreased in the more recent forecast which would result in improving the favorability of constructing the Green River NGCC unit.

b. Not applicable.

Natural Gas Prices
Nominal $/MMBtu

	11/22/2013 Market Forwards		Monthly Shape 2014	2015	2016	2017	2018	2015 - 2018 Avg.
2014 1	3.8110	1	0.988	1.030	1.033	1.039	1.040	**1.035**
2014 2	3.8110	2	0.988	1.028	1.030	1.035	1.036	**1.032**
2014 3	3.8010	3	0.985	1.017	1.017	1.020	1.021	**1.019**
2014 4	3.7770	4	0.979	0.972	0.969	0.965	0.963	**0.967**
2014 5	3.7950	5	0.984	0.974	0.972	0.969	0.966	**0.970**
2014 6	3.8250	6	0.992	0.980	0.978	0.974	0.972	**0.976**
2014 7	3.8600	7	1.001	0.986	0.985	0.982	0.979	**0.983**
2014 8	3.8730	8	1.004	0.989	0.987	0.985	0.983	**0.986**
2014 9	3.8620	9	1.001	0.988	0.987	0.985	0.984	**0.986**
2014 10	3.8760	10	1.005	0.992	0.992	0.992	0.992	**0.992**
2014 11	3.9380	11	1.021	1.007	1.008	1.007	1.012	**1.008**
2014 12	4.0570	12	1.052	1.035	1.041	1.046	1.053	**1.044**
2015 1	4.1290							
2015 2	4.1180	Annual	3.857	4.007	4.085	4.167	4.262	
2015 3	4.0750	*check*	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*
2015 4	3.8960							
2015 5	3.9040							
2015 6	3.9270							
2015 7	3.9520							
2015 8	3.9630							
2015 9	3.9600							
2015 10	3.9760							
2015 11	4.0350							
2015 12	4.1470							
2016 1	4.2200							
2016 2	4.2080							
2016 3	4.1550							
2016 4	3.9600							
2016 5	3.9720							
2016 6	3.9960							
2016 7	4.0230							
2016 8	4.0340							
2016 9	4.0320							
2016 10	4.0540							
2016 11	4.1170							
2016 12	4.2520							
2017 1	4.3270							
2017 2	4.3140							
2017 3	4.2500							
2017 4	4.0220							
2017 5	4.0360							
2017 6	4.0590							
2017 7	4.0910							
2017 8	4.1060							
2017 9	4.1060							
2017 10	4.1340							
2017 11	4.1970							
2017 12	4.3570							
2018 1	4.4320							
2018 2	4.4160							
2018 3	4.3510							
2018 4	4.1030							
2018 5	4.1170							
2018 6	4.1410							
2018 7	4.1730							
2018 8	4.1910							
2018 9	4.1930							
2018 10	4.2290							
2018 11	4.3110							
2018 12	4.4860							

MID Annual Forecast	
2014	3.28
2015	3.32
2016	3.86
2017	4.06
2018	4.42
2019	4.59
2020	4.77
2021	5.00
2022	5.35
2023	5.68
2024	5.93
2025	6.14
2026	6.44
2027	6.65
2028	6.94
2029	7.18
2030	7.45
2031	7.78
2032	8.06
2033	8.41
2034	8.75
2035	9.10
2036	9.47
2037	9.85
2038	10.24
2039	10.65
2040	11.07
2041	11.52
2042	11.98
2043	12.46

MID Monthly Forecast	
2014 1	3.39
2014 2	3.38
2014 3	3.34
2014 4	3.17
2014 5	3.18
2014 6	3.20
2014 7	3.22
2014 8	3.23
2014 9	3.23
2014 10	3.25
2014 11	3.30
2014 12	3.42
2015 1	3.44
2015 2	3.43
2015 3	3.39
2015 4	3.21
2015 5	3.22
2015 6	3.24
2015 7	3.27
2015 8	3.28
2015 9	3.28
2015 10	3.30
2015 11	3.35
2015 12	3.47
2016 1	4.00
2016 2	3.98
2016 3	3.93
2016 4	3.73
2016 5	3.74
2016 6	3.77
2016 7	3.79
2016 8	3.81
2016 9	3.81
2016 10	3.83
2016 11	3.89
2016 12	4.03
2017 1	4.21
2017 2	4.19
2017 3	4.14
2017 4	3.93
2017 5	3.94
2017 6	3.96
2017 7	3.99
2017 8	4.01
2017 9	4.01
2017 10	4.03
2017 11	4.10
2017 12	4.24
2018 1	4.58
2018 2	4.56
2018 3	4.50
2018 4	4.28
2018 5	4.29
2018 6	4.31
2018 7	4.34
2018 8	4.36
2018 9	4.36
2018 10	4.38
2018 11	4.46
2018 12	4.61
2019 1	4.75
2019 2	4.74

LOW Annual Forecast	
2014	2.63
2015	2.52
2016	2.84
2017	2.85
2018	2.97
2019	3.03
2020	3.12
2021	3.23
2022	3.33
2023	3.48
2024	3.61
2025	3.77
2026	3.85
2027	3.98
2028	4.11
2029	4.23
2030	4.50
2031	4.75
2032	4.96
2033	5.15
2034	5.35
2035	5.56
2036	5.79
2037	6.02
2038	6.26
2039	6.50
2040	6.76
2041	7.03
2042	7.31
2043	7.60

Low Monthly Forecast	
2014 1	2.73
2014 2	2.72
2014 3	2.68
2014 4	2.55
2014 5	2.55
2014 6	2.57
2014 7	2.59
2014 8	2.60
2014 9	2.60
2014 10	2.61
2014 11	2.65
2014 12	2.75
2015 1	2.61
2015 2	2.60
2015 3	2.56
2015 4	2.44
2015 5	2.44
2015 6	2.46
2015 7	2.47
2015 8	2.48
2015 9	2.48
2015 10	2.50
2015 11	2.54
2015 12	2.63
2016 1	2.94
2016 2	2.93
2016 3	2.89
2016 4	2.75
2016 5	2.76
2016 6	2.77
2016 7	2.79
2016 8	2.80
2016 9	2.80
2016 10	2.82
2016 11	2.87
2016 12	2.96
2017 1	2.95
2017 2	2.94
2017 3	2.90
2017 4	2.75
2017 5	2.76
2017 6	2.78
2017 7	2.80
2017 8	2.81
2017 9	2.81
2017 10	2.83
2017 11	2.87
2017 12	2.97
2018 1	3.08
2018 2	3.07
2018 3	3.03
2018 4	2.88
2018 5	2.89
2018 6	2.90
2018 7	2.92
2018 8	2.93
2018 9	2.93
2018 10	2.95
2018 11	3.00
2018 12	3.10
2019 1	3.14
2019 2	3.13

HIGH Annual Forecast	
2014	3.73
2015	3.85
2016	4.56
2017	4.96
2018	5.45
2019	5.86
2020	6.22
2021	6.65
2022	6.98
2023	7.28
2024	7.62
2025	8.00
2026	8.47
2027	8.81
2028	9.19
2029	9.54
2030	9.77
2031	10.12
2032	10.56
2033	11.09
2034	11.57
2035	12.07
2036	12.58
2037	13.12
2038	13.69
2039	14.28
2040	14.89
2041	15.53
2042	16.20
2043	16.89

HIGH Monthly Forecast	
2014 1	3.86
2014 2	3.85
2014 3	3.80
2014 4	3.61
2014 5	3.62
2014 6	3.64
2014 7	3.67
2014 8	3.68
2014 9	3.68
2014 10	3.70
2014 11	3.76
2014 12	3.89
2015 1	3.99
2015 2	3.98
2015 3	3.92
2015 4	3.73
2015 5	3.74
2015 6	3.76
2015 7	3.79
2015 8	3.80
2015 9	3.80
2015 10	3.82
2015 11	3.88
2015 12	4.02
2016 1	4.72
2016 2	4.71
2016 3	4.64
2016 4	4.41
2016 5	4.42
2016 6	4.45
2016 7	4.48
2016 8	4.50
2016 9	4.50
2016 10	4.52
2016 11	4.60
2016 12	4.76
2017 1	5.14
2017 2	5.12
2017 3	5.05
2017 4	4.80
2017 5	4.81
2017 6	4.84
2017 7	4.87
2017 8	4.89
2017 9	4.89
2017 10	4.92
2017 11	5.00
2017 12	5.17
2018 1	5.64
2018 2	5.62
2018 3	5.55
2018 4	5.27
2018 5	5.29
2018 6	5.32
2018 7	5.35
2018 8	5.37
2018 9	5.37
2018 10	5.40
2018 11	5.49
2018 12	5.68
2019 1	6.07
2019 2	6.05

Natural Gas Prices
Nominal $/MMBtu

11/22/2013	Monthly Shape											
Market Forwards	**2014**	**2015**	**2016**	**2017**	**2018**	**2015 - 2018 Avg.**	**MID Annual Forecast**	**MID Monthly Forecast**	**LOW Annual Forecast**	**Low Monthly Forecast**	**HIGH Annual Forecast**	**HIGH Monthly Forecast**
								2019 3 4.68		2019 3 3.09		2019 3 5.97
								2019 4 4.44		2019 4 2.94		2019 4 5.67
								2019 5 4.45		2019 5 2.94		2019 5 5.69
								2019 6 4.48		2019 6 2.96		2019 6 5.72
								2019 7 4.51		2019 7 2.98		2019 7 5.76
								2019 8 4.53		2019 8 2.99		2019 8 5.78
								2019 9 4.53		2019 9 2.99		2019 9 5.78
								2019 10 4.55		2019 10 3.01		2019 10 5.82
								2019 11 4.63		2019 11 3.06		2019 11 5.91
								2019 12 4.79		2019 12 3.17		2019 12 6.12
								2020 1 4.94		2020 1 3.23		2020 1 6.44
								2020 2 4.92		2020 2 3.22		2020 2 6.43
								2020 3 4.86		2020 3 3.18		2020 3 6.34
								2020 4 4.61		2020 4 3.02		2020 4 6.02
								2020 5 4.63		2020 5 3.03		2020 5 6.04
								2020 6 4.65		2020 6 3.05		2020 6 6.07
								2020 7 4.69		2020 7 3.07		2020 7 6.12
								2020 8 4.70		2020 8 3.08		2020 8 6.14
								2020 9 4.70		2020 9 3.08		2020 9 6.14
								2020 10 4.73		2020 10 3.10		2020 10 6.18
								2020 11 4.81		2020 11 3.15		2020 11 6.28
								2020 12 4.97		2020 12 3.26		2020 12 6.49
								2021 1 5.17		2021 1 3.34		2021 1 6.89
								2021 2 5.16		2021 2 3.33		2021 2 6.86
								2021 3 5.09		2021 3 3.29		2021 3 6.77
								2021 4 4.83		2021 4 3.12		2021 4 6.43
								2021 5 4.85		2021 5 3.13		2021 5 6.45
								2021 6 4.88		2021 6 3.15		2021 6 6.49
								2021 7 4.91		2021 7 3.18		2021 7 6.54
								2021 8 4.93		2021 8 3.19		2021 8 6.56
								2021 9 4.93		2021 9 3.19		2021 9 6.56
								2021 10 4.96		2021 10 3.21		2021 10 6.60
								2021 11 5.04		2021 11 3.26		2021 11 6.71
								2021 12 5.21		2021 12 3.37		2021 12 6.94
								2022 1 5.54		2022 1 3.45		2022 1 7.23
								2022 2 5.52		2022 2 3.44		2022 2 7.21
								2022 3 5.45		2022 3 3.39		2022 3 7.11
								2022 4 5.17		2022 4 3.22		2022 4 6.75
								2022 5 5.19		2022 5 3.23		2022 5 6.78
								2022 6 5.22		2022 6 3.25		2022 6 6.81
								2022 7 5.26		2022 7 3.27		2022 7 6.86
								2022 8 5.27		2022 8 3.28		2022 8 6.89
								2022 9 5.27		2022 9 3.28		2022 9 6.89
								2022 10 5.31		2022 10 3.30		2022 10 6.93
								2022 11 5.39		2022 11 3.36		2022 11 7.04
								2022 12 5.58		2022 12 3.48		2022 12 7.29
								2023 1 5.89		2023 1 3.61		2023 1 7.54
								2023 2 5.87		2023 2 3.60		2023 2 7.52
								2023 3 5.79		2023 3 3.55		2023 3 7.42
								2023 4 5.50		2023 4 3.37		2023 4 7.05
								2023 5 5.52		2023 5 3.38		2023 5 7.07
								2023 6 5.55		2023 6 3.40		2023 6 7.11
								2023 7 5.59		2023 7 3.42		2023 7 7.16
								2023 8 5.61		2023 8 3.44		2023 8 7.18
								2023 9 5.61		2023 9 3.44		2023 9 7.18
								2023 10 5.64		2023 10 3.46		2023 10 7.23
								2023 11 5.73		2023 11 3.51		2023 11 7.35
								2023 12 5.93		2023 12 3.64		2023 12 7.60
								2024 1 6.14		2024 1 3.74		2024 1 7.89
								2024 2 6.12		2024 2 3.73		2024 2 7.87
								2024 3 6.04		2024 3 3.68		2024 3 7.76
								2024 4 5.73		2024 4 3.50		2024 4 7.37

Natural Gas Prices
Nominal $/MMBtu

11/22/2013	Monthly Shape											
Market Forwards	**2014**	**2015**	**2016**	**2017**	**2018**	**2015 - 2018 Avg.**	**MID Annual Forecast**	**MID Monthly Forecast**	**LOW Annual Forecast**	**Low Monthly Forecast**	**HIGH Annual Forecast**	**HIGH Monthly Forecast**
								2024 5 5.75		2024 5 3.51		2024 5 7.39
								2024 6 5.78		2024 6 3.53		2024 6 7.44
								2024 7 5.83		2024 7 3.55		2024 7 7.49
								2024 8 5.84		2024 8 3.57		2024 8 7.52
								2024 9 5.84		2024 9 3.56		2024 9 7.52
								2024 10 5.88		2024 10 3.59		2024 10 7.56
								2024 11 5.98		2024 11 3.65		2024 11 7.68
								2024 12 6.18		2024 12 3.77		2024 12 7.95
								2025 1 6.36		2025 1 3.91		2025 1 8.28
								2025 2 6.34		2025 2 3.90		2025 2 8.26
								2025 3 6.25		2025 3 3.85		2025 3 8.15
								2025 4 5.94		2025 4 3.65		2025 4 7.74
								2025 5 5.96		2025 5 3.66		2025 5 7.76
								2025 6 5.99		2025 6 3.68		2025 6 7.80
								2025 7 6.03		2025 7 3.71		2025 7 7.86
								2025 8 6.05		2025 8 3.72		2025 8 7.89
								2025 9 6.05		2025 9 3.72		2025 9 7.89
								2025 10 6.09		2025 10 3.75		2025 10 7.94
								2025 11 6.19		2025 11 3.81		2025 11 8.06
								2025 12 6.40		2025 12 3.94		2025 12 8.34
								2026 1 6.67		2026 1 3.99		2026 1 8.77
								2026 2 6.65		2026 2 3.98		2026 2 8.75
								2026 3 6.56		2026 3 3.93		2026 3 8.63
								2026 4 6.23		2026 4 3.73		2026 4 8.20
								2026 5 6.25		2026 5 3.74		2026 5 8.22
								2026 6 6.29		2026 6 3.76		2026 6 8.27
								2026 7 6.33		2026 7 3.79		2026 7 8.33
								2026 8 6.35		2026 8 3.80		2026 8 8.36
								2026 9 6.35		2026 9 3.80		2026 9 8.35
								2026 10 6.39		2026 10 3.82		2026 10 8.41
								2026 11 6.50		2026 11 3.89		2026 11 8.54
								2026 12 6.72		2026 12 4.02		2026 12 8.84
								2027 1 6.89		2027 1 4.12		2027 1 9.12
								2027 2 6.87		2027 2 4.11		2027 2 9.09
								2027 3 6.78		2027 3 4.05		2027 3 8.97
								2027 4 6.44		2027 4 3.85		2027 4 8.52
								2027 5 6.46		2027 5 3.86		2027 5 8.54
								2027 6 6.50		2027 6 3.88		2027 6 8.59
								2027 7 6.54		2027 7 3.91		2027 7 8.66
								2027 8 6.56		2027 8 3.92		2027 8 8.69
								2027 9 6.56		2027 9 3.92		2027 9 8.68
								2027 10 6.60		2027 10 3.95		2027 10 8.74
								2027 11 6.71		2027 11 4.01		2027 11 8.88
								2027 12 6.94		2027 12 4.15		2027 12 9.19
								2028 1 7.19		2028 1 4.25		2028 1 9.52
								2028 2 7.17		2028 2 4.24		2028 2 9.49
								2028 3 7.07		2028 3 4.19		2028 3 9.36
								2028 4 6.72		2028 4 3.97		2028 4 8.89
								2028 5 6.74		2028 5 3.99		2028 5 8.92
								2028 6 6.78		2028 6 4.01		2028 6 8.97
								2028 7 6.83		2028 7 4.04		2028 7 9.04
								2028 8 6.85		2028 8 4.05		2028 8 9.07
								2028 9 6.85		2028 9 4.05		2028 9 9.06
								2028 10 6.89		2028 10 4.08		2028 10 9.12
								2028 11 7.00		2028 11 4.14		2028 11 9.27
								2028 12 7.25		2028 12 4.29		2028 12 9.59
								2029 1 7.43		2029 1 4.38		2029 1 9.88
								2029 2 7.41		2029 2 4.37		2029 2 9.85
								2029 3 7.31		2029 3 4.31		2029 3 9.72
								2029 4 6.95		2029 4 4.10		2029 4 9.23
								2029 5 6.97		2029 5 4.11		2029 5 9.26
								2029 6 7.01		2029 6 4.13		2029 6 9.32

Natural Gas Prices
Nominal $/MMBtu

11/22/2013	Monthly Shape											
Market Forwards	**2014**	**2015**	**2016**	**2017**	**2018**	**2015 - 2018 Avg.**	**MID Annual Forecast**	**MID Monthly Forecast**	**LOW Annual Forecast**	**Low Monthly Forecast**	**HIGH Annual Forecast**	**HIGH Monthly Forecast**
								2029 7 7.06		2029 7 4.16		2029 7 9.38
								2029 8 7.08		2029 8 4.18		2029 8 9.41
								2029 9 7.08		2029 9 4.18		2029 9 9.41
								2029 10 7.12		2029 10 4.20		2029 10 9.47
								2029 11 7.24		2029 11 4.27		2029 11 9.62
								2029 12 7.49		2029 12 4.42		2029 12 9.96
								2030 1 7.71		2030 1 4.66		2030 1 10.12
								2030 2 7.69		2030 2 4.65		2030 2 10.09
								2030 3 7.59		2030 3 4.59		2030 3 9.96
								2030 4 7.21		2030 4 4.35		2030 4 9.46
								2030 5 7.23		2030 5 4.37		2030 5 9.48
								2030 6 7.27		2030 6 4.39		2030 6 9.54
								2030 7 7.32		2030 7 4.43		2030 7 9.61
								2030 8 7.35		2030 8 4.44		2030 8 9.64
								2030 9 7.35		2030 9 4.44		2030 9 9.64
								2030 10 7.39		2030 10 4.47		2030 10 9.70
								2030 11 7.51		2030 11 4.54		2030 11 9.86
								2030 12 7.77		2030 12 4.70		2030 12 10.20
								2031 1 8.06		2031 1 4.92		2031 1 10.48
								2031 2 8.03		2031 2 4.91		2031 2 10.44
								2031 3 7.93		2031 3 4.84		2031 3 10.31
								2031 4 7.53		2031 4 4.60		2031 4 9.79
								2031 5 7.55		2031 5 4.61		2031 5 9.82
								2031 6 7.59		2031 6 4.64		2031 6 9.87
								2031 7 7.65		2031 7 4.67		2031 7 9.94
								2031 8 7.67		2031 8 4.69		2031 8 9.98
								2031 9 7.67		2031 9 4.69		2031 9 9.98
								2031 10 7.72		2031 10 4.72		2031 10 10.04
								2031 11 7.85		2031 11 4.79		2031 11 10.20
								2031 12 8.12		2031 12 4.96		2031 12 10.56
								2032 1 8.35		2032 1 5.13		2032 1 10.93
								2032 2 8.32		2032 2 5.12		2032 2 10.90
								2032 3 8.21		2032 3 5.05		2032 3 10.76
								2032 4 7.80		2032 4 4.80		2032 4 10.21
								2032 5 7.82		2032 5 4.81		2032 5 10.24
								2032 6 7.87		2032 6 4.84		2032 6 10.30
								2032 7 7.92		2032 7 4.87		2032 7 10.38
								2032 8 7.95		2032 8 4.89		2032 8 10.41
								2032 9 7.95		2032 9 4.89		2032 9 10.41
								2032 10 8.00		2032 10 4.92		2032 10 10.48
								2032 11 8.13		2032 11 5.00		2032 11 10.65
								2032 12 8.41		2032 12 5.17		2032 12 11.02
								2033 1 8.71		2033 1 5.33		2033 1 11.49
								2033 2 8.69		2033 2 5.31		2033 2 11.45
								2033 3 8.57		2033 3 5.24		2033 3 11.30
								2033 4 8.14		2033 4 4.98		2033 4 10.73
								2033 5 8.17		2033 5 4.99		2033 5 10.76
								2033 6 8.21		2033 6 5.02		2033 6 10.83
								2033 7 8.27		2033 7 5.06		2033 7 10.90
								2033 8 8.30		2033 8 5.08		2033 8 10.94
								2033 9 8.30		2033 9 5.08		2033 9 10.94
								2033 10 8.35		2033 10 5.11		2033 10 11.01
								2033 11 8.49		2033 11 5.19		2033 11 11.19
								2033 12 8.78		2033 12 5.37		2033 12 11.58
								2034 1 9.06		2034 1 5.54		2034 1 11.98
								2034 2 9.03		2034 2 5.52		2034 2 11.94
								2034 3 8.92		2034 3 5.45		2034 3 11.79
								2034 4 8.47		2034 4 5.18		2034 4 11.19
								2034 5 8.49		2034 5 5.19		2034 5 11.23
								2034 6 8.54		2034 6 5.22		2034 6 11.29
								2034 7 8.60		2034 7 5.26		2034 7 11.37
								2034 8 8.63		2034 8 5.28		2034 8 11.41

Natural Gas Prices
Nominal $/MMBtu

11/22/2013	Monthly Shape											
Market Forwards	**2014**	**2015**	**2016**	**2017**	**2018**	**2015 - 2018 Avg.**	**MID Annual Forecast**	**MID Monthly Forecast**		**LOW Annual Forecast**	**Low Monthly Forecast**		**HIGH Annual Forecast**	**HIGH Monthly Forecast**	
								2034 9	8.63		2034 9	5.28		2034 9	11.41
								2034 10	8.68		2034 10	5.31		2034 10	11.48
								2034 11	8.83		2034 11	5.40		2034 11	11.67
								2034 12	9.13		2034 12	5.58		2034 12	12.07
								2035 1	9.42		2035 1	5.76		2035 1	12.49
								2035 2	9.40		2035 2	5.74		2035 2	12.46
								2035 3	9.27		2035 3	5.67		2035 3	12.29
								2035 4	8.81		2035 4	5.38		2035 4	11.67
								2035 5	8.83		2035 5	5.40		2035 5	11.71
								2035 6	8.88		2035 6	5.43		2035 6	11.78
								2035 7	8.95		2035 7	5.47		2035 7	11.86
								2035 8	8.98		2035 8	5.49		2035 8	11.90
								2035 9	8.98		2035 9	5.49		2035 9	11.90
								2035 10	9.03		2035 10	5.52		2035 10	11.97
								2035 11	9.18		2035 11	5.61		2035 11	12.17
								2035 12	9.50		2035 12	5.81		2035 12	12.59
								2036 1	9.80		2036 1	5.99		2036 1	13.03
								2036 2	9.77		2036 2	5.97		2036 2	12.99
								2036 3	9.64		2036 3	5.89		2036 3	12.82
								2036 4	9.16		2036 4	5.60		2036 4	12.17
								2036 5	9.19		2036 5	5.61		2036 5	12.21
								2036 6	9.24		2036 6	5.65		2036 6	12.28
								2036 7	9.31		2036 7	5.69		2036 7	12.37
								2036 8	9.34		2036 8	5.71		2036 8	12.41
								2036 9	9.34		2036 9	5.71		2036 9	12.41
								2036 10	9.39		2036 10	5.74		2036 10	12.49
								2036 11	9.55		2036 11	5.83		2036 11	12.69
								2036 12	9.88		2036 12	6.04		2036 12	13.13
								2037 1	10.19		2037 1	6.23		2037 1	13.59
								2037 2	10.16		2037 2	6.21		2037 2	13.55
								2037 3	10.03		2037 3	6.13		2037 3	13.37
								2037 4	9.52		2037 4	5.82		2037 4	12.70
								2037 5	9.55		2037 5	5.84		2037 5	12.73
								2037 6	9.61		2037 6	5.87		2037 6	12.81
								2037 7	9.68		2037 7	5.91		2037 7	12.90
								2037 8	9.71		2037 8	5.93		2037 8	12.95
								2037 9	9.71		2037 9	5.93		2037 9	12.94
								2037 10	9.77		2037 10	5.97		2037 10	13.02
								2037 11	9.93		2037 11	6.07		2037 11	13.23
								2037 12	10.27		2037 12	6.28		2037 12	13.70
								2038 1	10.60		2038 1	6.48		2038 1	14.17
								2038 2	10.57		2038 2	6.46		2038 2	14.13
								2038 3	10.43		2038 3	6.37		2038 3	13.94
								2038 4	9.91		2038 4	6.05		2038 4	13.24
								2038 5	9.94		2038 5	6.07		2038 5	13.28
								2038 6	9.99		2038 6	6.11		2038 6	13.36
								2038 7	10.07		2038 7	6.15		2038 7	13.46
								2038 8	10.10		2038 8	6.17		2038 8	13.50
								2038 9	10.10		2038 9	6.17		2038 9	13.50
								2038 10	10.16		2038 10	6.21		2038 10	13.58
								2038 11	10.33		2038 11	6.31		2038 11	13.80
								2038 12	10.68		2038 12	6.53		2038 12	14.28
								2039 1	11.03		2039 1	6.74		2039 1	14.78
								2039 2	10.99		2039 2	6.71		2039 2	14.74
								2039 3	10.85		2039 3	6.63		2039 3	14.54
								2039 4	10.30		2039 4	6.29		2039 4	13.81
								2039 5	10.33		2039 5	6.31		2039 5	13.85
								2039 6	10.39		2039 6	6.35		2039 6	13.93
								2039 7	10.47		2039 7	6.39		2039 7	14.03
								2039 8	10.50		2039 8	6.42		2039 8	14.08
								2039 9	10.50		2039 9	6.41		2039 9	14.08
								2039 10	10.57		2039 10	6.45		2039 10	14.17

Natural Gas Prices
Nominal $/MMBtu

11/22/2013	Monthly Shape											
Market Forwards	**2014**	**2015**	**2016**	**2017**	**2018**	**2015 - 2018 Avg.**	**MID Annual Forecast**	**MID Monthly Forecast**		**LOW Annual Forecast**	**Low Monthly Forecast**		**HIGH Annual Forecast**	**HIGH Monthly Forecast**	
								2039 11	10.74		2039 11	6.56		2039 11	14.40
								2039 12	11.11		2039 12	6.79		2039 12	14.90
								2040 1	11.47		2040 1	7.00		2040 1	15.42
								2040 2	11.43		2040 2	6.98		2040 2	15.37
								2040 3	11.28		2040 3	6.89		2040 3	15.17
								2040 4	10.71		2040 4	6.54		2040 4	14.40
								2040 5	10.75		2040 5	6.56		2040 5	14.45
								2040 6	10.81		2040 6	6.60		2040 6	14.53
								2040 7	10.89		2040 7	6.65		2040 7	14.64
								2040 8	10.92		2040 8	6.67		2040 8	14.69
								2040 9	10.92		2040 9	6.67		2040 9	14.68
								2040 10	10.99		2040 10	6.71		2040 10	14.77
								2040 11	11.17		2040 11	6.82		2040 11	15.01
								2040 12	11.56		2040 12	7.06		2040 12	15.54
								2041 1	11.93		2041 1	7.28		2041 1	16.08
								2041 2	11.89		2041 2	7.26		2041 2	16.03
								2041 3	11.73		2041 3	7.16		2041 3	15.82
								2041 4	11.14		2041 4	6.80		2041 4	15.02
								2041 5	11.18		2041 5	6.82		2041 5	15.07
								2041 6	11.24		2041 6	6.86		2041 6	15.16
								2041 7	11.32		2041 7	6.91		2041 7	15.27
								2041 8	11.36		2041 8	6.94		2041 8	15.32
								2041 9	11.36		2041 9	6.93		2041 9	15.31
								2041 10	11.43		2041 10	6.98		2041 10	15.41
								2041 11	11.61		2041 11	7.09		2041 11	15.66
								2041 12	12.02		2041 12	7.34		2041 12	16.20
								2042 1	12.40		2042 1	7.57		2042 1	16.77
								2042 2	12.37		2042 2	7.55		2042 2	16.72
								2042 3	12.20		2042 3	7.45		2042 3	16.50
								2042 4	11.59		2042 4	7.07		2042 4	15.67
								2042 5	11.62		2042 5	7.10		2042 5	15.72
								2042 6	11.69		2042 6	7.14		2042 6	15.81
								2042 7	11.78		2042 7	7.19		2042 7	15.92
								2042 8	11.82		2042 8	7.21		2042 8	15.97
								2042 9	11.81		2042 9	7.21		2042 9	15.97
								2042 10	11.89		2042 10	7.26		2042 10	16.07
								2042 11	12.08		2042 11	7.37		2042 11	16.33
								2042 12	12.50		2042 12	7.63		2042 12	16.90
								2043 1	12.90		2043 1	7.87		2043 1	17.49
								2043 2	12.86		2043 2	7.85		2043 2	17.44
								2043 3	12.69		2043 3	7.75		2043 3	17.21
								2043 4	12.05		2043 4	7.36		2043 4	16.34
								2043 5	12.09		2043 5	7.38		2043 5	16.39
								2043 6	12.16		2043 6	7.42		2043 6	16.49
								2043 7	12.25		2043 7	7.47		2043 7	16.61
								2043 8	12.29		2043 8	7.50		2043 8	16.66
								2043 9	12.29		2043 9	7.50		2043 9	16.66
								2043 10	12.36		2043 10	7.54		2043 10	16.76
								2043 11	12.56		2043 11	7.67		2043 11	17.03
								2043 12	13.00		2043 12	7.93		2043 12	17.63

		2023-2033 CAGR: 4.0%	2023-2033 CAGR: 4.3%			2023-2033 CAGR: 4.0%
	Nominal $/MMBtu Natural Gas - Henry Hub	**Nominal $/MMBtu Natural Gas - Henry Hub**	**Nominal $/MMBtu Natural Gas - Henry Hub**	**Nominal $/MMBtu Natural Gas - Henry Hub**	**Nominal $/MMBtu Natural Gas - Henry Hub**	**Nominal $/MMBtu Natural Gas - Henry Hub**
	EIA-AEO 2013 Reference	**MID Gas**	**EIA-AEO 2013 High Gas**	**HIGH Gas**	**EIA-AEO 2013 Low Gas**	**LOW Gas**
2014	3.28	3.28	3.73	3.73	2.63	2.63
2015	3.32	3.32	3.85	3.85	2.52	2.52
2016	3.86	3.86	4.56	4.56	2.84	2.84
2017	4.06	4.06	4.96	4.96	2.85	2.85
2018	4.42	4.42	5.45	5.45	2.97	2.97
2019	4.59	4.59	5.86	5.86	3.03	3.03
2020	4.77	4.77	6.22	6.22	3.12	3.12
2021	5.00	5.00	6.65	6.65	3.23	3.23
2022	5.35	5.35	6.98	6.98	3.33	3.33
2023	5.68	5.68	7.28	7.28	3.48	3.48
2024	5.93	5.93	7.62	7.62	3.61	3.61
2025	6.14	6.14	8.00	8.00	3.77	3.77
2026	6.44	6.44	8.47	8.47	3.85	3.85
2027	6.65	6.65	8.81	8.81	3.98	3.98
2028	6.94	6.94	9.19	9.19	4.11	4.11
2029	7.18	7.18	9.54	9.54	4.23	4.23
2030	7.45	7.45	9.77	9.77	4.50	4.50
2031	7.78	7.78	10.12	10.12	4.75	4.75
2032	8.06	8.06	10.56	10.56	4.96	4.96
2033	8.41	8.41	11.09	11.09	5.15	5.15
2034	8.96	8.75	11.90	11.57	5.40	5.35
2035	9.55	9.10	12.66	12.07	5.72	5.56
2036	10.30	9.47	13.39	12.58	6.03	5.79
2037	11.02	9.85	14.22	13.12	6.34	6.02
2038	11.83	10.24	15.09	13.69	6.64	6.26
2039	12.31	10.65	15.75	14.28	6.92	6.50
2040	12.92	11.07	17.22	14.89	7.17	6.76
2041		11.52		15.53		7.03
2042		11.98		16.20		7.31
2043		12.46		16.89		7.60

LOUISVILLE GAS AND ELECTRIC COMPANY
KENTUCKY UTILITIES COMPANY

Response to Wallace McMullen and Sierra Club's
Supplemental Data Requests
Dated April 10, 2014

Case No. 2014-00002

Question No. 27

Witnesses: David S. Sinclair/John N. Voyles, Jr.

Q2.27. Please refer to the response to Staff's initial information request 34a, page 1 and Exhibit DSS-1, page 19.

a. Please provide the annual generation for each unit in the Companies' fleet in each scenario (in electronic, machine-readable format).

b. Please explain why the new NGCC operates at greater than 90% capacity factor for every year after 2019 in eight of the twelve scenarios, including supporting analyses and workpapers.

c. Are the Companies aware of any NGCC that has run at greater than 90% capacity factor for more than five consecutive years?
    i. If so, please list such plants and provide supporting analyses and workpapers.

d. Please explain why the capacity factors do not comport with the ranges used in the Phase 1 Screening Analysis.

e. Please provide supporting analyses and workpapers used in developing the Phase 1 Screening Analysis Operating Scenarios.

A2.27.

a. See the response to PSC 1-22. The path and filename of the relevant file is 02_Analysis\Phase3\Iteration3\PROSYM\P3I3_UpdatedEnergy\ out_unityr.sas7bdat.

b. In the six Mid CO_2 scenarios and the two Zero CO_2 scenarios with Low gas prices, the new NGCC is among the first units in the Companies' generation portfolio to be dispatched. Supporting analyses and workpapers were provided in the response to PSC 1-22.

c. The Companies do not monitor the performance of individual units other than their own. However, typical planned and forced outage rates for modern NGCC units would allow them to operate at a 90 percent capacity factor should market conditions require.

d. The range of capacity factors utilized in the Phase 1 screening analysis was developed prior to the Phase 2 analysis.

e. The operating scenarios for the Phase 1 screening analysis were developed to evaluate each technology group over a range of scenarios. In the case of NGCC units, the distribution of fixed and variable costs can vary based on the proposal. Proposals with higher fixed costs, for example, may evaluate more favorably at higher capacity factors. The operating scenarios were developed to be different enough to test this possibility. No analyses or workpapers were used to develop the operating scenarios.

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Annual Capacity Factor per Unit by Scenario (%)

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
High Gas-2013 LF Load-Zero Carbon																		
2018 NGCC	0	0	0	0	0	56	53	44	39	32	31	27	20	16	15	18	16	17
Brown 1	28	29	70	32	36	24	30	30	30	40	46	39	44	42	38	39	46	43
Brown 10	1	1	1	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0
Brown 11	1	1	1	1	1	0	1	1	1	1	1	1	0	0	0	1	0	1
Brown 2	39	47	114	52	47	42	46	47	51	61	53	52	62	59	60	59	63	60
Brown 3	34	36	31	29	30	25	23	27	34	35	43	43	47	43	52	54	53	54
Brown 5	1	1	1	1	1	0	1	0	1	1	1	1	0	0	0	1	1	1
Brown 6	4	5	5	4	4	2	2	2	2	3	3	2	1	1	1	3	3	3
Brown 7	6	8	8	6	6	3	3	3	4	4	5	4	3	4	4	5	4	5
Brown 8	1	2	1	1	1	1	1	1	1	1	1	1	0	0	0	1	1	1
Brown 9	1	1	1	1	1	0	0	0	1	0	1	1	0	0	0	0	0	0
Cane Run 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cane Run 4	54	60	26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cane Run 5	52	69	26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cane Run 6	41	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cane Run 7	0	0	75	74	76	79	62	64	49	44	33	42	37	39	34	32	38	41
[redacted]	0	0	0	87	86	0	0	0	0	0	0	0	0	0	0	0	0	0
Dix Dam	29	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28
DSM	0	0	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Ghent 1	73	75	65	70	68	65	69	68	68	65	73	73	74	72	74	75	65	76
Ghent 2	81	84	77	76	74	66	63	76	77	80	78	81	78	71	80	79	80	79
Ghent 3	75	62	72	70	61	57	62	66	70	74	73	75	65	72	73	75	76	75
Ghent 4	75	66	68	66	52	58	61	60	58	70	71	71	71	70	68	63	74	72
Green River 3	39	44	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Green River 4	70	77	23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haefling	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mill Creek 1	63	75	67	70	75	77	73	80	73	85	79	85	79	85	78	85	74	85
Mill Creek 2	78	75	70	68	83	76	83	72	85	82	86	81	86	82	86	75	86	81
Mill Creek 3	63	76	67	51	55	63	57	65	66	77	70	78	73	78	67	78	74	79
Mill Creek 4	69	54	54	52	70	67	73	73	80	70	82	78	82	78	81	78	83	71
New CC1x1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
New CC2x1	0	0	0	0	0	0	0	0	0	0	0	0	51	49	46	49	47	49

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Annual Capacity Factor per Unit by Scenario (%)

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
New SCCT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ohio Falls	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Paddys Run 11	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
Paddys Run 12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Paddys Run 13	10	12	11	8	9	6	7	6	7	7	8	7	4	4	4	5	4	5
Self-build Solar	0	0	0	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Trimble Co 05	16	20	21	13	13	8	10	7	8	7	10	8	5	3	3	4	4	4
Trimble Co 06	14	18	19	10	13	7	9	6	6	7	9	7	4	3	3	3	3	3
Trimble Co 07	12	16	16	11	11	6	8	6	6	6	8	6	3	3	2	3	3	3
Trimble Co 08	3	5	5	4	4	2	2	2	2	2	3	2	1	1	1	1	1	1
Trimble Co 09	9	13	12	9	9	5	6	5	5	5	6	5	3	2	2	2	2	2
Trimble Co 10	2	4	4	3	3	1	2	1	1	1	2	2	1	1	1	1	1	1
Trimble County 1	81	89	84	90	72	83	80	88	82	90	83	89	75	89	82	90	82	89
Trimble County 2	83	77	90	82	89	73	88	81	89	82	89	82	90	76	90	82	90	81
Zorn 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
High Gas-Low Load-Zero Carbon																		
2018 NGCC	0	0	0	0	0	45	42	33	29	23	22	19	21	21	19	23	19	21
Brown 1	23	25	59	24	31	19	24	26	26	34	37	36	40	40	42	37	44	38
Brown 10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Brown 11	1	1	1	0	1	0	0	0	0	0	0	0	0	0	0	1	0	1
Brown 2	35	42	106	50	42	38	41	45	45	52	50	46	57	56	54	55	56	58
Brown 3	29	33	28	24	27	22	20	23	32	33	36	38	41	40	43	47	46	44
Brown 5	0	0	1	0	1	0	0	0	0	0	1	1	1	1	0	1	1	1
Brown 6	2	3	3	2	2	1	1	1	1	1	1	1	1	1	2	5	3	4
Brown 7	4	5	5	4	4	2	2	2	2	2	2	2	3	5	5	7	5	6
Brown 8	1	1	1	1	1	0	0	0	0	0	0	0	1	0	1	1	1	1
Brown 9	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cane Run 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cane Run 4	51	56	25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cane Run 5	48	65	26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cane Run 6	39	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cane Run 7	0	0	69	66	68	75	56	56	43	37	26	34	34	39	34	31	35	39
[redacted]	0	0	0	87	83	0	0	0	0	0	0	0	0	0	0	0	0	0
Dix Dam	29	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28

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Annual Capacity Factor per Unit by Scenario (%)

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
DSM	0	0	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Ghent 1	72	71	64	69	68	60	69	67	66	64	71	69	72	72	72	72	65	74
Ghent 2	78	83	76	75	72	64	61	73	75	78	75	78	77	70	78	79	79	77
Ghent 3	73	60	70	68	57	55	60	64	67	70	71	71	63	72	73	72	74	71
Ghent 4	72	64	64	65	47	55	58	58	56	66	68	68	67	69	68	63	72	71
Green River 3	35	36	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Green River 4	69	74	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haefling	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mill Creek 1	62	74	65	67	74	75	74	80	72	83	77	83	78	84	78	84	72	84
Mill Creek 2	77	73	68	65	83	75	81	70	84	80	85	80	85	81	85	74	86	81
Mill Creek 3	61	74	66	49	53	63	56	64	65	75	68	75	71	77	65	76	72	77
Mill Creek 4	67	52	51	50	69	66	73	70	78	69	80	76	82	77	81	77	81	71
New CC1x1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
New CC2x1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
New SCCT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ohio Falls	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Paddys Run 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Paddys Run 12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Paddys Run 13	8	11	9	6	8	4	6	4	5	5	5	5	5	5	5	7	5	6
Self-build Solar	0	0	0	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Trimble Co 05	12	17	16	10	9	5	7	4	5	4	6	4	6	5	5	6	5	5
Trimble Co 06	11	15	14	8	9	5	6	4	3	4	5	4	4	4	4	5	4	4
Trimble Co 07	9	13	12	9	8	5	6	3	4	3	5	3	3	4	3	5	4	4
Trimble Co 08	2	3	3	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1
Trimble Co 09	7	10	9	6	7	3	4	3	3	2	3	2	3	3	3	3	3	3
Trimble Co 10	2	2	3	2	2	1	1	1	1	0	1	1	1	1	1	1	1	1
Trimble County 1	80	88	83	90	71	85	79	88	82	89	82	89	74	88	81	90	82	90
Trimble County 2	83	76	89	82	89	74	88	82	88	82	89	81	90	75	90	82	89	82
Zorn 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Low Gas-2013 LF Load-Zero Carbon																		
2018 NGCC	0	0	0	0	0	95	95	95	95	95	95	95	94	93	93	94	94	94
Brown 1	21	17	45	15	13	13	15	13	12	13	17	15	13	14	14	13	11	14
Brown 10	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	0	0
Brown 11	1	1	2	1	2	1	2	1	1	1	1	1	1	1	1	1	1	1

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Annual Capacity Factor per Unit by Scenario (%)

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Brown 2	31	41	97	37	30	25	25	26	27	32	31	26	24	22	22	28	24	26
Brown 3	21	21	19	17	18	10	11	13	12	9	12	16	12	11	13	13	16	14
Brown 5	1	2	2	2	4	3	3	2	2	2	3	2	1	1	1	1	2	1
Brown 6	7	10	10	11	20	13	18	11	12	12	11	9	6	5	5	5	5	5
Brown 7	9	14	13	15	26	18	18	15	18	16	14	13	9	7	7	7	7	7
Brown 8	1	2	2	2	3	2	3	2	2	1	2	1	1	1	1	1	1	1
Brown 9	1	1	1	1	2	1	2	1	1	1	1	1	1	1	0	1	1	1
Cane Run 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cane Run 4	50	59	25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cane Run 5	51	67	26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cane Run 6	38	32	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cane Run 7	0	0	95	95	91	95	80	95	91	95	76	95	91	95	90	79	90	94
[redacted]	0	0	0	86	85	0	0	0	0	0	0	0	0	0	0	0	0	0
Dix Dam	29	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28
DSM	0	0	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Ghent 1	72	73	61	66	65	59	62	59	61	56	64	62	59	54	56	57	50	59
Ghent 2	82	84	75	75	71	65	59	67	65	68	69	68	60	52	58	59	60	58
Ghent 3	75	60	68	64	48	28	30	30	31	42	47	47	36	32	31	37	37	38
Ghent 4	75	67	62	60	19	9	13	10	13	19	23	18	18	13	16	18	19	21
Green River 3	32	36	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Green River 4	70	76	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haefling	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mill Creek 1	64	74	64	65	71	74	71	76	66	76	73	76	67	69	64	70	61	70
Mill Creek 2	79	74	68	64	79	73	78	66	79	74	81	74	75	69	72	64	72	70
Mill Creek 3	64	76	65	20	43	41	36	47	45	54	51	56	48	46	38	49	45	47
Mill Creek 4	69	54	48	41	62	59	64	60	66	58	68	64	62	55	58	58	61	51
New CC1x1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
New CC2x1	0	0	0	0	0	0	0	0	0	0	0	0	94	94	94	94	94	95
New SCCT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ohio Falls	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Paddys Run 11	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
Paddys Run 12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Paddys Run 13	13	17	18	27	35	24	32	29	30	26	22	21	16	14	12	12	12	11
Self-build Solar	0	0	0	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Trimble Co 05	33	42	42	49	54	55	58	48	49	33	38	35	29	25	23	24	24	24

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Annual Capacity Factor per Unit by Scenario (%)

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Trimble Co 06	26	34	35	34	58	46	51	41	33	35	31	27	22	19	17	18	18	18
Trimble Co 07	19	27	27	34	48	31	42	32	33	27	24	20	16	14	13	13	13	14
Trimble Co 08	5	7	8	8	7	9	8	6	7	6	7	5	4	4	3	4	4	4
Trimble Co 09	14	20	20	27	39	24	32	24	25	21	18	16	11	10	9	10	9	11
Trimble Co 10	3	5	6	6	7	5	5	4	4	4	4	4	3	3	2	2	3	2
Trimble County 1	81	89	83	89	70	80	72	80	74	81	74	81	64	71	65	74	66	71
Trimble County 2	83	76	89	82	89	73	87	81	89	80	87	80	86	71	85	77	84	77
Zorn 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Low Gas-Low Load-Zero Carbon																		
2018 NGCC	0	0	0	0	0	95	94	95	95	95	95	95	95	95	94	95	95	95
Brown 1	15	9	36	12	12	12	15	13	11	13	14	13	12	15	15	12	14	13
Brown 10	0	0	1	1	1	0	1	0	1	0	0	0	1	1	0	1	0	0
Brown 11	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1
Brown 2	30	34	92	34	24	25	21	26	18	26	21	23	29	23	24	30	31	30
Brown 3	14	19	13	13	16	8	9	7	15	8	13	12	9	10	10	15	6	11
Brown 5	1	1	1	2	3	2	2	1	1	1	1	1	1	1	1	1	1	1
Brown 6	5	7	7	8	15	9	12	8	7	7	6	5	7	6	6	6	6	5
Brown 7	7	9	10	12	19	14	13	11	11	10	9	8	9	8	8	9	8	8
Brown 8	1	1	1	1	2	1	2	1	1	1	1	1	1	1	1	1	1	1
Brown 9	1	1	1	1	1	1	1	1	1	0	1	0	1	1	1	1	1	1
Cane Run 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cane Run 4	48	58	23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cane Run 5	50	64	25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cane Run 6	36	27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cane Run 7	0	0	95	95	91	95	80	95	91	95	76	95	91	95	91	80	91	95
[redacted]	0	0	0	83	81	0	0	0	0	0	0	0	0	0	0	0	0	0
Dix Dam	29	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28
DSM	0	0	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Ghent 1	71	71	59	64	61	56	56	54	57	53	60	58	60	61	61	61	54	61
Ghent 2	81	83	74	74	69	61	56	62	62	63	64	63	63	59	64	66	66	63
Ghent 3	71	57	65	62	38	20	20	20	21	30	38	37	35	41	39	43	43	44
Ghent 4	72	63	59	56	10	5	8	7	7	10	13	11	18	18	20	21	25	27
Green River 3	23	23	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Green River 4	69	71	23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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Annual Capacity Factor per Unit by Scenario (%)

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Haefling	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mill Creek 1	62	73	62	64	72	73	70	73	64	74	71	73	69	74	69	74	65	74
Mill Creek 2	77	74	66	61	80	74	78	65	77	72	78	72	78	73	77	68	75	73
Mill Creek 3	63	74	63	12	44	36	34	42	42	50	49	49	48	53	46	53	51	54
Mill Creek 4	67	53	46	37	63	56	62	60	62	55	65	61	63	60	64	61	65	55
New CC1x1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
New CC2x1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
New SCCT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ohio Falls	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Paddys Run 11	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
Paddys Run 12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Paddys Run 13	12	15	16	25	34	23	31	27	27	23	19	18	17	18	14	14	13	13
Self-build Solar	0	0	0	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Trimble Co 05	30	40	37	45	51	51	53	44	42	30	32	30	31	30	27	30	28	28
Trimble Co 06	24	33	30	30	54	42	47	35	29	32	25	23	24	24	21	24	22	21
Trimble Co 07	18	25	22	30	45	28	38	27	29	24	19	17	18	18	16	18	16	15
Trimble Co 08	4	6	6	6	8	7	8	5	4	5	4	3	4	4	4	5	4	4
Trimble Co 09	13	19	17	23	36	22	30	20	21	18	14	12	14	13	11	13	12	11
Trimble Co 10	3	4	4	5	7	4	4	3	3	2	3	3	3	2	3	3	3	3
Trimble County 1	80	88	82	89	68	76	70	78	70	78	71	77	63	76	70	80	72	76
Trimble County 2	83	76	89	82	88	73	88	81	88	80	87	79	87	74	88	81	88	79
Zorn 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mid Gas-2013 LF Load-Mid Carbon																		
2018 NGCC	0	0	0	0	0	85	83	95	95	94	95	95	94	93	93	94	94	94
Brown 1	26	29	63	27	31	21	25	25	23	24	29	26	24	19	21	22	22	23
Brown 10	1	1	1	0	1	0	0	0	1	0	1	1	0	0	0	0	0	0
Brown 11	1	1	1	1	1	0	1	1	1	1	1	1	0	1	0	1	1	1
Brown 2	38	47	112	49	44	34	37	53	53	58	58	52	54	50	52	53	58	52
Brown 3	33	34	32	27	29	26	24	14	16	18	21	20	16	12	15	14	15	19
Brown 5	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1
Brown 6	4	5	5	4	4	2	3	4	4	5	6	5	4	3	3	4	4	4
Brown 7	6	8	8	6	6	3	3	6	7	7	8	8	6	6	8	11	10	13
Brown 8	1	2	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1
Brown 9	1	1	1	1	1	0	0	1	1	1	1	1	0	1	0	1	1	1

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Annual Capacity Factor per Unit by Scenario (%)

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Cane Run 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cane Run 4	53	60	26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cane Run 5	53	67	27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cane Run 6	41	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cane Run 7	0	0	89	92	89	93	77	95	91	95	76	95	90	94	89	79	90	94
[redacted]	0	0	0	86	86	0	0	0	0	0	0	0	0	0	0	0	0	0
Dix Dam	29	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28
DSM	0	0	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Ghent 1	73	74	63	67	68	60	66	61	62	56	64	62	60	56	57	58	51	58
Ghent 2	81	84	75	74	72	65	61	62	61	63	64	64	55	48	52	55	56	54
Ghent 3	74	62	70	67	57	45	49	43	46	48	48	49	38	34	33	39	39	37
Ghent 4	75	66	65	64	47	34	39	28	31	37	39	37	28	22	19	22	23	25
Green River 3	37	43	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Green River 4	70	77	23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haefling	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mill Creek 1	63	75	65	68	74	75	73	66	60	67	64	68	59	61	58	63	54	62
Mill Creek 2	78	75	69	65	82	74	81	61	72	68	73	69	69	64	66	60	66	64
Mill Creek 3	63	76	66	43	53	55	50	56	52	56	53	56	51	50	44	54	49	53
Mill Creek 4	69	55	53	50	69	62	67	58	62	53	63	58	57	51	55	54	56	49
New CC1x1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
New CC2x1	0	0	0	0	0	0	0	0	0	0	0	0	93	94	94	94	94	95
New SCCT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ohio Falls	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Paddys Run 11	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
Paddys Run 12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Paddys Run 13	10	12	11	9	9	6	8	9	10	9	10	9	7	8	7	9	8	8
Self-build Solar	0	0	0	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Trimble Co 05	17	22	23	17	16	11	13	21	22	18	24	23	19	18	18	18	17	18
Trimble Co 06	15	20	20	12	15	9	11	16	13	18	19	17	13	13	13	13	13	12
Trimble Co 07	13	17	17	12	12	8	10	11	12	13	15	12	9	10	8	9	8	9
Trimble Co 08	3	5	5	4	4	2	3	3	3	3	4	4	2	2	2	3	3	3
Trimble Co 09	9	13	13	10	10	6	8	8	10	9	11	8	7	6	5	6	6	6
Trimble Co 10	3	4	4	3	3	1	2	2	2	2	3	3	2	2	1	2	2	2
Trimble County 1	81	89	84	89	71	79	73	72	66	72	67	72	56	62	58	66	59	64
Trimble County 2	83	77	90	82	88	74	89	80	87	80	88	80	85	70	83	77	83	77

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Annual Capacity Factor per Unit by Scenario (%)

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Zorn 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mid Gas-2013 LF Load-Zero Carbon																		
2018 NGCC	0	0	0	0	0	85	83	74	70	57	55	54	56	57	49	46	29	31
Brown 1	26	29	63	27	31	21	25	20	22	31	36	30	37	36	38	32	28	29
Brown 10	1	1	1	0	1	0	0	0	0	0	1	1	0	1	0	0	0	0
Brown 11	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	0	0	0
Brown 2	38	47	112	49	44	34	37	41	41	51	49	42	52	53	58	55	52	53
Brown 3	33	34	32	27	29	26	24	23	25	25	28	27	30	29	34	30	30	33
Brown 5	1	1	1	1	1	0	1	0	1	1	1	1	1	1	1	0	1	0
Brown 6	4	5	5	4	4	2	3	2	2	3	3	3	2	3	2	1	1	1
Brown 7	6	8	8	6	6	3	3	3	4	4	5	4	4	4	4	3	2	4
Brown 8	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0
Brown 9	1	1	1	1	1	0	0	0	1	0	1	1	0	1	0	0	0	0
Cane Run 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cane Run 4	53	60	26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cane Run 5	53	67	27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cane Run 6	41	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cane Run 7	0	0	89	92	89	93	77	90	85	81	59	75	67	72	61	53	55	56
[redacted]	0	0	0	86	86	0	0	0	0	0	0	0	0	0	0	0	0	0
Dix Dam	29	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28
DSM	0	0	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Ghent 1	73	74	63	67	68	60	66	63	64	61	69	67	70	70	72	67	59	69
Ghent 2	81	84	75	74	72	65	61	69	70	77	78	80	79	72	82	80	81	80
Ghent 3	74	62	70	67	57	45	49	52	56	61	62	65	58	66	69	66	67	66
Ghent 4	75	66	65	64	47	34	39	38	39	51	55	54	56	58	61	54	60	59
Green River 3	37	43	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Green River 4	70	77	23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haefling	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mill Creek 1	63	75	65	68	74	75	73	78	69	82	79	83	79	84	80	83	73	85
Mill Creek 2	78	75	69	65	82	74	81	69	83	80	86	81	87	82	87	75	86	82
Mill Creek 3	63	76	66	43	53	55	50	56	54	60	57	62	60	65	58	66	62	68
Mill Creek 4	69	55	53	50	69	62	67	64	70	64	77	71	77	73	79	74	79	68
New CC1x1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
New CC2x1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	70	68	66

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Annual Capacity Factor per Unit by Scenario (%)

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
New SCCT	0	0	0	0	0	0	0	0	0	0	0	0	11	7	7	5	3	4
Ohio Falls	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Paddys Run 11	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
Paddys Run 12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Paddys Run 13	10	12	11	9	9	6	8	7	7	7	8	7	8	8	8	7	5	5
Self-build Solar	0	0	0	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Trimble Co 05	17	22	23	17	16	11	13	9	10	8	11	9	11	10	10	8	5	4
Trimble Co 06	15	20	20	12	15	9	11	8	7	9	10	8	10	9	8	7	4	4
Trimble Co 07	13	17	17	12	12	8	10	7	8	7	10	7	8	8	8	6	4	4
Trimble Co 08	3	5	5	4	4	2	3	2	2	2	3	3	2	3	2	1	1	1
Trimble Co 09	9	13	13	10	10	6	8	6	6	6	7	6	6	6	6	4	3	3
Trimble Co 10	3	4	4	3	3	1	2	2	2	1	2	2	2	2	2	1	1	1
Trimble County 1	81	89	84	89	71	79	73	83	77	88	82	87	74	90	82	89	79	88
Trimble County 2	83	77	90	82	88	74	89	82	89	82	89	81	89	75	89	80	89	81
Zorn 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mid Gas-Low Load-Mid Carbon																		
2018 NGCC	0	0	0	0	0	83	79	94	94	94	94	94	95	95	94	95	95	95
Brown 1	20	22	56	22	25	16	18	19	19	21	23	21	26	25	25	27	26	25
Brown 10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Brown 11	1	1	1	1	1	0	0	0	0	0	0	1	1	1	1	1	1	1
Brown 2	35	42	103	46	37	31	34	50	51	51	55	47	56	58	55	60	64	60
Brown 3	29	32	28	23	27	22	19	10	13	11	14	14	13	14	14	20	13	14
Brown 5	0	1	1	0	1	0	0	1	1	0	1	1	1	1	1	1	1	1
Brown 6	2	3	3	2	2	1	2	2	2	3	3	3	4	4	4	5	5	6
Brown 7	4	5	5	4	4	2	2	4	4	4	6	5	6	6	8	14	13	13
Brown 8	1	1	1	1	1	0	0	0	1	0	1	1	1	1	1	1	1	1
Brown 9	0	1	1	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0
Cane Run 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cane Run 4	49	57	25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cane Run 5	49	65	26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cane Run 6	39	29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cane Run 7	0	0	86	92	89	92	75	95	91	95	76	95	91	95	91	80	91	95
[redacted]	0	0	0	83	82	0	0	0	0	0	0	0	0	0	0	0	0	0
Dix Dam	29	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28

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Annual Capacity Factor per Unit by Scenario (%)

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
DSM	0	0	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Ghent 1	72	71	63	66	65	57	64	57	58	55	61	60	61	61	63	62	55	63
Ghent 2	78	83	75	72	68	63	59	58	58	59	61	60	58	53	59	62	62	60
Ghent 3	72	60	66	63	53	39	43	35	37	40	40	38	35	44	42	46	45	43
Ghent 4	73	64	62	59	40	27	31	18	20	24	25	24	28	31	27	25	31	32
Green River 3	34	36	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Green River 4	69	75	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haefling	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mill Creek 1	62	73	63	64	72	74	72	65	56	65	63	64	61	65	62	66	56	64
Mill Creek 2	77	73	67	63	80	73	77	59	71	66	70	66	72	68	70	63	70	67
Mill Creek 3	62	74	63	37	51	53	48	51	50	53	50	53	52	56	48	57	53	57
Mill Creek 4	66	52	49	47	66	58	66	56	59	51	60	54	59	55	60	56	59	52
New CC1x1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
New CC2x1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
New SCCT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ohio Falls	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Paddys Run 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Paddys Run 12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Paddys Run 13	9	11	9	7	8	5	6	8	8	8	8	8	8	8	8	10	9	10
Self-build Solar	0	0	0	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Trimble Co 05	13	18	17	14	12	8	10	21	18	16	23	20	22	20	20	23	21	21
Trimble Co 06	12	17	15	9	11	7	8	14	11	15	16	15	15	15	14	17	15	15
Trimble Co 07	10	14	13	10	9	5	8	10	10	10	12	10	10	10	9	12	10	10
Trimble Co 08	2	4	3	2	2	1	1	2	2	2	2	2	2	2	2	3	3	3
Trimble Co 09	7	11	10	7	8	4	5	6	6	6	8	6	8	7	6	9	7	7
Trimble Co 10	2	2	3	2	2	1	1	1	1	1	1	1	1	2	2	2	2	2
Trimble County 1	80	88	83	88	69	76	72	70	63	69	64	68	57	68	62	71	64	69
Trimble County 2	83	76	89	82	89	74	89	79	85	79	85	79	87	73	87	79	86	79
Zorn 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mid Gas-Low Load-Zero Carbon																		
2018 NGCC	0	0	0	0	0	83	79	64	58	45	45	42	43	42	37	43	38	36
Brown 1	20	22	56	22	25	16	18	15	20	26	28	26	30	30	30	27	30	27
Brown 10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Brown 11	1	1	1	1	1	0	0	0	0	0	0	0	0	0	1	0	0	0

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Annual Capacity Factor per Unit by Scenario (%)

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Brown 2	35	42	103	46	37	31	34	35	35	43	43	38	45	47	51	51	51	53
Brown 3	29	32	28	23	27	22	19	21	22	20	24	23	24	23	27	31	30	31
Brown 5	0	1	1	0	1	0	0	0	0	0	0	0	0	1	1	1	1	1
Brown 6	2	3	3	2	2	1	2	1	1	1	1	1	1	2	2	2	2	2
Brown 7	4	5	5	4	4	2	2	2	2	2	2	2	2	3	3	3	3	6
Brown 8	1	1	1	1	1	0	0	0	0	0	1	0	1	1	1	1	1	1
Brown 9	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cane Run 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cane Run 4	49	57	25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cane Run 5	49	65	26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cane Run 6	39	29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cane Run 7	0	0	86	92	89	92	75	86	81	72	52	66	60	64	53	47	53	53
[redacted]	0	0	0	83	82	0	0	0	0	0	0	0	0	0	0	0	0	0
Dix Dam	29	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28
DSM	0	0	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Ghent 1	72	71	63	66	65	57	64	62	63	58	65	67	68	66	68	67	61	70
Ghent 2	78	83	75	72	68	63	59	68	68	76	77	77	78	72	80	81	82	79
Ghent 3	72	60	66	63	53	39	43	49	54	59	60	61	55	63	65	65	66	65
Ghent 4	73	64	62	59	40	27	31	29	35	48	51	49	51	54	54	51	60	61
Green River 3	34	36	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Green River 4	69	75	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haefling	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mill Creek 1	62	73	63	64	72	74	72	76	68	82	78	81	77	83	79	85	74	85
Mill Creek 2	77	73	67	63	80	73	77	69	81	79	85	79	86	81	86	74	87	81
Mill Creek 3	62	74	63	37	51	53	48	56	52	60	57	58	57	63	55	65	62	69
Mill Creek 4	66	52	49	47	66	58	66	64	69	64	75	70	77	71	77	73	78	68
New CC1x1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
New CC2x1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
New SCCT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ohio Falls	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Paddys Run 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Paddys Run 12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Paddys Run 13	9	11	9	7	8	5	6	6	5	5	5	5	5	6	5	8	5	6
Self-build Solar	0	0	0	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Trimble Co 05	13	18	17	14	12	8	10	6	6	5	7	6	7	6	6	9	7	6

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Annual Capacity Factor per Unit by Scenario (%)

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Trimble Co 06	12	17	15	9	11	7	8	6	5	6	6	5	6	6	6	8	6	5
Trimble Co 07	10	14	13	10	9	5	8	6	5	5	6	4	5	5	5	7	5	5
Trimble Co 08	2	4	3	2	2	1	1	1	1	1	1	1	1	2	2	2	2	1
Trimble Co 09	7	11	10	7	8	4	5	4	4	3	4	3	4	4	4	5	4	4
Trimble Co 10	2	2	3	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1
Trimble County 1	80	88	83	88	69	76	72	81	76	87	80	88	74	87	79	88	78	89
Trimble County 2	83	76	89	82	89	74	89	81	89	81	89	81	89	75	89	81	89	81
Zorn 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Low Gas-2013 LF Load-Mid Carbon																		
2018 NGCC	0	0	0	0	0	95	95	95	95	95	95	95	95	95	95	95	95	95
Brown 1	21	17	45	15	13	13	15	14	14	15	16	12	12	12	14	15	14	15
Brown 10	1	1	1	1	1	1	1	6	6	6	8	10	12	10	10	11	13	15
Brown 11	1	1	2	1	2	1	2	6	7	8	9	10	9	10	9	14	13	14
Brown 2	31	41	97	37	30	25	25	30	21	29	32	28	25	24	26	28	29	26
Brown 3	21	21	19	17	18	10	11	13	17	16	16	20	20	18	17	15	17	18
Brown 5	1	2	2	2	4	3	3	7	7	9	10	11	9	8	9	10	12	13
Brown 6	7	10	10	11	20	13	18	86	90	90	91	91	84	81	82	84	84	86
Brown 7	9	14	13	15	26	18	18	87	90	90	90	91	85	81	83	84	84	85
Brown 8	1	2	2	2	3	2	3	9	10	9	13	13	13	15	14	17	18	20
Brown 9	1	1	1	1	2	1	2	10	10	10	11	14	15	13	13	14	18	18
Cane Run 11	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0	1	1	1
Cane Run 4	50	59	25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cane Run 5	51	67	26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cane Run 6	38	32	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cane Run 7	0	0	95	95	91	95	80	95	91	95	76	95	91	95	91	80	91	95
[redacted]	0	0	0	86	85	0	0	0	0	0	0	0	0	0	0	0	0	0
Dix Dam	29	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28
DSM	0	0	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Ghent 1	72	73	61	66	65	59	62	36	40	41	48	46	37	27	27	33	26	28
Ghent 2	82	84	75	75	71	65	59	39	38	40	40	35	18	14	16	16	14	17
Ghent 3	75	60	68	64	48	28	30	12	11	14	13	12	8	7	8	8	8	9
Ghent 4	75	67	62	60	19	9	13	4	5	5	5	6	4	3	3	5	4	4
Green River 3	32	36	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Green River 4	70	76	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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Annual Capacity Factor per Unit by Scenario (%)

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Haefling	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mill Creek 1	64	74	64	65	71	74	71	54	45	53	52	54	45	46	44	49	40	47
Mill Creek 2	79	74	68	64	79	73	78	50	60	55	59	54	55	49	54	46	54	50
Mill Creek 3	64	76	65	20	43	41	36	19	21	23	22	20	20	17	18	20	21	22
Mill Creek 4	69	54	48	41	62	59	64	41	43	37	46	41	38	30	29	34	32	28
New CC1x1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
New CC2x1	0	0	0	0	0	0	0	0	0	0	0	0	95	95	95	95	95	95
New SCCT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ohio Falls	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Paddys Run 11	0	0	1	0	1	0	0	0	1	1	1	1	0	0	0	1	0	0
Paddys Run 12	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	1	0	0
Paddys Run 13	13	17	18	27	35	24	32	42	44	43	45	45	42	41	42	42	43	43
Self-build Solar	0	0	0	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Trimble Co 05	33	42	42	49	54	55	58	89	89	72	89	90	85	85	85	86	86	86
Trimble Co 06	26	34	35	34	58	46	51	86	69	87	87	87	81	80	80	82	82	82
Trimble Co 07	19	27	27	34	48	31	42	82	83	84	83	84	77	76	76	78	78	79
Trimble Co 08	5	7	8	8	7	9	8	44	47	48	50	52	47	45	48	50	53	54
Trimble Co 09	14	20	20	27	39	24	32	77	78	79	80	80	73	71	71	73	74	74
Trimble Co 10	3	5	6	6	7	5	5	32	36	39	39	43	37	38	38	41	45	46
Trimble County 1	81	89	83	89	70	80	72	55	50	54	50	51	40	43	38	45	41	44
Trimble County 2	83	76	89	82	89	73	87	76	84	77	85	76	80	66	76	73	76	71
Zorn 1	0	0	0	0	0	0	0	1	0	0	1	1	0	1	1	0	1	1
High Gas-2013 LF Load-Mid Carbon																		
2018 NGCC	0	0	0	0	0	56	53	93	93	93	92	93	90	89	89	91	91	92
Brown 1	28	29	70	32	36	24	30	21	23	24	28	28	24	21	19	24	23	21
Brown 10	1	1	1	0	1	0	0	0	1	0	1	1	0	0	0	0	0	0
Brown 11	1	1	1	1	1	0	1	1	1	1	1	1	0	1	0	1	1	1
Brown 2	39	47	114	52	47	42	46	49	49	52	51	46	51	46	43	47	51	50
Brown 3	34	36	31	29	30	25	23	20	22	24	28	26	22	21	25	25	22	25
Brown 5	1	1	1	1	1	0	1	1	1	1	1	1	0	1	1	1	1	0
Brown 6	4	5	5	4	4	2	2	3	3	4	4	3	2	2	3	4	4	4
Brown 7	6	8	8	6	6	3	3	4	5	5	6	7	5	4	4	6	5	6
Brown 8	1	2	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1
Brown 9	1	1	1	1	1	0	0	1	1	0	1	1	0	0	0	0	1	0

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Annual Capacity Factor per Unit by Scenario (%)

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Cane Run 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cane Run 4	54	60	26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cane Run 5	52	69	26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cane Run 6	41	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cane Run 7	0	0	75	74	76	79	62	93	89	92	74	93	87	90	86	76	88	92
[redacted]	0	0	0	87	86	0	0	0	0	0	0	0	0	0	0	0	0	0
Dix Dam	29	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28
DSM	0	0	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Ghent 1	73	75	65	70	68	65	69	65	65	60	68	65	66	63	66	64	58	65
Ghent 2	81	84	77	76	74	66	63	56	57	59	61	59	52	43	49	52	52	51
Ghent 3	75	62	72	70	61	57	62	47	49	52	52	53	41	37	36	42	42	41
Ghent 4	75	66	68	66	52	58	61	36	35	43	43	44	34	29	27	27	29	29
Green River 3	39	44	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Green River 4	70	77	23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haefling	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mill Creek 1	63	75	67	70	75	77	73	60	55	62	60	62	54	55	53	57	49	57
Mill Creek 2	78	75	70	68	83	76	83	56	66	62	68	63	63	58	61	55	62	60
Mill Creek 3	63	76	67	51	55	63	57	63	61	64	60	64	60	58	50	59	57	59
Mill Creek 4	69	54	54	52	70	67	73	61	65	55	66	60	62	56	59	57	59	52
New CC1x1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
New CC2x1	0	0	0	0	0	0	0	0	0	0	0	0	90	92	93	92	93	93
New SCCT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ohio Falls	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Paddys Run 11	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
Paddys Run 12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Paddys Run 13	10	12	11	8	9	6	7	8	8	8	9	8	6	6	5	7	6	7
Self-build Solar	0	0	0	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Trimble Co 05	16	20	21	13	13	8	10	15	16	12	18	15	10	9	8	10	10	11
Trimble Co 06	14	18	19	10	13	7	9	12	10	14	15	12	9	8	6	8	8	8
Trimble Co 07	12	16	16	11	11	6	8	9	11	10	13	9	6	6	5	6	6	7
Trimble Co 08	3	5	5	4	4	2	2	3	3	2	4	3	2	2	1	2	2	2
Trimble Co 09	9	13	12	9	9	5	6	7	8	7	10	6	5	4	4	4	4	4
Trimble Co 10	2	4	4	3	3	1	2	2	2	2	3	3	1	1	1	2	2	2
Trimble County 1	81	89	84	90	72	83	80	77	69	79	71	76	61	69	63	71	63	69
Trimble County 2	83	77	90	82	89	73	88	74	82	76	83	76	81	65	77	72	79	74

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Annual Capacity Factor per Unit by Scenario (%)

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Zorn 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Low Gas-Low Load-Mid Carbon																		
2018 NGCC	0	0	0	0	0	95	94	95	95	95	95	95	95	95	95	95	95	95
Brown 1	15	9	36	12	12	12	15	13	12	12	14	13	13	15	16	15	18	15
Brown 10	0	0	1	1	1	0	1	4	4	4	5	6	8	11	13	12	17	16
Brown 11	1	1	1	1	1	1	1	4	5	5	5	7	7	12	14	16	17	17
Brown 2	30	34	92	34	24	25	21	26	19	28	22	25	28	26	23	27	25	30
Brown 3	14	19	13	13	16	8	9	11	17	12	20	16	14	16	18	19	16	16
Brown 5	1	1	1	2	3	2	2	6	5	7	6	7	8	10	10	11	16	17
Brown 6	5	7	7	8	15	9	12	83	88	88	88	89	90	91	90	90	91	91
Brown 7	7	9	10	12	19	14	13	85	88	88	88	89	90	90	90	90	91	91
Brown 8	1	1	1	1	2	1	2	7	7	6	8	10	10	18	18	22	22	22
Brown 9	1	1	1	1	1	1	1	7	6	7	7	9	11	15	17	16	21	21
Cane Run 11	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	1
Cane Run 4	48	58	23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cane Run 5	50	64	25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cane Run 6	36	27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cane Run 7	0	0	95	95	91	95	80	95	91	95	76	95	91	95	91	80	91	95
[redacted]	0	0	0	83	81	0	0	0	0	0	0	0	0	0	0	0	0	0
Dix Dam	29	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28
DSM	0	0	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Ghent 1	71	71	59	64	61	56	56	25	28	33	36	33	36	36	34	39	32	37
Ghent 2	81	83	74	74	69	61	56	29	29	28	29	24	19	18	19	22	18	19
Ghent 3	71	57	65	62	38	20	20	8	8	9	10	7	8	8	8	8	9	9
Ghent 4	72	63	59	56	10	5	8	2	2	3	3	3	4	3	4	4	5	5
Green River 3	23	23	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Green River 4	69	71	23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haefling	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mill Creek 1	62	73	62	64	72	73	70	53	46	53	49	50	49	51	48	52	43	51
Mill Creek 2	77	74	66	61	80	74	78	50	55	53	60	52	57	54	56	52	56	51
Mill Creek 3	63	74	63	12	44	36	34	17	18	19	19	16	21	22	21	26	22	25
Mill Creek 4	67	53	46	37	63	56	62	38	41	34	40	38	39	36	35	38	38	33
New CC1x1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
New CC2x1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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Annual Capacity Factor per Unit by Scenario (%)

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
New SCCT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ohio Falls	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Paddys Run 11	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	1	1
Paddys Run 12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
Paddys Run 13	12	15	16	25	34	23	31	41	43	42	44	44	44	45	45	45	46	46
Self-build Solar	0	0	0	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Trimble Co 05	30	40	37	45	51	51	53	87	87	70	88	88	89	90	90	90	91	91
Trimble Co 06	24	33	30	30	54	42	47	84	67	84	84	84	85	87	87	87	88	88
Trimble Co 07	18	25	22	30	45	28	38	79	79	80	80	80	81	83	82	84	85	85
Trimble Co 08	4	6	6	6	8	7	8	41	41	45	45	48	50	57	56	57	61	61
Trimble Co 09	13	19	17	23	36	22	30	74	75	75	76	75	76	79	78	80	81	81
Trimble Co 10	3	4	4	5	7	4	4	29	31	34	35	39	40	48	47	48	53	53
Trimble County 1	80	88	82	89	68	76	70	53	47	52	47	50	42	49	41	51	44	48
Trimble County 2	83	76	89	82	88	73	88	76	84	75	82	76	83	69	83	75	80	73
Zorn 1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	1
High Gas-Low Load-Mid Carbon																		
2018 NGCC	0	0	0	0	0	45	42	92	92	91	92	92	92	93	92	93	93	93
Brown 1	23	25	59	24	31	19	24	15	18	19	24	23	24	23	25	26	25	27
Brown 10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Brown 11	1	1	1	0	1	0	0	0	0	0	0	0	1	1	1	1	1	1
Brown 2	35	42	106	50	42	38	41	45	41	44	47	43	53	54	53	53	55	57
Brown 3	29	33	28	24	27	22	20	16	19	20	24	22	22	21	24	29	26	25
Brown 5	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1	1	1
Brown 6	2	3	3	2	2	1	1	2	2	2	2	2	2	3	4	6	5	5
Brown 7	4	5	5	4	4	2	2	3	2	2	3	4	6	6	6	8	6	7
Brown 8	1	1	1	1	1	0	0	0	0	0	1	1	1	1	1	1	1	1
Brown 9	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Cane Run 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cane Run 4	51	56	25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cane Run 5	48	65	26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cane Run 6	39	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cane Run 7	0	0	69	66	68	75	56	92	89	92	73	92	88	93	89	78	90	94
[redacted]	0	0	0	87	83	0	0	0	0	0	0	0	0	0	0	0	0	0
Dix Dam	29	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28

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Annual Capacity Factor per Unit by Scenario (%)

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
DSM	0	0	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Ghent 1	72	71	64	69	68	60	69	64	65	58	66	64	65	65	65	66	59	66
Ghent 2	78	83	76	75	72	64	61	52	53	54	56	53	54	50	55	58	57	56
Ghent 3	73	60	70	68	57	55	60	39	41	44	44	43	38	48	45	49	47	47
Ghent 4	72	64	64	65	47	55	58	22	26	32	31	31	33	36	31	29	36	37
Green River 3	35	36	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Green River 4	69	74	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haefling	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mill Creek 1	62	74	65	67	74	75	74	59	51	59	56	59	56	59	57	60	52	60
Mill Creek 2	77	73	68	65	83	75	81	55	62	60	64	59	65	61	63	58	65	62
Mill Creek 3	61	74	66	49	53	63	56	59	58	60	60	62	59	62	56	64	60	64
Mill Creek 4	67	52	51	50	69	66	73	59	61	53	63	57	63	58	63	59	60	53
New CC1x1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
New CC2x1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
New SCCT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ohio Falls	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Paddys Run 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Paddys Run 12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Paddys Run 13	8	11	9	6	8	4	6	7	6	6	7	6	6	6	7	9	7	7
Self-build Solar	0	0	0	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Trimble Co 05	12	17	16	10	9	5	7	13	12	9	12	10	12	10	10	13	11	12
Trimble Co 06	11	15	14	8	9	5	6	10	7	10	10	8	10	9	8	11	9	9
Trimble Co 07	9	13	12	9	8	5	6	7	7	7	8	6	7	7	6	8	7	8
Trimble Co 08	2	3	3	2	2	1	1	1	1	1	2	2	2	2	2	2	2	2
Trimble Co 09	7	10	9	6	7	3	4	5	5	5	6	4	5	5	4	6	6	5
Trimble Co 10	2	2	3	2	2	1	1	1	1	1	1	1	1	1	2	2	2	2
Trimble County 1	80	88	83	90	71	85	79	76	68	76	70	74	61	73	66	75	67	71
Trimble County 2	83	76	89	82	89	74	88	73	79	74	81	73	82	68	82	75	83	76
Zorn 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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Annual Capacity Factor per Unit by Scenario (9

	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042
High Gas-2013 LF Load-Zero Carbon												
2018 NGCC	19	22	18	10	12	11	13	15	14	15	15	16
Brown 1	47	47	50	41	38	44	46	53	57	52	54	52
Brown 10	0	0	0	0	0	0	0	0	0	0	0	0
Brown 11	1	1	0	0	0	0	0	0	0	1	0	0
Brown 2	50	67	59	64	59	66	63	57	68	68	70	68
Brown 3	51	47	46	51	57	57	58	57	60	55	61	61
Brown 5	1	1	0	0	1	0	0	0	1	1	0	0
Brown 6	3	4	2	2	2	2	3	3	3	4	3	2
Brown 7	5	6	3	3	3	3	4	5	4	5	3	4
Brown 8	1	1	0	0	0	0	1	1	1	1	0	0
Brown 9	1	0	0	0	0	0	0	0	0	0	0	0
Cane Run 11	0	0	0	0	0	0	0	1	1	1	1	1
Cane Run 4	0	0	0	0	0	0	0	0	0	0	0	0
Cane Run 5	0	0	0	0	0	0	0	0	0	0	0	0
Cane Run 6	0	0	0	0	0	0	0	0	0	0	0	0
Cane Run 7	39	44	37	40	38	40	38	34	39	42	38	43
[redacted]	0	0	0	0	0	0	0	0	0	0	0	0
Dix Dam	28	28	28	28	28	28	28	28	28	28	28	28
DSM	100	100	100	100	100	100	100	100	100	0	0	0
Ghent 1	73	74	74	74	73	65	77	76	80	79	80	79
Ghent 2	81	78	70	80	80	82	81	82	80	73	82	82
Ghent 3	75	67	74	76	74	78	76	79	70	77	79	78
Ghent 4	71	72	75	68	64	72	71	77	75	75	74	68
Green River 3	0	0	0	0	0	0	0	0	0	0	0	0
Green River 4	0	0	0	0	0	0	0	0	0	0	0	0
Haefling	0	0	0	0	0	0	0	0	0	0	0	0
Mill Creek 1	80	86	80	85	79	85	73	85	80	86	80	85
Mill Creek 2	87	82	87	82	86	74	86	82	87	82	87	81
Mill Creek 3	75	78	75	80	70	81	75	80	76	82	76	82
Mill Creek 4	83	78	83	78	84	79	83	72	84	80	84	79
New CC1x1	0	0	0	0	0	0	0	0	0	0	39	34
New CC2x1	50	55	100	89	94	92	93	98	95	99	95	99

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Annual Capacity Factor per Unit by Scenario (%

	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042
New SCCT	0	0	0	0	0	0	0	0	0	0	0	0
Ohio Falls	100	100	100	100	100	100	100	100	100	100	100	100
Paddys Run 11	0	0	0	0	0	0	0	0	0	0	0	0
Paddys Run 12	0	0	0	0	0	0	0	0	0	0	0	0
Paddys Run 13	5	6	4	3	4	3	4	5	4	4	3	3
Self-build Solar	100	100	100	100	100	100	100	100	100	100	100	100
Trimble Co 05	4	5	3	2	3	2	3	4	3	4	2	2
Trimble Co 06	4	5	3	2	2	2	3	3	3	3	2	2
Trimble Co 07	3	4	2	2	2	2	2	2	2	3	2	2
Trimble Co 08	2	2	0	1	1	1	1	1	1	2	1	1
Trimble Co 09	3	3	2	1	2	1	2	2	2	3	1	1
Trimble Co 10	1	1	0	0	1	0	1	1	1	1	0	1
Trimble County 1	82	90	76	91	82	90	82	90	82	90	76	90
Trimble County 2	90	81	89	75	89	83	89	83	90	82	91	76
Zorn 1	0	0	0	0	0	0	0	0	0	0	0	0
High Gas-Low Load-Zero Carbon												
2018 NGCC	22	24	27	23	24	23	23	27	24	25	23	25
Brown 1	37	44	44	44	44	45	47	47	47	47	47	46
Brown 10	0	0	1	0	0	0	0	1	1	0	0	0
Brown 11	1	1	1	1	1	1	1	1	1	1	1	1
Brown 2	50	56	59	60	59	63	59	53	61	62	63	62
Brown 3	44	41	41	45	52	49	50	50	52	45	51	52
Brown 5	1	1	1	1	1	1	1	1	1	1	1	1
Brown 6	4	4	6	5	5	5	5	8	6	5	4	5
Brown 7	6	6	8	7	7	7	7	11	9	7	6	7
Brown 8	1	1	1	1	1	1	1	1	1	1	1	1
Brown 9	0	0	1	1	0	0	1	1	1	0	0	0
Cane Run 11	0	0	0	0	0	0	1	1	2	1	1	1
Cane Run 4	0	0	0	0	0	0	0	0	0	0	0	0
Cane Run 5	0	0	0	0	0	0	0	0	0	0	0	0
Cane Run 6	0	0	0	0	0	0	0	0	0	0	0	0
Cane Run 7	37	41	34	40	40	42	39	35	40	41	34	41
[redacted]	0	0	0	0	0	0	0	0	0	0	0	0
Dix Dam	28	28	28	28	28	28	28	28	28	28	28	28

Annual Capacity Factor per Unit by Scenario (%

	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042
DSM	100	100	100	100	100	100	100	100	100	0	0	0
Ghent 1	71	74	74	75	74	66	76	76	77	76	77	75
Ghent 2	78	78	71	80	80	81	79	81	80	72	80	80
Ghent 3	74	65	74	76	74	76	74	77	67	75	77	75
Ghent 4	71	68	74	70	63	73	72	75	74	75	72	66
Green River 3	0	0	0	0	0	0	0	0	0	0	0	0
Green River 4	0	0	0	0	0	0	0	0	0	0	0	0
Haefling	0	0	0	0	0	0	0	0	0	0	0	0
Mill Creek 1	78	84	79	83	78	84	72	84	79	84	78	84
Mill Creek 2	85	80	85	81	85	74	86	81	86	80	84	81
Mill Creek 3	72	77	72	78	67	79	74	78	74	79	74	80
Mill Creek 4	81	78	82	77	83	78	83	71	83	78	83	78
New CC1x1	0	0	0	0	0	0	0	0	0	38	37	40
New CC2x1	0	0	0	0	0	0	0	0	0	0	0	0
New SCCT	0	0	0	0	0	0	0	0	0	0	0	0
Ohio Falls	100	100	100	100	100	100	100	100	100	100	100	100
Paddys Run 11	0	0	0	0	0	0	0	0	0	0	0	0
Paddys Run 12	0	0	0	0	0	0	0	0	0	0	0	0
Paddys Run 13	6	7	8	7	7	6	7	9	7	6	5	5
Self-build Solar	100	100	100	100	100	100	100	100	100	100	100	100
Trimble Co 05	5	6	8	7	7	6	6	10	8	5	4	4
Trimble Co 06	5	5	7	6	6	5	6	8	7	5	4	4
Trimble Co 07	4	4	6	6	5	4	5	7	6	4	4	4
Trimble Co 08	1	2	2	2	2	1	2	3	2	1	2	1
Trimble Co 09	3	4	4	4	4	4	4	5	5	3	3	3
Trimble Co 10	1	1	1	1	1	1	2	2	1	1	1	1
Trimble County 1	81	89	76	90	82	89	82	90	83	90	75	90
Trimble County 2	90	82	89	74	90	83	90	82	90	82	90	76
Zorn 1	0	0	0	0	0	0	0	0	0	0	0	0
Low Gas-2013 LF Load-Zero Carbon												
2018 NGCC	94	94	93	92	92	92	92	93	92	92	93	93
Brown 1	17	15	15	13	13	11	15	18	15	12	15	13
Brown 10	1	1	0	0	0	0	0	1	0	1	0	1
Brown 11	1	1	0	1	1	1	1	1	1	1	1	1

Annual Capacity Factor per Unit by Scenario (9

	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042
Brown 2	24	29	25	25	22	29	26	24	29	30	31	32
Brown 3	11	10	9	12	15	10	9	10	12	15	14	16
Brown 5	1	2	1	1	1	1	1	1	1	1	1	1
Brown 6	5	6	4	3	4	4	4	5	4	4	3	4
Brown 7	7	9	5	5	5	5	6	7	6	6	4	8
Brown 8	1	1	0	1	1	1	1	1	1	1	1	1
Brown 9	1	1	0	0	0	0	0	1	1	1	1	1
Cane Run 11	0	0	0	0	0	0	0	0	0	0	0	0
Cane Run 4	0	0	0	0	0	0	0	0	0	0	0	0
Cane Run 5	0	0	0	0	0	0	0	0	0	0	0	0
Cane Run 6	0	0	0	0	0	0	0	0	0	0	0	0
Cane Run 7	90	94	75	92	88	92	88	78	89	93	88	93
[redacted]	0	0	0	0	0	0	0	0	0	0	0	0
Dix Dam	28	28	28	28	28	28	28	28	28	28	28	28
DSM	100	100	100	100	100	100	100	100	100	0	0	0
Ghent 1	59	59	55	49	50	43	51	54	53	53	54	53
Ghent 2	60	58	51	51	51	52	52	57	54	50	57	58
Ghent 3	38	36	37	23	26	27	29	33	30	31	35	35
Ghent 4	23	23	23	14	12	15	19	22	18	21	23	21
Green River 3	0	0	0	0	0	0	0	0	0	0	0	0
Green River 4	0	0	0	0	0	0	0	0	0	0	0	0
Haefling	0	0	0	0	0	0	0	0	0	0	0	0
Mill Creek 1	67	71	64	62	59	64	55	66	62	64	61	67
Mill Creek 2	73	70	70	63	66	59	67	66	68	64	69	66
Mill Creek 3	46	50	47	36	34	42	41	44	43	47	45	48
Mill Creek 4	60	56	59	49	54	52	56	49	57	54	57	55
New CC1x1	0	0	0	0	0	0	0	0	0	0	0	0
New CC2x1	94	94	187	187	187	188	187	187	188	187	188	188
New SCCT	0	0	0	0	0	0	0	0	0	0	15	10
Ohio Falls	100	100	100	100	100	100	100	100	100	100	100	100
Paddys Run 11	0	0	0	0	0	0	0	0	0	0	0	0
Paddys Run 12	0	0	0	0	0	0	0	0	0	0	0	0
Paddys Run 13	11	12	8	7	8	7	8	9	8	8	8	9
Self-build Solar	100	100	100	100	100	100	100	100	100	100	100	100
Trimble Co 05	24	27	21	18	18	18	19	21	20	19	18	18

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Annual Capacity Factor per Unit by Scenario (%

	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042
Trimble Co 06	18	20	15	14	13	14	14	17	15	15	14	14
Trimble Co 07	14	15	11	9	10	10	11	13	12	11	10	10
Trimble Co 08	4	4	2	3	3	3	3	3	3	3	3	3
Trimble Co 09	10	11	8	7	7	8	8	9	9	8	7	8
Trimble Co 10	3	4	2	2	2	2	2	2	2	3	2	2
Trimble County 1	65	74	58	64	57	64	59	67	59	66	55	68
Trimble County 2	85	76	82	68	79	73	80	73	81	74	80	68
Zorn 1	0	0	0	0	0	0	0	0	0	0	0	1
Low Gas-Low Load-Zero Carbon												
2018 NGCC	95	95	95	95	95	95	95	95	95	94	94	95
Brown 1	16	16	18	18	14	15	17	21	17	18	18	18
Brown 10	1	1	1	1	1	1	1	1	1	0	1	0
Brown 11	1	1	1	1	1	1	1	2	1	1	1	1
Brown 2	27	32	34	28	35	36	32	28	35	34	31	37
Brown 3	11	9	9	12	11	9	11	13	12	14	19	18
Brown 5	1	1	1	1	2	1	2	2	2	1	1	1
Brown 6	6	6	8	6	8	6	7	9	8	6	5	5
Brown 7	8	9	10	10	10	8	9	12	10	8	7	12
Brown 8	1	1	1	1	1	1	1	2	1	1	1	1
Brown 9	1	1	1	1	1	1	1	1	1	1	1	1
Cane Run 11	0	0	0	0	0	0	1	0	0	0	0	0
Cane Run 4	0	0	0	0	0	0	0	0	0	0	0	0
Cane Run 5	0	0	0	0	0	0	0	0	0	0	0	0
Cane Run 6	0	0	0	0	0	0	0	0	0	0	0	0
Cane Run 7	91	95	76	95	91	95	91	79	91	95	90	95
[redacted]	0	0	0	0	0	0	0	0	0	0	0	0
Dix Dam	28	28	28	28	28	28	28	28	28	28	28	28
DSM	100	100	100	100	100	100	100	100	100	0	0	0
Ghent 1	59	62	62	62	62	56	63	63	64	62	64	64
Ghent 2	63	63	62	66	66	67	66	69	67	61	69	68
Ghent 3	45	37	49	45	48	49	47	52	44	50	52	51
Ghent 4	28	27	36	31	28	35	35	39	36	40	38	37
Green River 3	0	0	0	0	0	0	0	0	0	0	0	0
Green River 4	0	0	0	0	0	0	0	0	0	0	0	0

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Annual Capacity Factor per Unit by Scenario (%

	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042
Haefling	0	0	0	0	0	0	0	0	0	0	0	0
Mill Creek 1	70	74	71	74	70	74	65	75	71	75	71	75
Mill Creek 2	77	73	79	73	77	67	76	74	77	72	78	75
Mill Creek 3	50	55	54	55	46	55	53	59	54	57	53	58
Mill Creek 4	64	60	67	60	63	62	66	57	66	64	68	63
New CC1x1	0	0	0	0	0	0	0	0	0	0	0	0
New CC2x1	0	0	0	0	0	0	0	0	0	0	0	0
New SCCT	0	0	0	0	0	0	0	0	0	23	17	19
Ohio Falls	100	100	100	100	100	100	100	100	100	100	100	100
Paddys Run 11	0	0	0	0	0	0	0	0	1	0	0	0
Paddys Run 12	0	0	0	0	0	0	0	0	0	0	0	0
Paddys Run 13	12	13	13	11	12	11	11	13	12	10	11	11
Self-build Solar	100	100	100	100	100	100	100	100	100	100	100	100
Trimble Co 05	26	29	32	28	30	28	29	33	30	27	26	25
Trimble Co 06	20	23	26	22	24	21	23	26	25	20	20	19
Trimble Co 07	15	17	20	17	18	15	17	21	19	16	14	14
Trimble Co 08	4	4	6	4	6	5	5	6	6	4	3	4
Trimble Co 09	11	13	15	13	15	11	12	15	14	11	10	10
Trimble Co 10	3	3	3	3	4	3	4	4	4	3	2	2
Trimble County 1	70	78	65	77	70	78	70	79	68	75	62	78
Trimble County 2	88	79	87	74	87	81	88	81	88	81	87	73
Zorn 1	0	0	0	0	0	0	0	0	0	0	0	0
Mid Gas-2013 LF Load-Mid Carbon												
2018 NGCC	94	94	93	91	92	92	93	93	93	93	91	88
Brown 1	23	25	22	15	20	21	19	24	24	18	20	17
Brown 10	1	0	0	0	0	0	0	1	0	1	0	0
Brown 11	1	1	0	1	1	1	1	1	1	1	0	1
Brown 2	46	58	53	43	41	49	49	45	52	53	46	44
Brown 3	17	16	12	14	16	9	11	14	11	13	10	9
Brown 5	1	1	1	1	1	1	1	1	1	2	1	1
Brown 6	6	8	5	5	5	5	6	8	8	8	4	6
Brown 7	11	14	12	12	12	14	14	16	17	16	12	12
Brown 8	1	1	1	1	1	1	1	1	1	1	0	1
Brown 9	1	0	0	0	0	0	1	1	0	1	0	0

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Annual Capacity Factor per Unit by Scenario (%

	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042
Cane Run 11	0	0	0	0	0	0	0	0	0	0	0	0
Cane Run 4	0	0	0	0	0	0	0	0	0	0	0	0
Cane Run 5	0	0	0	0	0	0	0	0	0	0	0	0
Cane Run 6	0	0	0	0	0	0	0	0	0	0	0	0
Cane Run 7	90	94	75	91	87	91	87	77	88	91	84	88
[redacted]	0	0	0	0	0	0	0	0	0	0	0	0
Dix Dam	28	28	28	28	28	28	28	28	28	28	28	28
DSM	100	100	100	100	100	100	100	100	100	0	0	0
Ghent 1	59	61	57	53	53	48	55	55	56	56	51	43
Ghent 2	56	54	46	43	42	46	47	50	47	44	39	35
Ghent 3	41	35	37	22	25	27	27	33	28	30	25	18
Ghent 4	27	25	25	16	13	14	18	24	18	22	17	10
Green River 3	0	0	0	0	0	0	0	0	0	0	0	0
Green River 4	0	0	0	0	0	0	0	0	0	0	0	0
Haefling	0	0	0	0	0	0	0	0	0	0	0	0
Mill Creek 1	59	62	57	54	53	58	51	59	55	58	51	54
Mill Creek 2	68	64	64	57	61	54	61	60	63	60	59	54
Mill Creek 3	52	55	50	47	41	50	47	51	47	51	47	45
Mill Creek 4	55	54	56	47	52	50	52	47	54	51	52	45
New CC1x1	0	0	0	0	0	0	0	0	0	0	0	0
New CC2x1	94	94	188	187	188	188	188	187	188	188	280	280
New SCCT	0	0	0	0	0	0	0	0	0	0	0	0
Ohio Falls	100	100	100	100	100	100	100	100	100	100	100	100
Paddys Run 11	0	0	0	0	0	0	0	0	0	0	0	0
Paddys Run 12	0	0	0	0	0	0	0	0	0	0	0	0
Paddys Run 13	8	10	8	7	7	7	8	9	9	9	7	8
Self-build Solar	100	100	100	100	100	100	100	100	100	100	100	100
Trimble Co 05	17	20	16	14	15	15	16	17	18	18	14	13
Trimble Co 06	12	14	11	10	10	10	11	12	13	13	10	10
Trimble Co 07	9	10	8	7	7	8	8	9	9	9	6	7
Trimble Co 08	3	4	2	2	3	2	2	3	3	3	2	2
Trimble Co 09	6	7	5	5	5	5	5	6	6	6	4	4
Trimble Co 10	2	3	1	2	2	2	2	2	2	3	1	1
Trimble County 1	58	66	52	58	52	58	53	61	54	60	47	54
Trimble County 2	84	77	82	66	78	73	79	74	81	74	77	64

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Annual Capacity Factor per Unit by Scenario (%

	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042
Zorn 1	0	0	0	0	0	0	0	0	0	0	0	0
Mid Gas-2013 LF Load-Zero Carbon												
2018 NGCC	28	31	35	30	33	24	19	21	19	20	21	24
Brown 1	32	35	43	40	39	39	37	41	41	43	44	45
Brown 10	0	0	0	0	0	0	0	0	0	0	0	0
Brown 11	1	1	1	1	1	0	0	0	0	0	1	1
Brown 2	46	57	58	57	61	61	56	47	56	60	61	64
Brown 3	35	34	34	37	40	36	37	37	38	32	40	39
Brown 5	1	1	1	1	1	0	1	0	1	1	1	1
Brown 6	2	2	4	4	4	2	2	3	2	3	3	3
Brown 7	4	5	6	5	6	3	3	4	4	4	4	6
Brown 8	1	1	1	1	1	1	0	0	0	0	1	1
Brown 9	0	0	0	1	0	0	0	0	0	0	0	1
Cane Run 11	0	0	0	0	0	0	0	0	0	0	0	0
Cane Run 4	0	0	0	0	0	0	0	0	0	0	0	0
Cane Run 5	0	0	0	0	0	0	0	0	0	0	0	0
Cane Run 6	0	0	0	0	0	0	0	0	0	0	0	0
Cane Run 7	51	51	42	49	49	48	43	40	45	49	46	50
[redacted]	0	0	0	0	0	0	0	0	0	0	0	0
Dix Dam	28	28	28	28	28	28	28	28	28	28	28	28
DSM	100	100	100	100	100	100	100	100	100	0	0	0
Ghent 1	65	70	70	72	72	61	69	68	71	68	72	74
Ghent 2	81	79	73	83	81	81	79	81	80	71	82	80
Ghent 3	71	63	74	74	74	74	71	76	66	75	74	76
Ghent 4	62	65	69	71	64	71	67	72	72	73	72	67
Green River 3	0	0	0	0	0	0	0	0	0	0	0	0
Green River 4	0	0	0	0	0	0	0	0	0	0	0	0
Haefling	0	0	0	0	0	0	0	0	0	0	0	0
Mill Creek 1	81	86	82	87	82	87	74	87	82	86	82	88
Mill Creek 2	87	83	87	82	87	75	88	82	87	83	88	83
Mill Creek 3	66	74	71	79	66	78	73	77	74	79	76	80
Mill Creek 4	80	77	83	76	83	79	81	72	84	78	84	79
New CC1x1	0	0	0	0	0	0	0	0	0	0	0	0
New CC2x1	66	64	65	63	66	115	114	116	115	120	118	120

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Annual Capacity Factor per Unit by Scenario (9

	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042
New SCCT	4	4	5	5	6	3	3	4	4	4	4	4
Ohio Falls	100	100	100	100	100	100	100	100	100	100	100	100
Paddys Run 11	0	0	0	0	0	0	0	0	0	0	0	0
Paddys Run 12	0	0	0	0	0	0	0	0	0	0	0	0
Paddys Run 13	5	6	7	7	7	4	4	5	4	5	5	5
Self-build Solar	100	100	100	100	100	100	100	100	100	100	100	100
Trimble Co 05	5	5	6	6	7	4	3	4	3	4	4	5
Trimble Co 06	4	5	5	6	6	4	3	3	3	4	4	4
Trimble Co 07	4	4	5	5	5	3	2	3	3	3	3	4
Trimble Co 08	1	1	1	2	2	1	1	1	1	1	1	2
Trimble Co 09	3	3	3	4	4	2	2	2	2	2	3	3
Trimble Co 10	1	1	1	1	1	1	1	0	1	1	1	1
Trimble County 1	82	90	75	89	81	90	79	90	82	90	74	91
Trimble County 2	89	81	89	74	89	80	89	82	89	82	89	74
Zorn 1	0	0	0	0	0	0	0	0	0	0	0	0
Mid Gas-Low Load-Mid Carbon												
2018 NGCC	95	95	95	95	95	95	95	95	95	94	94	94
Brown 1	30	29	32	25	29	27	34	35	32	26	20	17
Brown 10	1	0	1	1	1	1	1	1	1	0	0	0
Brown 11	1	1	1	1	1	1	1	1	1	1	0	1
Brown 2	53	60	63	63	62	68	62	56	61	58	56	55
Brown 3	16	15	18	20	18	15	15	19	16	12	12	12
Brown 5	1	1	1	1	2	2	2	2	2	1	1	1
Brown 6	8	8	11	9	11	10	11	15	14	8	6	8
Brown 7	13	14	19	19	20	19	22	25	24	19	16	18
Brown 8	1	1	1	1	1	1	1	1	1	1	1	1
Brown 9	1	1	1	1	1	1	1	1	1	1	0	0
Cane Run 11	0	0	0	0	0	0	0	0	1	0	0	0
Cane Run 4	0	0	0	0	0	0	0	0	0	0	0	0
Cane Run 5	0	0	0	0	0	0	0	0	0	0	0	0
Cane Run 6	0	0	0	0	0	0	0	0	0	0	0	0
Cane Run 7	91	95	76	95	91	95	91	80	91	94	89	93
[redacted]	0	0	0	0	0	0	0	0	0	0	0	0
Dix Dam	28	28	28	28	28	28	28	28	28	28	28	28

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Annual Capacity Factor per Unit by Scenario (%

	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042
DSM	100	100	100	100	100	100	100	100	100	0	0	0
Ghent 1	61	62	62	63	63	55	64	63	65	59	57	56
Ghent 2	59	60	58	61	61	63	62	65	62	49	48	50
Ghent 3	45	38	51	48	50	50	48	52	44	39	29	31
Ghent 4	30	32	40	33	31	40	37	44	39	30	21	18
Green River 3	0	0	0	0	0	0	0	0	0	0	0	0
Green River 4	0	0	0	0	0	0	0	0	0	0	0	0
Haefling	0	0	0	0	0	0	0	0	0	0	0	0
Mill Creek 1	62	66	63	65	62	66	56	66	63	61	56	59
Mill Creek 2	71	66	73	65	70	61	72	69	72	62	66	61
Mill Creek 3	54	58	55	59	50	59	56	61	56	57	49	57
Mill Creek 4	60	58	62	57	60	57	61	53	62	55	54	52
New CC1x1	0	0	0	0	0	0	0	0	0	0	0	0
New CC2x1	0	0	0	0	0	0	0	0	0	94	95	94
New SCCT	0	0	0	0	0	0	0	0	0	0	0	0
Ohio Falls	100	100	100	100	100	100	100	100	100	100	100	100
Paddys Run 11	0	0	0	0	0	0	0	0	1	0	0	0
Paddys Run 12	0	0	0	0	0	0	0	0	1	0	0	0
Paddys Run 13	9	11	11	10	11	11	12	13	12	9	9	9
Self-build Solar	100	100	100	100	100	100	100	100	100	100	100	100
Trimble Co 05	20	21	22	21	22	20	23	25	24	19	16	15
Trimble Co 06	14	15	16	15	16	14	16	18	18	13	11	11
Trimble Co 07	10	10	12	11	11	10	12	14	13	9	7	7
Trimble Co 08	3	3	5	4	4	4	5	6	6	3	2	2
Trimble Co 09	7	8	8	8	8	8	9	10	10	6	5	5
Trimble Co 10	2	2	3	3	3	3	3	4	4	2	2	2
Trimble County 1	63	69	59	70	64	70	63	71	62	64	51	62
Trimble County 2	88	80	87	73	88	80	88	81	88	77	83	70
Zorn 1	0	0	0	0	0	0	0	0	0	0	0	0
Mid Gas-Low Load-Zero Carbon												
2018 NGCC	34	34	37	34	36	35	35	37	33	36	35	39
Brown 1	30	34	37	36	37	39	42	42	42	42	45	44
Brown 10	0	0	1	0	0	0	1	1	1	0	1	0
Brown 11	1	1	1	1	1	1	1	1	1	1	1	1

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Annual Capacity Factor per Unit by Scenario (9

	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042
Brown 2	45	50	55	55	56	58	54	50	60	58	62	59
Brown 3	34	34	33	35	39	36	37	39	38	35	40	40
Brown 5	1	1	1	1	1	1	1	1	1	1	1	1
Brown 6	2	3	6	5	5	5	5	8	6	5	5	6
Brown 7	6	6	8	7	7	7	7	11	8	8	7	10
Brown 8	1	1	1	1	1	1	1	1	1	1	1	1
Brown 9	0	0	1	1	0	0	1	1	1	0	1	0
Cane Run 11	0	0	0	0	0	0	0	0	1	0	0	0
Cane Run 4	0	0	0	0	0	0	0	0	0	0	0	0
Cane Run 5	0	0	0	0	0	0	0	0	0	0	0	0
Cane Run 6	0	0	0	0	0	0	0	0	0	0	0	0
Cane Run 7	48	48	38	44	44	46	43	38	45	47	44	49
[redacted]	0	0	0	0	0	0	0	0	0	0	0	0
Dix Dam	28	28	28	28	28	28	28	28	28	28	28	28
DSM	100	100	100	100	100	100	100	100	100	0	0	0
Ghent 1	65	71	71	70	71	62	72	72	74	71	72	73
Ghent 2	81	79	74	83	82	83	80	83	81	74	83	82
Ghent 3	69	61	71	73	71	74	73	74	65	73	76	74
Ghent 4	62	64	69	66	59	69	69	70	70	73	71	65
Green River 3	0	0	0	0	0	0	0	0	0	0	0	0
Green River 4	0	0	0	0	0	0	0	0	0	0	0	0
Haefling	0	0	0	0	0	0	0	0	0	0	0	0
Mill Creek 1	81	86	81	86	80	86	74	86	81	86	81	86
Mill Creek 2	87	81	86	82	86	76	87	82	87	82	87	83
Mill Creek 3	65	73	69	74	65	76	71	77	71	77	72	78
Mill Creek 4	80	77	82	77	82	78	82	71	83	78	84	78
New CC1x1	0	0	0	0	0	0	0	0	0	0	0	0
New CC2x1	0	0	0	0	0	0	0	0	0	0	0	0
New SCCT	0	0	0	0	0	0	0	0	0	10	6	8
Ohio Falls	100	100	100	100	100	100	100	100	100	100	100	100
Paddys Run 11	0	0	0	0	0	0	0	0	0	0	0	0
Paddys Run 12	0	0	0	0	0	0	0	0	0	0	0	0
Paddys Run 13	6	7	8	7	8	7	7	9	8	7	7	8
Self-build Solar	100	100	100	100	100	100	100	100	100	100	100	100
Trimble Co 05	6	7	9	7	8	7	7	10	9	8	7	8

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Annual Capacity Factor per Unit by Scenario (%

	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042
Trimble Co 06	5	6	7	7	7	6	6	9	8	7	6	7
Trimble Co 07	5	5	7	6	6	5	6	8	7	7	6	6
Trimble Co 08	2	2	2	2	2	2	2	3	3	2	2	2
Trimble Co 09	4	4	5	4	5	4	4	6	5	5	4	5
Trimble Co 10	1	1	1	1	1	1	2	2	2	1	1	1
Trimble County 1	81	89	76	89	82	88	82	90	82	89	75	90
Trimble County 2	90	81	89	74	89	82	90	81	90	83	89	75
Zorn 1	0	0	0	0	0	0	0	0	0	0	0	0
Low Gas-2013 LF Load-Mid Carbon												
2018 NGCC	95	95	94	94	94	94	94	95	94	95	93	92
Brown 1	16	16	14	13	15	13	15	14	15	14	13	10
Brown 10	16	18	14	9	11	9	12	15	14	14	14	8
Brown 11	17	19	15	9	12	11	14	17	13	15	12	9
Brown 2	21	29	24	26	24	24	27	25	32	28	24	24
Brown 3	19	17	17	15	15	20	17	18	14	18	19	19
Brown 5	17	19	15	10	12	12	13	16	13	15	12	10
Brown 6	88	88	82	74	77	75	78	80	80	81	72	65
Brown 7	87	87	81	74	76	75	77	80	80	79	72	65
Brown 8	21	25	21	13	16	14	18	21	18	20	15	12
Brown 9	20	23	17	12	15	13	16	19	18	18	17	12
Cane Run 11	1	1	1	1	1	0	1	1	1	1	1	1
Cane Run 4	0	0	0	0	0	0	0	0	0	0	0	0
Cane Run 5	0	0	0	0	0	0	0	0	0	0	0	0
Cane Run 6	0	0	0	0	0	0	0	0	0	0	0	0
Cane Run 7	91	95	76	94	90	94	90	79	90	95	89	93
[redacted]	0	0	0	0	0	0	0	0	0	0	0	0
Dix Dam	28	28	28	28	28	28	28	28	28	28	28	28
DSM	100	100	100	100	100	100	100	100	100	0	0	0
Ghent 1	31	30	25	21	21	21	23	30	26	28	19	15
Ghent 2	17	16	12	10	11	12	12	13	13	13	10	9
Ghent 3	9	10	6	7	7	6	7	7	8	8	6	5
Ghent 4	5	5	4	4	4	4	4	4	4	6	4	3
Green River 3	0	0	0	0	0	0	0	0	0	0	0	0
Green River 4	0	0	0	0	0	0	0	0	0	0	0	0

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Annual Capacity Factor per Unit by Scenario (%

	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042
Haefling	0	0	0	0	0	0	0	0	0	0	0	0
Mill Creek 1	44	47	43	40	37	38	36	43	39	42	34	31
Mill Creek 2	54	51	49	43	47	43	47	46	47	46	43	39
Mill Creek 3	20	22	21	18	16	19	19	22	21	20	16	16
Mill Creek 4	31	29	33	21	20	23	21	21	25	24	22	17
New CC1x1	0	0	0	0	0	0	0	0	0	0	0	0
New CC2x1	95	95	189	189	190	190	189	189	189	189	283	283
New SCCT	0	0	0	0	0	0	0	0	0	0	0	0
Ohio Falls	100	100	100	100	100	100	100	100	100	100	100	100
Paddys Run 11	1	1	1	0	0	0	0	1	1	1	0	0
Paddys Run 12	1	1	0	0	0	0	0	1	1	0	0	0
Paddys Run 13	43	43	41	38	38	38	39	40	39	39	36	34
Self-build Solar	100	100	100	100	100	100	100	100	100	100	100	100
Trimble Co 05	86	88	84	79	80	80	81	82	82	82	77	73
Trimble Co 06	83	85	80	75	75	76	77	79	79	79	73	70
Trimble Co 07	79	81	77	70	70	72	73	76	74	75	69	65
Trimble Co 08	54	57	53	43	46	45	47	51	49	49	44	39
Trimble Co 09	74	77	73	65	66	66	69	71	70	70	65	59
Trimble Co 10	47	50	46	36	38	37	38	43	42	40	36	32
Trimble County 1	40	44	35	34	32	35	35	39	36	39	28	29
Trimble County 2	77	70	75	61	70	65	71	67	72	66	68	55
Zorn 1	1	1	1	1	1	1	0	1	1	1	1	0
High Gas-2013 LF Load-Mid Carbon												
2018 NGCC	93	93	92	91	91	92	92	92	92	90	91	90
Brown 1	24	26	18	17	21	20	21	26	21	20	20	19
Brown 10	1	0	0	0	0	0	0	0	0	1	0	0
Brown 11	1	1	0	0	1	1	1	1	1	1	0	1
Brown 2	44	54	52	43	39	47	44	39	47	48	46	47
Brown 3	22	19	15	15	18	16	19	22	23	22	24	24
Brown 5	1	1	0	0	1	1	1	1	0	1	0	1
Brown 6	5	6	4	3	4	3	4	5	4	5	3	4
Brown 7	6	8	6	5	5	5	6	7	6	6	5	5
Brown 8	1	1	1	1	1	1	1	1	1	1	1	1
Brown 9	1	0	0	0	0	0	1	1	0	1	0	1

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Annual Capacity Factor per Unit by Scenario (%

	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042
Cane Run 11	0	0	0	0	0	0	0	0	0	1	0	0
Cane Run 4	0	0	0	0	0	0	0	0	0	0	0	0
Cane Run 5	0	0	0	0	0	0	0	0	0	0	0	0
Cane Run 6	0	0	0	0	0	0	0	0	0	0	0	0
Cane Run 7	90	94	74	90	86	90	86	76	86	90	85	89
[redacted]	0	0	0	0	0	0	0	0	0	0	0	0
Dix Dam	28	28	28	28	28	28	28	28	28	28	28	28
DSM	100	100	100	100	100	100	100	100	100	0	0	0
Ghent 1	62	63	60	56	56	52	57	59	59	60	60	56
Ghent 2	52	51	43	42	42	43	44	48	45	42	43	40
Ghent 3	42	37	39	25	28	30	32	38	32	36	32	30
Ghent 4	30	31	28	18	16	21	22	29	25	28	26	20
Green River 3	0	0	0	0	0	0	0	0	0	0	0	0
Green River 4	0	0	0	0	0	0	0	0	0	0	0	0
Haefling	0	0	0	0	0	0	0	0	0	0	0	0
Mill Creek 1	55	58	54	51	50	53	47	53	51	54	50	52
Mill Creek 2	63	60	59	54	57	50	56	56	59	57	57	53
Mill Creek 3	57	60	54	53	46	54	52	57	52	57	52	57
Mill Creek 4	59	55	58	50	55	52	55	48	57	53	55	50
New CC1x1	0	0	0	0	0	0	0	0	0	0	88	90
New CC2x1	93	94	186	186	186	187	185	185	185	186	185	185
New SCCT	0	0	0	0	0	0	0	0	0	0	0	0
Ohio Falls	100	100	100	100	100	100	100	100	100	100	100	100
Paddys Run 11	0	0	0	0	0	0	0	0	0	0	0	0
Paddys Run 12	0	0	0	0	0	0	0	0	0	0	0	0
Paddys Run 13	7	8	6	6	6	6	6	7	6	6	5	6
Self-build Solar	100	100	100	100	100	100	100	100	100	100	100	100
Trimble Co 05	13	17	13	11	11	10	10	11	10	10	8	8
Trimble Co 06	11	12	10	8	9	8	8	9	8	9	6	7
Trimble Co 07	7	8	7	6	6	6	6	6	6	7	5	6
Trimble Co 08	3	3	2	2	2	2	2	3	2	3	2	2
Trimble Co 09	5	6	5	4	5	3	5	5	4	5	4	3
Trimble Co 10	2	2	1	1	2	1	1	2	2	2	1	2
Trimble County 1	61	69	55	60	54	60	55	63	57	62	51	59
Trimble County 2	81	75	79	63	76	71	77	72	78	72	78	65

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Annual Capacity Factor per Unit by Scenario (%

	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042
Zorn 1	0	0	0	0	0	0	0	0	0	0	0	0
Low Gas-Low Load-Mid Carbon												
2018 NGCC	95	95	95	95	95	95	95	95	95	95	95	95
Brown 1	14	14	18	15	15	14	18	21	15	15	12	12
Brown 10	17	20	20	19	22	19	22	26	24	20	13	16
Brown 11	19	21	24	22	24	22	26	31	28	22	14	16
Brown 2	26	25	32	31	29	34	28	29	34	27	25	26
Brown 3	20	20	14	19	18	18	22	19	18	16	21	18
Brown 5	18	20	20	20	22	21	24	25	25	21	14	15
Brown 6	91	91	92	92	92	92	92	92	92	88	85	88
Brown 7	92	91	92	91	91	92	92	91	92	87	84	85
Brown 8	24	28	31	27	30	28	33	36	35	27	19	21
Brown 9	21	25	27	24	27	25	28	32	31	26	17	20
Cane Run 11	1	1	1	1	1	1	1	1	1	1	1	1
Cane Run 4	0	0	0	0	0	0	0	0	0	0	0	0
Cane Run 5	0	0	0	0	0	0	0	0	0	0	0	0
Cane Run 6	0	0	0	0	0	0	0	0	0	0	0	0
Cane Run 7	91	95	76	95	91	95	91	80	91	95	91	95
[redacted]	0	0	0	0	0	0	0	0	0	0	0	0
Dix Dam	28	28	28	28	28	28	28	28	28	28	28	28
DSM	100	100	100	100	100	100	100	100	100	0	0	0
Ghent 1	35	32	39	42	40	38	42	45	41	29	26	24
Ghent 2	17	18	21	19	19	20	18	24	18	12	13	12
Ghent 3	9	9	11	11	9	11	10	14	10	7	6	6
Ghent 4	5	6	6	6	6	6	6	8	7	5	4	3
Green River 3	0	0	0	0	0	0	0	0	0	0	0	0
Green River 4	0	0	0	0	0	0	0	0	0	0	0	0
Haefling	0	0	0	0	0	0	0	1	1	0	0	0
Mill Creek 1	47	50	49	50	48	50	44	53	49	46	39	43
Mill Creek 2	56	51	59	53	55	47	55	54	58	50	50	49
Mill Creek 3	23	23	27	28	24	28	26	30	26	21	21	23
Mill Creek 4	37	35	41	33	35	37	35	31	37	30	23	24
New CC1x1	0	0	0	0	0	0	0	0	0	0	0	0
New CC2x1	0	0	0	0	0	0	0	0	0	95	95	95

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Annual Capacity Factor per Unit by Scenario (%

	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042
New SCCT	0	0	0	0	0	0	0	0	0	0	0	0
Ohio Falls	100	100	100	100	100	100	100	100	100	100	100	100
Paddys Run 11	1	0	1	1	1	1	1	1	1	1	0	0
Paddys Run 12	1	0	1	1	1	1	1	1	1	1	1	0
Paddys Run 13	46	46	46	46	46	46	46	46	46	43	42	41
Self-build Solar	100	100	100	100	100	100	100	100	100	100	100	100
Trimble Co 05	91	92	91	92	92	92	92	92	93	87	85	86
Trimble Co 06	89	90	90	90	90	90	90	91	90	85	81	82
Trimble Co 07	86	86	87	86	86	87	87	88	88	82	77	77
Trimble Co 08	61	63	66	63	63	63	65	67	66	59	51	52
Trimble Co 09	81	82	84	82	83	83	84	85	85	78	72	73
Trimble Co 10	54	56	58	55	55	57	58	60	58	52	42	44
Trimble County 1	44	47	41	47	44	48	43	50	45	44	33	40
Trimble County 2	81	73	83	68	81	74	82	75	82	72	75	64
Zorn 1	1	1	1	1	1	1	1	1	1	1	1	0
High Gas-Low Load-Mid Carbon												
2018 NGCC	94	94	94	94	94	94	94	94	94	93	93	92
Brown 1	27	25	26	24	27	29	31	34	29	26	21	21
Brown 10	1	0	1	1	0	1	1	1	1	0	0	0
Brown 11	1	1	1	1	1	1	1	1	1	0	0	1
Brown 2	47	57	58	59	58	59	58	52	61	54	49	47
Brown 3	21	20	24	23	24	24	28	29	30	20	25	24
Brown 5	1	1	1	1	1	1	1	1	1	0	0	1
Brown 6	6	6	9	7	8	7	7	10	8	4	3	4
Brown 7	7	8	12	10	10	9	9	13	10	7	4	6
Brown 8	1	1	1	1	1	1	1	1	1	1	1	1
Brown 9	1	1	1	1	1	1	1	1	1	0	0	0
Cane Run 11	0	0	0	0	0	0	0	0	1	0	0	0
Cane Run 4	0	0	0	0	0	0	0	0	0	0	0	0
Cane Run 5	0	0	0	0	0	0	0	0	0	0	0	0
Cane Run 6	0	0	0	0	0	0	0	0	0	0	0	0
Cane Run 7	90	95	76	95	91	95	90	79	91	92	87	91
[redacted]	0	0	0	0	0	0	0	0	0	0	0	0
Dix Dam	28	28	28	28	28	28	28	28	28	28	28	28

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Annual Capacity Factor per Unit by Scenario (%

	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042
DSM	100	100	100	100	100	100	100	100	100	0	0	0
Ghent 1	64	65	64	66	66	58	66	66	68	62	62	60
Ghent 2	56	57	54	58	58	59	58	61	59	47	47	48
Ghent 3	48	41	52	49	52	52	50	55	45	43	34	35
Ghent 4	36	36	45	39	35	46	45	48	45	37	25	23
Green River 3	0	0	0	0	0	0	0	0	0	0	0	0
Green River 4	0	0	0	0	0	0	0	0	0	0	0	0
Haefling	0	0	0	0	0	0	0	0	0	0	0	0
Mill Creek 1	56	61	58	61	58	62	53	63	59	56	52	56
Mill Creek 2	66	61	68	61	66	57	65	65	66	57	61	58
Mill Creek 3	60	64	61	64	56	63	60	67	60	62	54	61
Mill Creek 4	62	60	64	59	62	59	63	54	63	57	56	53
New CC1x1	0	0	0	0	0	0	0	0	0	0	0	0
New CC2x1	0	0	0	0	0	0	0	0	0	93	93	93
New SCCT	0	0	0	0	0	0	0	0	0	0	0	0
Ohio Falls	100	100	100	100	100	100	100	100	100	100	100	100
Paddys Run 11	0	0	0	0	0	0	0	0	1	0	0	0
Paddys Run 12	0	0	0	0	0	0	0	0	0	0	0	0
Paddys Run 13	8	8	9	8	10	8	9	10	9	7	6	6
Self-build Solar	100	100	100	100	100	100	100	100	100	100	100	100
Trimble Co 05	15	18	19	17	18	14	16	19	16	11	8	7
Trimble Co 06	11	13	14	13	14	11	12	16	14	10	7	6
Trimble Co 07	8	9	11	10	10	8	10	12	11	7	5	5
Trimble Co 08	3	3	4	3	4	4	4	5	5	2	1	2
Trimble Co 09	6	7	8	7	8	6	7	8	8	5	3	4
Trimble Co 10	2	2	3	2	3	3	3	4	3	2	1	1
Trimble County 1	65	71	61	71	64	71	65	72	64	67	52	65
Trimble County 2	85	77	85	71	86	79	86	79	86	76	80	68
Zorn 1	0	0	0	0	0	0	0	0	0	0	0	0

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Question No. 28

Witness: Paul W. Thompson

Q2.28. Please refer to the Joint Application. Please explain why there is no change in the level of curtailable demand over the planning period.

A2.28. See the response to AG 2-15.

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Question No. 29

Witness: Paul W. Thompson

Q2.29. Please refer to the direct testimony of Paul Thompson.

a. Please explain the standard used to determine the "relatively minor" impact described on page 5, line 18.

b. Please explain the standard used to determine contributions that "diversify" the Companies' fuel supply sources and reduce future greenhouse gas emissions, as described on page 5, line 20.

c. Please detail how load and change in load have deviated from forecasts over the past 20 years.

A2.29.

a. As described in the response to AG 1-189, based on the specific revenue requirement for the Brown Solar Facility the projected overall revenue increase for each Company would be approximately 0.1%.

b. There was no "standard" utilized. Rather, the statement is based on: (i) the results discussed in Section 4.6 of Exhibit DSS-1 wherein system revenue requirements were either reduced or not materially increased with the addition of the Brown Solar Facility; (ii) the Brown Solar Facility will consume no fuel; and (iii) the Brown Solar Facility will not emit any greenhouse gases.

c. LG&E and KU did not merge until July 1998 so there is no combined company forecast that goes back 20 years. See response to SC 1.14(b) for load forecasts since 2004. See attached for a comparison of actual results to the forecasts provided in response to SC 1.14(b).

		Load Forecast								
GWh	**Actual Sales**	**2005 LF**	**2006 LF**	**2007 LF**	**2008 LF**	**2009 LF**	**2010 LF**	**2011 LF**	**2012 LF**	**2013 LF**
2005	33,282	32,522								
2006	32,639	33,160	34,332							
2007	34,301	33,922	35,362	34,324						
2008	33,273	34,716	36,214	35,128	34,731					
2009	31,665	35,343	36,886	35,718	35,267	32,616				
2010	34,276	35,966	37,466	36,300	35,754	32,669	31,973			
2011	32,803	36,728	38,183	36,892	36,328	33,235	32,900	33,675		
2012	32,794	37,401	38,780	37,434	36,843	34,122	33,902	34,094	33,840	
2013	32,968	38,200	39,485	37,989	37,268	34,696	34,643	34,527	34,127	33,710

Variance (GWh)	**2005 LF**	**2006 LF**	**2007 LF**	**2008 LF**	**2009 LF**	**2010 LF**	**2011 LF**	**2012 LF**	**2013 LF**
2005	(760)								
2006	520	1,693							
2007	(379)	1,061	23						
2008	1,443	2,941	1,855	1,458					
2009	3,677	5,221	4,053	3,601	951				
2010	1,689	3,189	2,023	1,477	(1,608)	(2,303)			
2011	3,924	5,380	4,089	3,525	431	97	871		
2012	4,607	5,986	4,640	4,049	1,328	1,109	1,301	1,046	
2013	5,232	6,517	5,021	4,300	1,727	1,674	1,559	1,159	742

		Load Forecast								
MW	**Actual Peak Demand**	**2005 LF**	**2006 LF**	**2007 LF**	**2008 LF**	**2009 LF**	**2010 LF**	**2011 LF**	**2012 LF**	**2013 LF**
2005	6,833	6,696								
2006	6,863	6,811	6,874							
2007	7,132	6,951	7,057	7,015						
2008	6,357	7,125	7,238	7,192	7,095					
2009	6,555	7,272	7,382	7,330	7,188	6,681				
2010	7,175	7,383	7,480	7,434	7,280	6,741	6,685			
2011	6,756	7,556	7,641	7,569	7,404	6,755	6,794	6,871		
2012	6,856	7,662	7,730	7,648	7,512	6,783	6,856	6,938	7,047	
2013	6,434	7,859	7,906	7,794	7,600	6,911	6,871	7,054	7,089	6,952

Variance (MW)	**2005 LF**	**2006 LF**	**2007 LF**	**2008 LF**	**2009 LF**	**2010 LF**	**2011 LF**	**2012 LF**	**2013 LF**
2005	(137)								
2006	(52)	11							
2007	(181)	(75)	(117)						
2008	768	881	835	738					
2009	717	827	775	633	126				
2010	208	305	259	105	(435)	(490)			
2011	800	885	814	648	(1)	38	116		
2012	806	875	792	656	(73)	0	82	191	
2013	1,425	1,473	1,360	1,166	478	437	621	655	519

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Question No. 30

Witness: David S. Sinclair

Q2.30. Please refer to Exhibit DSS-1. Please explain and provide documentation and analysis relevant to the assertion that the proposed solar facility is "a prudent hedge against both GHG regulations and natural gas price risk."

A2.30. Based on the information that is known today about the risk of GHG regulations and future natural gas prices, as shown in Section 4.6 of Exhibit DSS-1, the Brown Solar facility has the potential to reduce the PVRR of serving load in certain scenarios without a large increase in the PVRR of serving load in other scenarios. Thus, the potential "cost" of the hedge is not very large.

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Question No. 31

Witness: David S. Sinclair

Q2.31. Please refer to Confidential Exhibit DSS-1, page 21.

a. Please explain why the Companies based the second iteration of the Phase 2 analysis on the timing of the earliest possible construction of a new NGCC.

b. Please provide correspondence, documentation and analyses used in determining that the [redacted] proposal would not be considered.

c. Please provide what the Companies used as replacement resources during the 30- year analysis for each instance that a bid did not cover the entire analysis period.
   i. Please provide analyses and workpapers supporting the choice of replacement resources.

d. Did the Companies include end-effects in the PVRR calculations?
   i. If so, please provide the workpapers with calculations of end effects for all scenarios and bids.

A2.31.

a. The second iteration of the Phase 2 analysis was not based on the timing of the earliest possible construction of a new NGCC. The contract term for approximately half of the alternatives considered began before 2018. New NGCC units were assumed to be available in 2018 because 2018 is the earliest a new NGCC can be permitted and constructed.

b. Upon meeting with [redacted], its proposal proved to be unacceptably preliminary and conceptual in nature. For example, [redacted] did not have a site selected for the NGCC, had not applied for any site-related permits, and had not requested any transmission related studies. However, based on [redacted] RFP response, the Companies understood that [redacted] was offering a long-term, fixed price offer for natural gas. The Companies explored this further, since a long-term fixed priced fuel agreement could

potentially make the [redacted] proposal attractive. During the Jan 22, 2013 meeting with [redacted] the Companies determined that [redacted] was not offering a fixed gas price as previously understood. This is confirmed in the written response received from [redacted] on January 25, 2013. See attached. The information requested is confidential and proprietary, and is being provided under seal pursuant to a petition for confidential treatment.

c. See Table 10 on page 16 of Exhibit DSS-1. The selection of replacement resources ("long-term generic resources") was based on the results of the 2011 IRP. This selection is also supported by the results of the 2014 IRP.

d. End-effects are considered by Strategist in the selection of the least-cost expansion plan for each alternative and scenario. Consistent with past analyses, end-effects are not considered in the 30-year present value of revenue requirements calculation. See the response to PSC 1-22 for all Strategist-related files.

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Question No. 32

Witness: David S. Sinclair

Q2.32. Refer to Confidential Exhibit DSS-1, page 23. With regards to the [redacted]:

a. Provide the terms of the proposed PPA.

b. State whether the Companies have entered into a PPA with the [redacted].
   i. If not, describe the status of any discussions with [redacted], and identify any deadline by which the PPA offer would expire.

A2.32.

a. See the table below. The information requested is confidential and proprietary, and is being provided under seal pursuant to a petition for confidential treatment.

Contract Term:	[redacted]
Contract Quantity:	[redacted]
Capacity Price (2015-2018):	[redacted]
Capacity Price (2019 - End of Term):	[redacted]
Variable O&M:	[redacted]
Start Cost:	[redacted]
Start Fuel:	[redacted]
Environmental Surcharge*:	[redacted]
Fuel:	[redacted]
Scheduling:	[redacted]
Firm Transmission Service ([redacted]):	[redacted]

*Based on the 2020 estimated environmental surcharge percentage; value is applied to capacity price, fuel costs, variable O&M, and start cost.

b. The Companies have not entered into a PPA for capacity and energy from the [redacted] Plant.
   i. See the response to KIUC 2-17.

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Question No. 33

Witness: David S. Sinclair

Q2.33. Please refer to Confidential Exhibit DSS-1, page 24.

a. Please explain why a PVRR difference in capital and firm gas transportation costs of [redacted] for the [redacted] NGCC proposal relative to the Companies' self-build NGCC was sufficient to dismiss the [redacted] proposal from further analysis.

   i. Please confirm that this represents a [redacted] difference in PVRR of capital costs.

b. Please explain why production cost modeling was not warranted given the small difference in PVRR for capital and firm gas costs between the two projects.

A2.33.

a. Table 18 on page 24 of Exhibit DSS-1 compares the unit capital, transmission capital, and firm gas transportation costs of the [redacted] proposal to building the exact same 785 MW unit at the Green River site. $6 million is approximately a 0.5% PVRR difference, but this difference – even with the transmission system upgrade costs – does not fully reflect the extent to which the Green River site is better integrated with the Companies' transmission system. In addition, the [redacted] proposal would [redacted]. It is not clear that this technology is least-cost.

b. See response to AG 1-144. Because the comparison involves the exact same unit, the unit's production costs and impact on the Companies' expansion plan were assumed to be the same at either site.

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Question No. 34

Witness: David S. Sinclair

Q2.34. Please refer to the Confidential Exhibit DSS-1, page 32 which states, "The capital cost of solar alternatives in Iteration 1 (alternative C28H and C28I) is [redacted]-[redacted]/kW. At this price level, justification for solar projects is difficult":

a. Please confirm or deny that the Companies' self-build solar project represented the [redacted] of this range during Iteration 1.

b. Did the Companies contact the [redacted] which represented the [redacted] of the range above at any point after Iteration 1?
   i. If so, please provide any correspondence between the Companies and the bidder.
   ii. If not, why not?

c. Does the subsequent price reduction in the Companies' solar build project apply to the [redacted]
   i. If so, please explain with supporting analyses and workpapers.
   ii. If not, why not?

A2.34.

a. The statement is correct.

b. No. This bidder proposed to construct a solar facility at a site to be determined. This bidder will be invited to bid on the construction of the Brown Solar facility if this project is approved.

c. The Companies have not requested or received an updated proposal from this bidder.

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Question No. 35

Witness: David S. Sinclair

Q2.35. Please refer to the Confidential Exhibit DSS-1, Table 25 on page 32. Please confirm or deny that DSM Commercial New Construction is included in the Companies' proposed least-cost plan going forward.

a. If denied, please provide analyses and workpapers supporting the decision to exclude this program.

A2.35. Yes, see also the response to AG 1-60.

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Question No. 36

Witness: David S. Sinclair

Q2.36. Please refer to the Confidential Exhibit DSS-1, Table 26 on page 33.

a. Please describe how the term lengths of the PPA's were chosen along with supporting analyses and workpapers.

b. Please provide the reserve margin that was used in this stage of the analysis.

c. Did the Companies confirm with each of the bidders listed in this table that the PPA's could be shortened or lengthened to match the terms in this table?
   i. If so, please list those parties that confirmed the terms listed in the table and any documentation or correspondence to that effect.
   ii. If not, why not?

d. Did the Companies contact the bidders offering wind PPAs to determine whether the bidders would offer short-term wind PPAs (5 years or less)?
   i. If so, please provide all documents regarding such discussions.
   ii. If not, please explain why not.

A2.36.

a-b. Depending on the capacity of the PPA, PPA terms were selected to defer the unit up to three years. A 16 percent reserve margin was used in this stage of the analysis.

c. The Companies only contacted the bidders with the most competitive proposals to confirm that the PPAs could be shortened or lengthened.

d. No. The combined summer capacity rating of the three wind proposals during the Companies' summer peak demand is not sufficient to defer the Green River NGCC.

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Question No. 37

Witness: David S. Sinclair

Q2.37. Please refer to the Confidential Exhibit DSS-1, page 41.

a. Please explain what is meant by "the uncertainty regarding environmental viability of the units."

b. Did the Companies evaluate the "environmental viability" of the [redacted] units?
   i. If so, please provide supporting analyses and workpapers.
   ii. If not, why not?

c. Please explain why the Companies dismissed the [redacted] proposal after already choosing it as the low-cost deferral option rather than removing it from the analysis at the beginning.

d. Did the Companies examine the financial risks of any of the other bidders besides [redacted]
   i. If so, please provide supporting analyses and workpapers.
   ii. If not, why not?

A2.37.

a. The environmental risks associated with the [redacted] generating assets are discussed in Section 6.3.3 of Appendix C to Exhibit DSS-1.

b. No.

c. The Companies' evaluation process focused first on the economic aspects of all RFP responses.

d. No.

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Question No. 38

Witnesses: Edwin R. Staton

Q2.38. Please provide the Companies' current revenue sharing provision for off-system sales revenue.

A2.38. The Companies do not have a specific off-system sales revenue sharing mechanism. In Kentucky, any revenue received from off-system sales during the test year used to establish new base rates is a 100% credit in the determination of the revenue requirement.