SECURITIES AND EXCHANGE COMMISSION

FORM 10-Q

Quarterly report pursuant to sections 13 or 15(d)

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CALPINE CORP

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UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

Form 10-Q

(Mark One)

[X] QUARTERLY REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the quarterly period ended June 30, 2019

Or

[ ] TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the transition period from to
Commission File No. 001-12079

Calpine Corporation

(A Delaware Corporation)

I.R.S. Employer Identification No. 77-0212977

717 Texas Avenue, Suite 1000, Houston, Texas 77002
Telephone: (713) 830-2000

Not Applicable
(Former Address)

Securities registered pursuant to Section 12(b) of the Act: None

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes [ ] No [X]

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). Yes [X] No [ ]

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company, or an emerging growth company. See definitions of “large accelerated filer,” “accelerated filer,” “smaller reporting company,” and “emerging growth company” in Rule 12b-2 of the Exchange Act.

Large accelerated filer	[ ]	Accelerated filer	[ ]
Non-accelerated filer	[X]	Smaller reporting company	[ ]
Emerging growth company	[ ]		

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. [ ]

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act). Yes [ ] No [X]

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Indicate the number of shares outstanding of each of the registrant's classes of common stock, as of the latest practicable date: 105.2 shares of common stock, par value $0.001, were outstanding as of August 7, 2019, none of which were publicly traded.

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CALPINE CORPORATION AND SUBSIDIARIES

REPORT ON FORM 10-Q
For the Quarter Ended June 30, 2019

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DEFINITIONS

As used in this report for the quarter ended June 30, 2019 (this "Report"), the following abbreviations and terms have the meanings as listed below. Additionally, the terms "Calpine," "we," "us" and "our" refer to Calpine Corporation and its consolidated subsidiaries, unless the context clearly indicates otherwise. The term "Calpine Corporation" refers only to Calpine Corporation and not to any of its subsidiaries. Unless and as otherwise stated, any references in this Report to any agreement means such agreement and all schedules, exhibits and attachments in each case as amended, restated, supplemented or otherwise modified to the date of filing this Report.

ABBREVIATION	DEFINITION
2018 Form 10-K	Calpine Corporation's Annual Report on Form 10-K for the year ended December 31, 2018, filed with the SEC on March 28, 2019
2019 First Lien Term Loan	The $400 million first lien senior secured term loan, dated February 3, 2017, among Calpine Corporation, as borrower, the lenders party thereto, Morgan Stanley Senior Funding, Inc., as administrative agent and MUFG Union Bank, N.A., as collateral agent, repaid on April 5, 2019
2022 First Lien Notes	The $750 million aggregate principal amount of 6.0% senior secured notes due 2022, issued October 31, 2013
2023 First Lien Term Loans	The $550 million first lien senior secured term loan, dated December 15, 2015, among Calpine Corporation, as borrower, the lenders party thereto, Morgan Stanley Senior Funding, Inc., as administrative agent and Goldman Sachs Credit Partners L.P., as collateral agent, repaid on April 5, 2019, and the $562 million first lien senior secured term loan, dated May 31, 2016, among Calpine Corporation, as borrower, the lenders party thereto, Citibank, N.A., as administrative agent and MUFG Union Bank, N.A., as collateral agent
2023 Senior Unsecured Notes	The $1.25 billion aggregate principal amount of 5.375% senior unsecured notes due 2023, issued July 22, 2014
2024 First Lien Notes	The $490 million aggregate principal amount of 5.875% senior secured notes due 2024, issued October 31, 2013
2024 First Lien Term Loan	The $1.6 billion first lien senior secured term loan, dated May 28, 2015 (as amended December 21, 2016), among Calpine Corporation, as borrower, the lenders party thereto, Morgan Stanley Senior Funding, Inc., as administrative agent and Goldman Sachs Credit Partners L.P., as collateral agent
2024 Senior Unsecured Notes	The $650 million aggregate principal amount of 5.5% senior unsecured notes due 2024, issued February 3, 2015
2025 Senior Unsecured Notes	The $1.55 billion aggregate principal amount of 5.75% senior unsecured notes due 2025, issued July 22, 2014
2026 First Lien Notes	Collectively, the $625 million aggregate principal amount of 5.25% senior secured notes due 2026, issued May 31, 2016, and the $560 million aggregate principal amount of 5.25% senior secured notes due 2026, issued on December 15, 2017
2026 First Lien Term Loan	The $950 million first lien senior secured term loan, dated April 5, 2019, among Calpine Corporation, as borrower, the lenders party thereto, Morgan Stanley Senior Funding, Inc., as administrative agent and MUFG Union Bank, N.A., as collateral agent
Accounts Receivable Sales Program	Receivables purchase agreement between Calpine Solutions and Calpine Receivables and the purchase and sale agreement between Calpine Receivables and an unaffiliated financial

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	institution, both which allows for the revolving sale of up to $250 million in certain trade accounts receivables to third parties
AOCI	Accumulated Other Comprehensive Income
Average availability	Represents the total hours during the period that our plants were in-service or available for service as a percentage of the total hours in the period

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ABBREVIATION	DEFINITION
Average capacity factor, excluding peakers	A measure of total actual power generation as a percent of total potential power generation. It is calculated by dividing (a) total MWh generated by our power plants, excluding peakers, by (b) the product of multiplying (i) the average total MW in operation, excluding peakers, during the period by (ii) the total hours in the period
Btu	British thermal unit(s), a measure of heat content
Calpine Receivables	Calpine Receivables, LLC, an indirect, wholly owned subsidiary of Calpine, which was established as bankruptcy remote, special purpose subsidiary and is responsible for administering the Accounts Receivable Sales Program
Calpine Solutions	Calpine Energy Solutions, LLC, an indirect, wholly owned subsidiary of Calpine, which is a supplier of power to commercial and industrial retail customers in the United States with customers in 20 states, including presence in California, Texas, the Mid-Atlantic and the Northeast
CCFC	Calpine Construction Finance Company, L.P., an indirect, wholly owned subsidiary of Calpine
CCFC Term Loan	The $1.0 billion first lien senior secured term loan entered into on December 15, 2017 among CCFC as borrower, the lenders party thereto, and Credit Suisse AG, Cayman Islands Branch, as administrative agent and collateral agent
CDHI	Calpine Development Holdings, Inc., an indirect, wholly owned subsidiary of Calpine
Champion Energy	Champion Energy Marketing, LLC, which owns a retail electric provider that serves residential, governmental, commercial and industrial customers in deregulated electricity markets in 14 states and the District of Columbia, including presence in California, Texas, the Mid-Atlantic and Northeast
Cogeneration	Using a portion or all of the steam generated in the power generating process to supply a customer with steam for use in the customer's operations
Commodity expense	The sum of our expenses from fuel and purchased energy expense, commodity transmission and transportation expense, environmental compliance expenses, ancillary retail expense and realized settlements from our marketing, hedging and optimization activities including natural gas and fuel oil transactions hedging future power sales
Commodity Margin	Measure of profit reviewed by our chief operating decision maker that includes revenue recognized on our wholesale and retail power sales activity, electric capacity sales, REC sales, steam sales, realized settlements associated with our marketing, hedging, optimization and trading activities, fuel and purchased energy expenses, commodity transmission and transportation expenses, environmental compliance expenses and ancillary retail expense. Commodity Margin is a measure of segment profit or loss under FASB Accounting Standards Codification 280 used by our chief operating decision maker to make decisions about allocating resources to the relevant segments and assessing their performance
Commodity revenue	The sum of our revenues recognized on our wholesale and retail power sales activity, electric capacity sales, REC sales, steam sales and realized settlements from our marketing, hedging, optimization and trading activities
Company	Calpine Corporation, a Delaware corporation, and its subsidiaries
Corporate Revolving Facility	The approximately $2.02 billion aggregate amount revolving credit facility credit agreement, dated as of December 10, 2010, as amended on June 27, 2013, July 30, 2014, February 8,

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	2016, December 1, 2016, September 15, 2017, October 20, 2017, March 8, 2018, May 18, 2018 and April 5, 2019 among Calpine Corporation, the Bank of Tokyo-Mitsubishi UFJ, Ltd., as successor administrative agent, MUFG Union Bank, N.A., as successor collateral agent, the lenders party thereto and the other parties thereto
CPN Management	CPN Management, LP, which owns 100% of the common stock of Calpine Corporation
Exchange Act	U.S. Securities Exchange Act of 1934, as amended

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ABBREVIATION	DEFINITION
FASB	Financial Accounting Standards Board
FERC	U.S. Federal Energy Regulatory Commission
First Lien Notes	Collectively, the 2022 First Lien Notes, the 2024 First Lien Notes and the 2026 First Lien Notes
First Lien Term Loans	Collectively, the 2019 First Lien Term Loan, the 2023 First Lien Term Loans, the 2024 First Lien Term Loan and the 2026 First Lien Term Loan
Greenfield LP	Greenfield Energy Centre LP, a 50% partnership interest between certain of our subsidiaries and a third-party which operates the Greenfield Energy Centre, a 1,038 MW natural gas-fired, combined-cycle power plant in Ontario, Canada
Heat Rate(s)	A measure of the amount of fuel required to produce a unit of power
IRS	U.S. Internal Revenue Service
ISO(s)	Independent System Operator, which is an entity that coordinates, controls and monitors the operation of an electric power system
KWh	Kilowatt hour(s), a measure of power produced, purchased or sold
LIBOR	London Inter-Bank Offered Rate
Lyondell	LyondellBasell Industries N.V.
Market Heat Rate(s)	The regional power price divided by the corresponding regional natural gas price
Merger	Merger of Volt Merger Sub, Inc. with and into Calpine pursuant to the terms of the Merger Agreement, which was consummated on March 8, 2018
Merger Agreement	Agreement and Plan of Merger, dated, August 17, 2017, by and among Calpine Corporation, Volt Parent, LP and Volt Merger Sub, Inc.
MMBtu	Million Btu
MW	Megawatt(s), a measure of plant capacity
MWh	Megawatt hour(s), a measure of power produced, purchased or sold
NOL(s)	Net operating loss(es)
OCI	Other Comprehensive Income
OMEC	Otay Mesa Energy Center, LLC, an indirect, wholly owned subsidiary that owns the Otay Mesa Energy Center, a 608 MW power plant located in San Diego County, California
OTC	Over-the-Counter
PJM	PJM Interconnection is a RTO that coordinates the movement of wholesale electricity in all or parts of Delaware, Illinois, Indiana, Kentucky, Maryland, Michigan, New Jersey, North Carolina, Ohio, Pennsylvania, Tennessee, Virginia, West Virginia and the District of Columbia

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PPA(s)	Any term power purchase agreement or other contract for a physically settled sale (as distinguished from a financially settled future, option or other derivative or hedge transaction) of any power product, including power, capacity and/or ancillary services, in the form of a bilateral agreement or a written or oral confirmation of a transaction between two parties to a master agreement, including sales related to a tolling transaction in which the purchaser provides the fuel required by us to generate such power and we receive a variable payment to convert the fuel into power and steam
REC(s)	Renewable energy credit(s)

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ABBREVIATION	DEFINITION
Risk Management Policy	Calpine's policy applicable to all employees, contractors, representatives and agents, which defines the risk management framework and corporate governance structure for commodity risk, interest rate risk, currency risk and other risks
RTO(s)	Regional Transmission Organization, which is an entity that coordinates, controls and monitors the operation of an electric power system and administers the transmission grid on a regional basis
SDG&E	San Diego Gas & Electric Company
SEC	U.S. Securities and Exchange Commission
Securities Act	U.S. Securities Act of 1933, as amended
Senior Unsecured Notes	Collectively, the 2023 Senior Unsecured Notes, the 2024 Senior Unsecured Notes and the 2025 Senior Unsecured Notes
Spark Spread(s)	The difference between the sales price of power per MWh and the cost of natural gas to produce it
Steam Adjusted Heat Rate	The adjusted Heat Rate for our natural gas-fired power plants, excluding peakers, calculated by dividing (a) the fuel consumed in Btu reduced by the net equivalent Btu in steam exported to a third-party by (b) the KWh generated. Steam Adjusted Heat Rate is a measure of fuel efficiency, so the lower our Steam Adjusted Heat Rate, the lower our cost of generation
U.S. GAAP	Generally accepted accounting principles in the U.S.
VAR	Value-at-risk
VIE(s)	Variable interest entity(ies)
Whitby	Whitby Cogeneration Limited Partnership, a 50% partnership interest between certain of our subsidiaries and a third-party, which operates Whitby, a 50 MW natural gas-fired, simple-cycle cogeneration power plant located in Ontario, Canada

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Forward-Looking Statements

This Report contains "forward-looking statements" within the meaning of the Private Securities Litigation Reform Act of 1995, Section 27A of the Securities Act, and Section 21E of the Exchange Act. Forward-looking statements may appear throughout this Report, including without limitation, the "Management's Discussion and Analysis" section. We use words such as "believe," "intend," "expect," "anticipate," "plan," "may," "will," "should," "estimate," "potential," "project" and similar expressions to identify forward-looking statements. Such statements include, among others, those concerning our expected financial performance and strategic and operational plans, as well as all assumptions, expectations, predictions, intentions or beliefs about future events. We believe that the forward-looking statements are based upon reasonable assumptions and expectations. However, you are cautioned that any such forward-looking statements are not guarantees of future performance and that a number of risks and uncertainties could cause actual results to differ materially from those anticipated in the forward-looking statements. Such risks and uncertainties include, but are not limited to:

- Financial results that may be volatile and may not reflect historical trends due to, among other things, seasonality of demand, fluctuations in prices for commodities such as natural gas and power, changes in U.S. macroeconomic conditions, fluctuations in liquidity and volatility in the energy commodities markets and our ability and the extent to which we hedge risks;
- Laws, regulations and market rules in the wholesale and retail markets in which we participate and our ability to effectively respond to changes in laws, regulations or market rules or the interpretation thereof including those related to the environment, derivative transactions and market design in the regions in which we operate;
- Our ability to manage our liquidity needs, access the capital markets when necessary and comply with covenants under our Senior Unsecured Notes, First Lien Notes, First Lien Term Loans, Corporate Revolving Facility, CCFC Term Loan and other existing financing obligations;
- Risks associated with the operation, construction and development of power plants, including unscheduled outages or delays and plant efficiencies;
- Risks related to our geothermal resources, including the adequacy of our steam reserves, unusual or unexpected steam field well and pipeline maintenance requirements, variables associated with the injection of water to the steam reservoir and potential regulations or other requirements related to seismicity concerns that may delay or increase the cost of developing or operating geothermal resources;
- Extensive competition in our wholesale and retail businesses, including from renewable sources of power, interference by states in competitive power markets through subsidies or similar support for new or existing power plants, lower prices and other incentives offered by retail competitors, and other risks associated with marketing and selling power in the evolving energy markets;
- Structural changes in the supply and demand of power, resulting from the development of new fuels or technologies and demand-side management tools (such as distributed generation, power storage and other technologies);
- The expiration or early termination of our PPAs and the related results on revenues;
- Future capacity revenue may not occur at expected levels;
- Natural disasters, such as hurricanes, earthquakes, droughts, wildfires and floods, acts of terrorism or cyber attacks that may affect our power plants or the markets our power plants or retail operations serve and our corporate offices;
- Disruptions in or limitations on the transportation of natural gas or fuel oil and the transmission of power;
- Our ability to manage our counterparty and customer exposure and credit risk, including our commodity positions or if a significant customer were to seek bankruptcy protection under Chapter 11;
- Our ability to attract, motivate and retain key employees;
- Present and possible future claims, litigation and enforcement actions that may arise from noncompliance with market rules promulgated by the SEC, Commodity Futures Trading Commission, FERC and other regulatory bodies; and
- Other risks identified in this Report, in our 2018 Form 10-K and in other reports filed by us with the SEC.

Given the risks and uncertainties surrounding forward-looking statements, you should not place undue reliance on these statements. Many of these factors are beyond our ability to control or predict. Our forward-looking statements speak only as of the date

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of this Report. Other than as required by law, we undertake no obligation to update or revise forward-looking statements, whether as a result of new information, future events, or otherwise.

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Where You Can Find Other Information

Our website is www.calpine.com. Information contained on our website is not part of this Report. Information that we furnish or file with the SEC, including our annual reports on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K and any amendments to, or exhibits included in, these reports are available for download, free of charge, through our website. Our SEC filings, including exhibits filed therewith, are also available directly on the SEC's website at www.sec.gov.

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PART I — FINANCIAL INFORMATION

Item 1. ***Financial Statements***

CALPINE CORPORATION AND SUBSIDIARIES
CONSOLIDATED CONDENSED STATEMENTS OF OPERATIONS
(Unaudited)

	Three Months Ended June 30,		Six Months Ended June 30,	
	2019	2018	2019	2018
		(in millions)		
Operating revenues:				
Commodity revenue	$ 2,128	$ 2,121	$ 4,666	$ 4,517
Mark-to-market gain (loss)	467	131	523	(260)
Other revenue	4	7	9	11
Operating revenues	2,599	2,259	5,198	4,268
Operating expenses:				
Fuel and purchased energy expense:				
Commodity expense	1,367	1,426	3,125	3,216
Mark-to-market (gain) loss	280	(57)	290	(77)
Fuel and purchased energy expense	1,647	1,369	3,415	3,139
Operating and maintenance expense	245	242	484	517
Depreciation and amortization expense	175	186	349	387
General and other administrative expense	34	31	66	91
Other operating expenses	19	19	38	56
Total operating expenses	2,120	1,847	4,352	4,190
Impairment losses	40	—	55	—
(Income) from unconsolidated subsidiaries	(5)	(5)	(11)	(11)
Income from operations	444	417	802	89
Interest expense	157	157	306	308
(Gain) loss on extinguishment of debt	3	—	(1)	—
Other (income) expense, net	5	62	28	69
Income (loss) before income taxes	279	198	469	(288)
Income tax expense (benefit)	9	(158)	19	(50)
Net income (loss)	270	356	450	(238)
Net income attributable to the noncontrolling interest	(4)	(4)	(9)	(8)
Net income (loss) attributable to Calpine	$ 266	$ 352	$ 441	$ (246)

The accompanying notes are an integral part of these Consolidated Condensed Financial Statements.

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CALPINE CORPORATION AND SUBSIDIARIES

CONSOLIDATED CONDENSED STATEMENTS OF COMPREHENSIVE INCOME (LOSS)
(Unaudited)

	Three Months Ended June 30,		Six Months Ended June 30,	
	2019	2018	2019	2018
	(in millions)			
Net income (loss)	$ 270	$ 356	$ 450	$ (238)
Cash flow hedging activities:				
Gain (loss) on cash flow hedges before reclassification adjustment for cash flow hedges realized in net income (loss)	(29)	15	(52)	63
Reclassification adjustment for (gain) loss on cash flow hedges realized in net income (loss)	(3)	—	(5)	7
Foreign currency translation gain (loss)	1	(2)	3	(8)
Income tax benefit (expense)	1	7	1	(4)
Other comprehensive income (loss)	(30)	20	(53)	58
Comprehensive income (loss)	240	376	397	(180)
Comprehensive (income) attributable to the noncontrolling interest	(3)	(4)	(8)	(10)
Comprehensive income (loss) attributable to Calpine	$ 237	$ 372	$ 389	$ (190)

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CALPINE CORPORATION AND SUBSIDIARIES

CONSOLIDATED CONDENSED BALANCE SHEETS

(Unaudited)

	June 30, 2019	December 31, 2018
	(in millions, except share and per share amounts)	
ASSETS		
Current assets:		
Cash and cash equivalents ($33 and $43 attributable to VIEs)	$ 297	$ 205
Accounts receivable, net of allowance of $8 and $9	806	1,022
Inventories	541	525
Margin deposits and other prepaid expense	276	315
Restricted cash, current ($108 and $90 attributable to VIEs)	182	167
Derivative assets, current	202	142
Current assets held for sale	335	—
Other current assets	60	43
Total current assets	2,699	2,419
Property, plant and equipment, net ($3,873 and $3,919 attributable to VIEs)	12,051	12,442
Restricted cash, net of current portion ($48 and $33 attributable to VIEs)	80	34
Investments in unconsolidated subsidiaries	71	76
Long-term derivative assets	213	160
Goodwill	242	242
Intangible assets, net	370	412
Other assets ($100 and $30 attributable to VIEs)	483	277
Total assets	$ 16,209	$ 16,062
LIABILITIES & STOCKHOLDER'S EQUITY		
Current liabilities:		
Accounts payable	$ 695	$ 958
Accrued interest payable	98	96
Debt, current portion ($213 and $201 attributable to VIEs)	263	637
Derivative liabilities, current	165	303
Current liabilitites held for sale	22	—
Other current liabilities ($71 and $36 attributable to VIEs)	470	489
Total current liabilities	1,713	2,483
Debt, net of current portion ($1,889 and $1,978 attributable to VIEs)	10,461	10,148
Long-term derivative liabilities	119	140
Other long-term liabilities ($73 and $36 attributable to VIEs)	463	235
Total liabilities	12,756	13,006
Commitments and contingencies (see Note 11)		
Stockholder's equity:		
Common stock, $0.001 par value per share; authorized 5,000 shares, 105.2 shares issued and outstanding	—	—
Additional paid-in capital	9,584	9,582

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Accumulated deficit	(6,101)	(6,542)
Accumulated other comprehensive loss	(129)	(77)
Total Calpine stockholder’s equity	3,354	2,963
Noncontrolling interest	99	93
Total stockholder’s equity	3,453	3,056
Total liabilities and stockholder’s equity	$ 16,209	$ 16,062

The accompanying notes are an integral part of these Consolidated Condensed Financial Statements.

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CALPINE CORPORATION AND SUBSIDIARIES

CONSOLIDATED CONDENSED STATEMENTS OF STOCKHOLDER'S EQUITY

For the Three and Six Months Ended June 30, 2019 and 2018
(Unaudited)
(in millions)

	Common Stock	Treasury Stock	Additional Paid-In Capital	Accumulated Deficit	Accumulated Other Comprehensive Loss	Noncontrolling Interest	Total Stockholder's Equity
Balance, December 31, 2018	$ —	$ —	$ 9,582	$ (6,542)	$ (77)	$ 93	$ 3,056
Net income	—	—	—	175	—	5	180
Other comprehensive loss	—	—	—	—	(23)	—	(23)
Other	—	—	2	—	—	(2)	—
Balance, March 31, 2019	$ —	$ —	$ 9,584	$ (6,367)	$ (100)	$ 96	$ 3,213
Net income	—	—	—	266	—	4	270
Other comprehensive loss	—	—	—	—	(29)	(1)	(30)
Balance, June 30, 2019	$ —	$ —	$ 9,584	$ (6,101)	$ (129)	$ 99	$ 3,453

	Common Stock	Treasury Stock	Additional Paid-In Capital	Accumulated Deficit	Accumulated Other Comprehensive Loss	Noncontrolling Interest	Total Stockholder's Equity
Balance, December 31, 2017	$ —	$ (15)	$ 9,661	$ (6,552)	$ (106)	$ 79	$ 3,067
Treasury stock transactions	—	(7)	—	—	—	—	(7)
Stock-based compensation expense	—	—	41	—	—	—	41
Effects of the Merger	—	22	(100)	—	—	—	(78)
Dividends	—	—	(20)	—	—	—	(20)
Contribution from the noncontrolling interest	—	—	—	—	—	2	2
Distribution to the noncontrolling interest	—	—	—	—	—	(2)	(2)
Net income (loss)	—	—	—	(598)	—	4	(594)
Other comprehensive income	—	—	—	—	36	2	38
Balance, March 31, 2018	$ —	$ —	$ 9,582	$ (7,150)	$ (70)	$ 85	$ 2,447
Distribution to the noncontrolling interest	—	—	—	—	—	(1)	(1)
Net income	—	—	—	352	—	4	356
Other comprehensive income	—	—	—	—	20	—	20
Balance, June 30, 2018	$ —	$ —	$ 9,582	$ (6,798)	$ (50)	$ 88	$ 2,822

The accompanying notes are an integral part of these Consolidated Condensed Financial Statements.

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CALPINE CORPORATION AND SUBSIDIARIES

CONSOLIDATED CONDENSED STATEMENTS OF CASH FLOWS
(Unaudited)

	Six Months Ended June 30,	
	2019	2018
	(in millions)	
Cash flows from operating activities:		
Net income (loss)	$ 450	$ (238)
Adjustments to reconcile net income (loss) to net cash provided by operating activities:		
Depreciation and amortization[1]	398	443
Deferred income taxes	16	36
Impairment losses	55	—
Mark-to-market activity, net	(231)	180
(Income) from unconsolidated subsidiaries	(11)	(11)
Return on investments from unconsolidated subsidiaries	11	5
Stock-based compensation expense	—	57
Other	(3)	9
Change in operating assets and liabilities:		
Accounts receivable	215	(8)
Accounts payable	(269)	(11)
Margin deposits and other prepaid expense	40	(90)
Other assets and liabilities, net	(61)	(242)
Derivative instruments, net	(91)	(74)
Net cash provided by operating activities	519	56
Cash flows from investing activities:		
Purchases of property, plant and equipment	(304)	(231)
Other	(11)	(3)
Net cash used in investing activities	(315)	(234)
Cash flows from financing activities:		
Borrowings under First Lien Term Loans	941	—
Repayment of CCFC Term Loan and First Lien Term Loans	(942)	(21)
Repurchases of Senior Unsecured Notes	(44)	—
Borrowings under Corporate Revolving Facility	220	475
Repayments of Corporate Revolving Facility	(175)	(200)
Borrowings from project financing, notes payable and other	34	—
Repayments of project financing, notes payable and other	(77)	(66)
Distribution to noncontrolling interest holder	—	(3)
Financing costs	(8)	(12)
Stock repurchases	—	(79)
Shares repurchased for tax withholding on stock-based awards	—	(7)
Dividends paid[2]	—	(18)
Net cash (used in) provided by financing activities	(51)	69

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Net increase (decrease) in cash, cash equivalents and restricted cash	153	(109)
Cash, cash equivalents and restricted cash, beginning of period	406	443
Cash, cash equivalents and restricted cash, end of period(3)	$ 559	$ 334

The accompanying notes are an integral part of these Consolidated Condensed Financial Statements.

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CALPINE CORPORATION AND SUBSIDIARIES

CONSOLIDATED CONDENSED STATEMENTS OF CASH FLOWS — (CONTINUED)
(Unaudited)

	Six Months Ended June 30,	
	2019	2018
	(in millions)	
Cash paid during the period for:		
Interest, net of amounts capitalized	$ 283	$ 284
Income taxes	$ 8	$ 10
Supplemental disclosure of non-cash investing and financing activities:		
Change in capital expenditures included in account payable	$ 19	$ (14)
Plant tax settlement offset in prepaid assets	$ (4)	$ —
Asset retirement obligation adjustment offset in operating activities	$ (10)	$ —
Garrison Energy Center, RockGen Energy Center and other property, plant and equipment, net, classified as current assets held for sale	$ (335)	$ —
Garrison Energy Center finance lease liability classified as current liabilities held for sale	$ 22	$ —

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(1) Includes amortization recorded in Commodity revenue and Commodity expense associated with intangible assets and amortization recorded in interest expense associated with debt issuance costs and discounts.

(2) Subsequent to the consummation of the Merger on March 8, 2018, we paid certain Merger-related costs incurred by CPN Management, our direct parent.

(3) Our cash and cash equivalents, restricted cash, current and restricted cash, net of current portion are stated as separate line items on our Consolidated Condensed Balance Sheets.

The accompanying notes are an integral part of these Consolidated Condensed Financial Statements.

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CALPINE CORPORATION AND SUBSIDIARIES

NOTES TO CONSOLIDATED CONDENSED FINANCIAL STATEMENTS
June 30, 2019
(Unaudited)

1. Basis of Presentation and Summary of Significant Accounting Policies

We are a power generation company engaged in the ownership and operation of primarily natural gas-fired and geothermal power plants in North America. We have a significant presence in major competitive wholesale and retail power markets in California, Texas and the Northeast and Mid-Atlantic regions of the U.S. We sell power, steam, capacity, renewable energy credits and ancillary services to our customers, which include utilities, independent electric system operators, industrial and agricultural companies, retail power providers, municipalities and other governmental entities, power marketers as well as retail commercial, industrial, governmental and residential customers. We continue to focus on providing products and services that are beneficial to our wholesale and retail customers. We purchase primarily natural gas and some fuel oil as fuel for our power plants and engage in related natural gas transportation and storage transactions. We also purchase power for sale to our customers and purchase electric transmission rights to deliver power to our customers. Additionally, consistent with our Risk Management Policy, we enter into natural gas, power, environmental product, fuel oil and other physical and financial commodity contracts to hedge certain business risks and optimize our portfolio of power plants.

Basis of Interim Presentation — The accompanying unaudited, interim Consolidated Condensed Financial Statements of Calpine Corporation, a Delaware corporation, and consolidated subsidiaries have been prepared pursuant to the rules and regulations of the SEC. In the opinion of management, the Consolidated Condensed Financial Statements include the normal, recurring adjustments necessary for a fair statement of the information required to be set forth therein. Certain information and note disclosures, normally included in financial statements prepared in accordance with U.S. GAAP, have been condensed or omitted from these statements pursuant to such rules and regulations and, accordingly, these financial statements should be read in conjunction with our audited Consolidated Financial Statements for the year ended December 31, 2018, included in our 2018 Form 10-K. The results for interim periods are not indicative of the results for the entire year primarily due to acquisitions and disposals of assets, seasonal fluctuations in our revenues and expenses, timing of major maintenance expense, variations resulting from the application of the method to calculate the provision for income tax for interim periods, volatility of commodity prices and mark-to-market gains and losses from commodity and interest rate derivative contracts.

Use of Estimates in Preparation of Financial Statements — The preparation of financial statements in conformity with U.S. GAAP requires management to make estimates and assumptions that affect the reported amounts of assets, liabilities, revenues, expenses and related disclosures included in our Consolidated Condensed Financial Statements. Actual results could differ from those estimates.

Reclassifications — We have reclassified certain prior period amounts for comparative purposes. These reclassifications did not have a material effect on our financial condition, results of operations or cash flows.

Cash and Cash Equivalents — We consider all highly liquid investments with an original maturity of three months or less to be cash equivalents. We have cash and cash equivalents held in non-corporate accounts relating to certain project finance facilities and lease agreements that require us to establish and maintain segregated cash accounts. These accounts have been pledged as security in favor of the lenders under such project finance facilities, and the use of certain cash balances on deposit in such accounts is limited, at least temporarily, to the operations of the respective projects.

Restricted Cash — Certain of our debt agreements, lease agreements or other operating agreements require us to establish and maintain segregated cash accounts, the use of which is restricted, making these cash funds unavailable for general use. These amounts are held by depository banks in order to comply with the contractual provisions requiring reserves for payments such as for debt service, rent and major maintenance or with applicable regulatory requirements. Funds that can be used to satisfy obligations due during the next 12 months are classified as current restricted cash, with the remainder classified as non-current restricted cash. Restricted cash is generally invested in accounts earning market rates; therefore, the carrying value approximates fair value. Such cash is excluded from cash and cash equivalents on our Consolidated Condensed Balance Sheets.

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The table below represents the components of our restricted cash as of June 30, 2019 and December 31, 2018 (in millions):

	June 30, 2019			December 31, 2018		
	Current	Non-Current	Total	Current	Non-Current	Total
Debt service	$ 51	$ 8	$ 59	$ 13	$ 8	$ 21
Construction/major maintenance	9	39	48	23	24	47
Security/project/insurance	112	31	143	120	—	120
Other	10	2	12	11	2	13
Total	$ 182	$ 80	$ 262	$ 167	$ 34	$ 201

Business Interruption Proceeds — We record business interruption insurance proceeds in operating revenues when they are realizable. We recorded approximately $14 million of business interruption proceeds for each of the three and six months ended June 30, 2018. We have not recorded any business interruption insurance proceeds during the three and six months ended June 30, 2019.

Property, Plant and Equipment, Net — At June 30, 2019 and December 31, 2018, the components of property, plant and equipment are stated at cost less accumulated depreciation as follows (in millions):

	June 30, 2019	December 31, 2018	Depreciable Lives
Buildings, machinery and equipment	$ 16,522	$ 16,400	1.5 – 50 Years
Geothermal properties	1,509	1,501	13 – 58 Years
Other	269	286	3 – 50 Years
	18,300	18,187	
Less: Accumulated depreciation	6,860	6,832	
	11,440	11,355	
Land	128	121	
Construction in progress	483	966	
Property, plant and equipment, net	$ 12,051	$ 12,442	

Capitalized Interest — The total amount of interest capitalized was $1 million and $7 million during the three months ended June 30, 2019 and 2018, respectively, and $8 million and $14 million during the six months ended June 30, 2019 and 2018, respectively.

Goodwill — We have not recorded any impairment losses or changes in the carrying amount of our goodwill during the three and six months ended June 30, 2019 and 2018.

New Accounting Standards and Disclosure Requirements

Leases — On January 1, 2019, we adopted Accounting Standards Update 2016-02, "Leases" ("Topic 842"). The comprehensive new lease standard superseded all existing lease guidance. The standard requires that a lessee should recognize a right-of-use asset and a lease liability for substantially all operating leases based on the present value of the minimum rental payments. For lessors, the accounting for leases under Topic 842 remained substantially unchanged. The standard also requires expanded disclosures surrounding leases. We adopted the standards under Topic 842 using the modified retrospective method and elected a number of the practical expedients in our implementation of Topic 842. The key change that affected us relates to our accounting for operating leases for which we are the lessee that were historically off-balance sheet. The impact of adopting the standards resulted in the recognition of a right-of-use asset and lease obligation liability of $191 million on our Consolidated Condensed Balance Sheet on January 1, 2019, exclusive of previously recognized lease balances. The implementation of Topic 842 did not have a material effect on our Consolidated Condensed Statement of Operations or Consolidated Condensed Statement of Cash Flows for the six months ended June 30, 2019. See Note 3 for a discussion of the practical expedients we elected and additional disclosures required by Topic 842.

Derivatives and Hedging — In August 2017, the FASB issued Accounting Standards Update 2017-12, "Targeted Improvements to Accounting for Hedging Activities." The standard better aligns an entity's hedging activities and financial reporting for hedging relationships through changes to both the designation and measurement guidance for qualifying hedging relationships and the presentation of hedge results in the financial statements. The standard will prospectively make hedge

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accounting easier to apply to hedging activities and also enhances disclosure requirements for how hedge transactions are reflected in the financial statements when hedge accounting is elected. We adopted Accounting Standards Update 2017-12 in the first quarter of 2019 which did not have a material effect on our financial condition, results of operations or cash flows.

Fair Value Measurements — In August 2018, the FASB issued Accounting Standards Update 2018-13, "Disclosure Framework – Changes to the Disclosure Requirements for Fair Value Measurement." The standard removes, modifies and adds disclosures about fair value measurements and is effective for fiscal years beginning after December 15, 2019. The changes required by this standard to remove or modify disclosures may be early adopted with adoption of the additional disclosures required by this standard delayed until their effective date. We do not anticipate a material effect on our financial condition, results of operations or cash flows as a result of adopting this standard.

2. Revenue from Contracts with Customers

Disaggregation of Revenues with Customers

The following tables represent a disaggregation of our revenue for the three and six months ended June 30, 2019 and 2018 by reportable segment (in millions). See Note 13 for a description of our segments.

	Three Months Ended June 30, 2019					
	Wholesale					
	West	Texas	East	Retail	Elimination	Total
Third-Party:						
Energy & other products	$ 145	$ 318	$ 124	$ 413	$ —	$ 1,000
Capacity	36	33	154	—	—	223
Revenues relating to physical or executory contracts – third-party	$ 181	$ 351	$ 278	$ 413	$ —	$ 1,223
Affiliate[(1)]:	$ 6	$ 14	$ 30	$ 1	$ (51)	$ —
Revenues relating to leases and derivative instruments[(2)]						$ 1,376
Total operating revenues						$ 2,599

	Three Months Ended June 30, 2018					
	Wholesale					
	West	Texas	East	Retail	Elimination	Total
Third-Party:						
Energy & other products	$ 176	$ 326	$ 120	$ 451	$ —	$ 1,073
Capacity	35	23	140	—	—	198
Revenues relating to physical or executory contracts – third-party	$ 211	$ 349	$ 260	$ 451	$ —	$ 1,271
Affiliate[(1)]:	$ 5	$ 9	$ 21	$ 1	$ (36)	$ —
Revenues relating to leases and derivative instruments[(2)]						$ 988
Total operating revenues						$ 2,259

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	Six Months Ended June 30, 2019					
	Wholesale					
	West	Texas	East	Retail	Elimination	Total
Third-Party:						
Energy & other products	$ 437	$ 620	$ 327	$ 825	$ —	$ 2,209
Capacity	71	65	331	—	—	467
Revenues relating to physical or executory contracts – third-party	$ 508	$ 685	$ 658	$ 825	$ —	$ 2,676
Affiliate[(1)]:	$ 17	$ 28	$ 57	$ 4	$ (106)	$ —
Revenues relating to leases and derivative instruments[(2)]						$ 2,522
Total operating revenues						$ 5,198

	Six Months Ended June 30, 2018					
	Wholesale					
	West	Texas	East	Retail	Elimination	Total
Third-Party:						
Energy & other products	$ 375	$ 630	$ 252	$ 894	$ —	$ 2,151
Capacity	54	49	289	—	—	392
Revenues relating to physical or executory contracts – third-party	$ 429	$ 679	$ 541	$ 894	$ —	$ 2,543
Affiliate[(1)]:	$ 13	$ 13	$ 42	$ 2	$ (70)	$ —
Revenues relating to leases and derivative instruments[(2)]						$ 1,725
Total operating revenues						$ 4,268

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(1) Affiliate energy, other and capacity revenues reflect revenues on transactions between wholesale and retail affiliates excluding affiliate activity related to leases and derivative instruments. All such activity supports retail supply needs from the wholesale business and/or allows for collateral margin netting efficiencies at Calpine.

(2) Revenues relating to contracts accounted for as leases and derivatives include energy and capacity revenues relating to PPAs that we are required to account for as operating leases and physical and financial commodity derivative contracts, primarily relating to power, natural gas and environmental products. Revenue related to derivative instruments includes revenue recorded in Commodity revenue and mark-to-market gain (loss) within our operating revenues on our Consolidated Condensed Statements of Operations.

Performance Obligations and Contract Balances

At June 30, 2019 and December 31, 2018, deferred revenue balances relating to contracts with our customers were included in other current liabilities on our Consolidated Condensed Balance Sheets and primarily relate to sales of environmental products and capacity. We classify deferred revenue as current or long-term based on the timing of when we expect to recognize revenue. The balance outstanding at June 30, 2019 and December 31, 2018 was $22 million and $14 million, respectively. Revenue recognized during the three months ended June 30, 2019 and 2018, relating to the deferred revenue balance at the beginning of each period was $2 million and $3

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million, respectively. Revenue recognized during the six months ended June 30, 2019 and 2018, relating to the deferred revenue balance at the beginning of each period was and $3 million and $9 million, respectively. Revenue recognized each period relating to deferred revenue balances resulted from our performance under the customer contracts. The change in the deferred revenue balance during the three and six months ended June 30, 2019 and 2018 was primarily due to the timing difference of when consideration was received and when the related good or service was transferred.

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Performance Obligations not yet Satisfied

As of June 30, 2019, we have entered into certain contracts for fixed and determinable amounts with customers under which we have not yet completed our performance obligations which primarily includes agreements for which we are providing capacity from our generating facilities. We have revenues related to the sale of capacity through participation in various ISO capacity auctions estimated based upon cleared volumes and the sale of capacity to our customers of $258 million that will be recognized during the remainder of 2019, and $517 million, $468 million, $249 million and $50 million that will be recognized during the years ending December 31, 2020, 2021, 2022 and 2023, respectively, and $72 million thereafter. Revenues under these contracts will be recognized as we transfer control of the commodities to our customers.

3. Leases

Accounting for Leases – Lessee

We evaluate contracts for lease accounting at contract inception and assess lease classification at the lease commencement date. For our leases, we recognize a right-of-use asset and corresponding lease obligation liability at the lease commencement date where the lease obligation liability is measured at the present value of the minimum lease payments. For our operating leases, the amortization of the right-of-use asset and the accretion of our lease obligation liability result in a single straight-line expense recognized over the lease term.

We determine the discount rate associated with our operating and finance leases using our incremental borrowing rate at lease commencement. For our operating leases, we use an interest rate commensurate with the interest rate to borrow on a collateralized basis over a similar term with an amount equal to the lease payments. Factors management considers in the calculation of the discount rate include the amount of the borrowing, the lease term including options that are reasonably certain of exercise, the current interest rate environment and the credit rating of the entity. For our finance leases, we use the interest rate commensurate with the interest rate for a project finance borrowing arrangement with a similar collateral package, repayment terms, restrictive covenants and guarantees.

Our operating leases are primarily related to office space for our corporate and regional offices as well as land and operating related leases for our power plants. Additionally, one of our power plants is accounted for as a long-term operating lease. Payments made by Calpine on this lease are recognized on a straight-line basis with capital improvements associated with our leased power plant deemed leasehold improvements that are amortized over the shorter of the term of the lease or the economic life of the capital improvement. Several of our leases contain renewal options held by us to extend the lease term. The inclusion of these renewal periods in the lease term and in the minimum lease payments included in our lease liabilities is dependent on specific facts and circumstances for each lease and whether it is determined to be reasonably certain that we will exercise our option to extend the term. Our office, land and other operating leases do not contain any material restrictive covenants or residual value guarantees.

We have entered into finance leases for certain power plants and related equipment with terms that range up to 30 years (including lease renewal options). The finance leases generally provide for the lessee to pay taxes, maintenance, insurance, and certain other operating costs of the leased property.

In connection with our adoption of Topic 842 on January 1, 2019, we elected certain practical expedients that were available under the new lease standards including:

- we elected not to separate lease and nonlease components for our current classes of underlying leased assets as the lessee;
- we did not evaluate existing and expired land easements that were not previously accounted for as leases prior to January 1, 2019; and
- we did not reassess the classification of leases, the accounting for initial direct costs or whether contractual arrangements contained a lease for all contracts that expired or commenced prior to January 1, 2019.

Further, upon the adoption of Topic 842, we made an accounting policy election to not recognize lease assets and liabilities for leases with a term of 12 months or less. We do not have any material subleases associated with our operating and finance leases.

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The components of our operating and finance lease expense are as follows for the three and six months ended June 30, 2019 (in millions):

	Three Months Ended June 30, 2019	Six Months Ended June 30, 2019
Operating Leases		
Operating lease expense	$ 12	$ 23
Finance Leases		
Amortization of the right-of-use assets	$ 1	$ 4
Interest expense	2	4
Finance lease expense	$ 3	$ 8
Variable lease expense	$ 4	$ 5
Total lease expense	$ 19	$ 36

The following is a schedule by year of future minimum lease payments associated with our operating and finance leases together with the present value of the net minimum lease payments as of June 30, 2019 (in millions):

	Operating Leases[1][2]	Finance Leases[2][3]
2019	$ 39	$ 8
2020	20	16
2021	21	16
2022	19	16
2023	18	19
Thereafter	201	33
Total minimum lease payments	318	108
Less: Amount representing interest	108	30
Total lease obligation	210	78
Less: current lease obligation	39	10
Long-term lease obligation	$ 171	$ 68

(1) The lease liabilities associated with our operating leases as of June 30, 2019 are included in other current liabilities and other long-term liabilities on our Consolidated Condensed Balance Sheet.

(2) Excludes an operating lease obligation of $1 million and a finance lease obligation of $18 million related to Garrison Energy Center which are included in current liabilities held for sale on our Consolidated Condensed Balance Sheet. See Note 4 for further information related to the sale of the Garrison Energy Center.

(3) The lease liabilities associated with our finance leases as of June 30, 2019 are included in debt, current portion and debt, net of current portion on our Consolidated Condensed Balance Sheet.

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Supplemental balance sheet information related to our operating and finance leases is as follows as of June 30, 2019 (in millions, except lease term and discount rate):

		June 30, 2019[1]
Operating leases[2]		
Right-of-use assets associated with operating leases	$	184
Finance leases[3]		
Property, plant and equipment, gross	$	213
Accumulated amortization		(104)
Property, plant and equipment, net	$	109
Weighted average remaining lease term (in years)		
Operating leases		15.8
Finance leases		7.4
Weighted average discount rate		
Operating leases		5.1%
Finance leases		8.0%

(1) Excludes a right-of-use asset and property, plant and equipment, net of $1 million and $17 million, respectively, related to Garrison Energy Center which are included in current assets held for sale on our Consolidated Condensed Balance Sheet. See Note 4 for further information related to the sale of the Garrison Energy Center.

(2) The right-of-use assets associated with our operating leases as of June 30, 2019 are included in other assets on our Consolidated Condensed Balance Sheet.

(3) The right-of-use assets associated with our finance leases as of June 30, 2019 are included in property, plant and equipment, net on our Consolidated Condensed Balance Sheet.

Supplemental cash flow information related to our operating and finance leases is as follows for the period presented (in millions):

		Six Month Ended June 30, 2019
Cash paid for amounts included in the measurement of lease liabilities		
Operating cash flows from operating leases	$	13
Operating cash flows from finance leases	$	4
Financing cash flows from finance leases	$	6
Right-of-use assets obtained in exchange for lease obligations:		
Operating leases	$	9
Finance leases	$	—

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As of June 30, 2019, we have executed agreements that contain a lease with a future lease commencement date and future lease commitments of $1 million primarily related to an office lease which is scheduled to commence in September 2019.

Accounting for Leases – Lessor

We apply lease accounting to PPAs that meet the definition of a lease and determine lease classification treatment at commencement of the agreement. We currently do not have any contracts which are accounted for as sales-type leases or direct financing leases and all of our leases as the lessor are classified as operating leases. As part of the implementation of Topic 842, we elected the practical expedient to not reassess leases that have commenced prior to January 1, 2019.

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Revenue from contracts accounted for as operating leases, such as certain tolling agreements, with minimum lease rentals (capacity payments) which vary over time must be levelized. Generally, we levelize these contract revenues on a straight-line basis over the term of the contract. Our operating leases that have commenced contain terms extending through December 2034. These contracts also generally contain variable payment components based on generation volumes or operating efficiency over a period of time. Revenues associated with the variable payments are recognized over time as the goods or services are provided to the lessee. Our operating leases generally do not contain renewal or purchase options or residual value guarantees. We have elected to not separate our lease and non-lease components as the lease components reflect the predominant characteristics of these agreements.

Revenue recognized related to fixed lease payments on our operating leases for the period presented is as follows (in millions):

	Three Months Ended June 30, 2019	Six Months Ended June 30, 2019
Operating Leases[1]		
Fixed lease payments	$ 70	$ 139

(1) Revenues associated with our operating leases are included in Commodity revenue and other revenue on our Consolidated Condensed Statement of Operations.

The total contractual future minimum lease rentals for our contracts that have commenced and are accounted for as operating leases at June 30, 2019, are as follows (in millions):

2019	$ 204
2020	287
2021	261
2022	227
2023	144
Thereafter	284
Total	$ 1,407

We do not recognize lease receivables associated with our operating leases as the long-lived assets subject to the lease contracts are recorded on our Consolidated Condensed Balance Sheet and are being depreciated over their estimated useful lives. Amounts recorded on our Consolidated Condensed Balance Sheet associated with the long-lived assets subject to our operating leases as of June 30, 2019 are as follows (in millions):

	June 30, 2019
Assets subject to contracts accounted for as operating leases	
Property, plant and equipment, gross	$ 3,076
Accumulated depreciation	(903)
Property, plant and equipment, net[1]	$ 2,173

(1) Our assets subject to contracts that are accounted for as operating leases primarily consist of our power plants subject to tolling contracts.

We also record lease levelization assets and liabilities for any difference between the timing of the contractual payments made related to our operating lease contracts and revenue recognized on a straight-line basis. These balances are included in current and long-term assets and liabilities on our Consolidated Condensed Balance Sheet.

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Disclosures for periods prior to the adoption of Topic 842

Lessee

The following is a schedule by year of future minimum lease payments under operating and capital leases as of December 31, 2018 (in millions):

	Operating Leases	Capital Leases[1]
2019	$ 50	$ 40
2020	19	40
2021	20	38
2022	18	33
2023	17	27
Thereafter	192	92
Total minimum lease payments	$ 316	270
Less: Amount representing interest		89
Present value of net minimum lease payments		$ 181

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(1) Includes a failed sale-leaseback transaction related to our Pasadena Power Plant.

At December 31, 2018, the asset balance for our assets under capital leases totaled approximately $715 million with accumulated amortization of $353 million.

Lessor

The total contractual future minimum lease rentals for our contracts accounted for as operating leases at December 31, 2018, are as follows (in millions):

2019	$ 342
2020	261
2021	257
2022	224
2023	141
Thereafter	239
Total	$ 1,464

4. Divestitures

Sale of Garrison Energy Center and RockGen Energy Center

On July 10, 2019, we, through our indirect, wholly owned subsidiaries Calpine Holdings, LLC and Calpine Northbrook Project Holdings, LLC, completed the sale of 100% of our ownership interests in Garrison Energy Center LLC ("Garrison") and RockGen Energy LLC ("RockGen") to Cobalt Power, L.L.C. for approximately $360 million, subject to certain working capital adjustments and the execution of financial commodity contracts. Garrison owns the Garrison Energy Center, a 309 MW natural gas-fired, combined-cycle power plant located in Dover, Delaware, and RockGen owns the RockGen Energy Center, a 503 MW natural gas-fired, simple-cycle power plant located in Christiana, Wisconsin. We used the sale proceeds, together with cash on hand, to fund a dividend of $400 million to our parent, CPN Management, LP.

At June 30, 2019, the assets and liabilities of Garrison and RockGen, which are part of our East segment, were classified as current assets and liabilities held for sale on our Consolidated Condensed Balance Sheet consisting primarily of property, plant and equipment, net, and finance leases, respectively. We recorded impairment losses of $40 million and $55 million during the three and six

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months ended June 30, 2019, respectively, associated with the sale to adjust the carrying value of the assets to reflect fair value less cost to sell.

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5. Variable Interest Entities and Unconsolidated Investments

We consolidate all of our VIEs where we have determined that we are the primary beneficiary. There were no changes to our determination of whether we are the primary beneficiary of our VIEs for the six months ended June 30, 2019. See Note 7 in our 2018 Form 10-K for further information regarding our VIEs.

VIE Disclosures

Our consolidated VIEs include natural gas-fired power plants with an aggregate capacity of 7,880 MW and 7,880 MW at June 30, 2019 and December 31, 2018, respectively. For these VIEs, we may provide other operational and administrative support through various affiliate contractual arrangements among the VIEs, Calpine Corporation and its other wholly owned subsidiaries whereby we support the VIE through the reimbursement of costs and/or the purchase and sale of energy. Other than amounts contractually required, we provided support to these VIEs in the form of cash and other contributions of nil during each of the three and six months ended June 30, 2019 and 2018.

OMEC — OMEC has a ten-year tolling agreement with SDG&E, which commenced on October 3, 2009. Under a ground lease agreement, OMEC held a put option to sell the Otay Mesa Energy Center for $280 million to SDG&E, pursuant to the terms and conditions of the agreement, which was exercisable until April 1, 2019 and SDG&E held a call option to purchase the Otay Mesa Energy Center for $377 million, which was exercisable through October 3, 2018. The call option held by SDG&E expired unexercised.

OMEC has executed a new 59-month Resource Adequacy ("RA") contract with SDG&E, which would commence on October 3, 2019. The RA contract received initial regulatory approval by the California Public Utilities Commission ("CPUC") on February 21, 2019. This approval was subject to a 30 day appeal period from the date of the issuance of the CPUC decision. On March 27, 2019, an appeal of the CPUC decision was filed with the CPUC, which appeal was denied on August 1, 2019. As a result, we continue to work to commence the RA contract. However, in the event that we are not successful and another alternative is not reached with SDG&E prior to October 3, 2019, OMEC expects to close on the put and transfer the Otay Mesa Energy Center to SDG&E for $280 million on or about October 3, 2019, which transaction could result in a write down of the carrying value of the asset.

On December 19, 2018, we refinanced the project debt associated with OMEC which lowered the aggregate debt balance to $220 million and extended the maturity to August 2024. In the event that the exercise of the OMEC put option is not rescinded, the OMEC project debt will become payable on November 3, 2019.

We have concluded that we are the primary beneficiary of OMEC as we believe the activity that has the most effect on the financial performance of OMEC is operations and maintenance which is controlled by us. As a result, we consolidate OMEC.

Unconsolidated VIEs and Investments in Unconsolidated Subsidiaries

We have a 50% partnership interest in Greenfield LP and in Whitby. Greenfield LP and Whitby are VIEs; however, we do not have the power to direct the most significant activities of these entities and therefore do not consolidate them. Greenfield LP is a limited partnership between certain subsidiaries of ours and of Mitsui & Co., Ltd., which operates the Greenfield Energy Centre, a 1,038 MW natural gas-fired, combined-cycle power plant located in Ontario, Canada. We and Mitsui & Co., Ltd. each hold a 50% interest in Greenfield LP. Whitby is a limited partnership between certain of our subsidiaries and Atlantic Packaging Ltd., which operates the Whitby facility, a 50 MW natural gas-fired, simple-cycle cogeneration power plant located in Ontario, Canada. We and Atlantic Packaging Ltd. each hold a 50% partnership interest in Whitby.

Calpine Receivables is a VIE and a bankruptcy remote entity created for the special purpose of purchasing trade accounts receivable from Calpine Solutions under the Accounts Receivable Sales Program. We have determined that we do not have the power to direct the activities of the VIE that most significantly affect the VIE's economic performance nor the obligation to absorb losses or receive benefits from the VIE. Accordingly, we have determined that we are not the primary beneficiary of Calpine Receivables because we do not have the power to affect its financial performance as the unaffiliated financial institutions that purchase the receivables from Calpine Receivables control the selection criteria of the receivables sold and appoint the servicer of the receivables which controls management of default. Thus, we do not consolidate Calpine Receivables in our Consolidated Condensed Financial Statements and use the equity method of accounting to record our net interest in Calpine Receivables.

We account for these entities under the equity method of accounting and include our net equity interest in investments in unconsolidated subsidiaries on our Consolidated Condensed Balance Sheets. At June 30, 2019 and December 31, 2018, our equity method investments included on our Consolidated Condensed Balance Sheets were comprised of the following (in millions):

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	Ownership Interest as of June 30, 2019	June 30, 2019	December 31, 2018
Greenfield LP[(1)]	50%	$ 56	$ 55
Whitby	50%	10	15
Calpine Receivables	100%	5	6
Total investments in unconsolidated subsidiaries		$ 71	$ 76

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(1) Includes our share of accumulated other comprehensive income/loss related to interest rate hedging instruments associated with our unconsolidated subsidiary Greenfield LP's debt.

Our risk of loss related to our investments in Greenfield LP and Whitby is limited to our investment balance. Our risk of loss related to our investment in Calpine Receivables is $67 million which consists of our notes receivable from Calpine Receivables at June 30, 2019 and our initial investment associated with Calpine Receivables. See Note 12 for further information associated with our related party activity with Calpine Receivables.

Holders of the debt of our unconsolidated investments do not have recourse to Calpine Corporation and its other subsidiaries; therefore, the debt of our unconsolidated investments is not reflected on our Consolidated Condensed Balance Sheets. At June 30, 2019 and December 31, 2018, Greenfield LP's debt was approximately $304 million and $301 million, respectively, and based on our pro rata share of our investment in Greenfield LP, our share of such debt would be approximately $152 million and $151 million at June 30, 2019 and December 31, 2018, respectively.

Our equity interest in the net income from our investments in unconsolidated subsidiaries for the three and six months ended June 30, 2019 and 2018, is recorded in (income) from unconsolidated subsidiaries. The following table sets forth details of our (income) from unconsolidated subsidiaries for the periods indicated (in millions):

	Three Months Ended June 30,		Six Months Ended June 30,	
	2019	2018	2019	2018
Greenfield LP	$ (4)	$ (2)	$ (6)	$ (4)
Whitby	(2)	(4)	(6)	(8)
Calpine Receivables	1	1	1	1
Total	$ (5)	$ (5)	$ (11)	$ (11)

Distributions from Greenfield LP were nil during each of the three and six months ended June 30, 2019 and 2018. Distributions from Whitby were nil and $11 million during the three and six months ended June 30, 2019, respectively, and $2 million and $5 million during the three and six months ended June 30, 2018, respectively. We did not have material distributions from our investment in Calpine Receivables for the three and six months ended June 30, 2019 and 2018.

Inland Empire Energy Center Put and Call Options — We held a call option to purchase the Inland Empire Energy Center (a 775 MW natural gas-fired power plant located in California) at predetermined prices from GE that could be exercised between years 2017 and 2024. GE held a put option whereby they could require us to purchase the power plant, if certain plant performance criteria were met by 2025. On February 1, 2019, we entered into an agreement with GE, which among other things, terminated our call option and GE's put option related to the Inland Empire Energy Center. As per this agreement, we will take ownership of the facility site and certain remaining site infrastructure and equipment after closure and decommissioning of the facility at a future date, until such time GE continues to own, operate and maintain the power plant, including directing any closure activities. As GE continues to direct all such significant activities of the power plant, we have determined that we no longer hold any variable interests in the Inland Empire Energy Center and it is not a VIE to Calpine.

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6. Debt

Our debt at June 30, 2019 and December 31, 2018, was as follows (in millions):

	June 30, 2019		December 31, 2018	
Senior Unsecured Notes	$	2,990	$	3,036
First Lien Term Loans		2,979		2,976
First Lien Notes		2,402		2,400
Project financing, notes payable and other		1,229		1,264
CCFC Term Loan		971		974
Finance lease obligations		78		105
Corporate Revolving Facility		75		30
Subtotal		10,724		10,785
Less: Current maturities		263		637
Total long-term debt	$	10,461	$	10,148

Our effective interest rate on our consolidated debt, excluding the effects of capitalized interest and mark-to-market gains (losses) on interest rate hedging instruments, increased to 5.9% for the six months ended June 30, 2019, from 5.7% for the same period in 2018. Since the fourth quarter of 2018, we have cumulatively repurchased $438 million in aggregate principal of our Senior Unsecured Notes for $399 million.

Senior Unsecured Notes

The amounts outstanding under our Senior Unsecured Notes are summarized in the table below (in millions):

	June 30, 2019		December 31, 2018	
2023 Senior Unsecured Notes	$	1,228	$	1,227
2024 Senior Unsecured Notes		589		599
2025 Senior Unsecured Notes		1,173		1,210
Total Senior Unsecured Notes	$	2,990	$	3,036

During the six months ended June 30, 2019, we repurchased $48 million in aggregate principal of our Senior Unsecured Notes for $44 million. In connection with the repurchases, we recorded approximately $4 million in gain on extinguishment of debt.

First Lien Term Loans

The amounts outstanding under our senior secured First Lien Term Loans are summarized in the table below (in millions):

	June 30, 2019		December 31, 2018	
2019 First Lien Term Loan	$	—	$	389
2023 First Lien Term Loans		535		1,059
2024 First Lien Term Loan		1,522		1,528
2026 First Lien Term Loan		922		—
Total First Lien Term Loans	$	2,979	$	2,976

On April 5, 2019, we entered into a $950 million first lien senior secured term loan which bears interest, at our option, at either (i) the Base Rate, equal to the highest of (a) the Federal Funds Effective Rate plus 0.50% per annum, (b) the Prime Rate or (c) the Eurodollar Rate for a one month interest period plus 1.0% (in each case, as such terms are defined in the credit agreement), plus an applicable margin of 1.75%, or (ii) LIBOR plus 2.75% per annum (with a 0% LIBOR floor) and matures on April 5, 2026. An aggregate amount equal to 0.25% of the aggregate principal amount of the 2026 First Lien Term Loan is payable at the end of each quarter with the remaining balance payable on the maturity date. We paid an upfront fee of an amount equal to 1.0% of the aggregate principal amount

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of the 2026 First Lien Term Loan, which is structured as original issue discount and recorded approximately $7 million in debt issuance costs during the second quarter of 2019 related to the issuance of our 2026 First Lien

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Term Loan. The 2026 First Lien Term Loan contains substantially similar covenants, qualifications, exceptions and limitations as our First Lien Term Loans and First Lien Notes. We used the proceeds from our 2026 First Lien Term Loan to repay our 2019 First Lien Term Loan and a portion of our 2023 First Lien Term Loans with a maturity date in January 2023 and recorded approximately $3 million in loss on extinguishment of debt during the second quarter of 2019 associated with the repayment.

First Lien Notes

The amounts outstanding under our senior secured First Lien Notes are summarized in the table below (in millions):

	June 30, 2019	December 31, 2018
2022 First Lien Notes	$ 744	$ 743
2024 First Lien Notes	487	486
2026 First Lien Notes	1,171	1,171
Total First Lien Notes	$ 2,402	$ 2,400

Project Financing, Notes Payable and Other

On January 29, 2019, Pacific Gas and Electric Company ("PG&E") and PG&E Corporation each filed voluntary petitions for relief under Chapter 11. Our power plants that sell energy and energy-related products to PG&E through PPAs, include Russell City Energy Center and Los Esteros Critical Energy Facility. Since the bankruptcy filing, we have received all material payments under the PPAs, either directly or through the application of collateral. As a result of PG&E's bankruptcy, we are currently unable to make distributions from our Russell City and Los Esteros projects in accordance with the terms of the project debt agreements associated with each related project. In July 2019, we executed forbearance agreements associated with the Russell City and Los Esteros project debt agreements, under which the lenders have agreed to forbear enforcement of their rights and remedies, including the ability to accelerate the repayment of borrowings outstanding, otherwise arising because PG&E did not assume our PPAs during the first 180 days of PG&E's bankruptcy proceeding. The forbearance agreements are effective for rolling 90-day periods, so long as we continue to meet certain conditions, including that the PPAs have not been rejected and there are no other defaults under the project debt agreements or the forbearance agreements. We may be required to reclassify $362 million of Russell City and Los Esteros long-term project debt outstanding at June 30, 2019 to a current liability in a future period. We continue to monitor the bankruptcy proceedings and are assessing our options.

In the event that the exercise of the OMEC put option is not rescinded, the OMEC project debt will become payable on November 3, 2019. See Note 5 for further information related to the OMEC put option.

Corporate Revolving Facility and Other Letter of Credit Facilities

The table below represents amounts issued under our letter of credit facilities at June 30, 2019 and December 31, 2018 (in millions):

	June 30, 2019	December 31, 2018
Corporate Revolving Facility(1)	$ 585	$ 693
CDHI(2)	30	251
Various project financing facilities	227	228
Other corporate facilities(3)	293	193
Total	$ 1,135	$ 1,365

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(1) The Corporate Revolving Facility represents our primary revolving facility. On April 5, 2019, we amended our Corporate Revolving Facility to increase the capacity by approximately $330 million from $1.69 billion to approximately $2.02 billion.

(2) Pursuant to the terms and conditions of the CDHI credit agreement, the capacity under the CDHI letter of credit facility was reduced to $125 million on June 28, 2019. The decrease in capacity did not have a material effect on our liquidity as alternative sources of liquidity are available.

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(3) We have three unsecured letter of credit facilities with two third-party financial institutions totaling approximately $300 million at June 30, 2019.

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Fair Value of Debt

We record our debt instruments based on contractual terms, net of any applicable premium or discount and debt issuance costs. The following table details the fair values and carrying values of our debt instruments at June 30, 2019 and December 31, 2018 (in millions):

	June 30, 2019		December 31, 2018	
	Fair Value	Carrying Value	Fair Value	Carrying Value
Senior Unsecured Notes	$ 3,011	$ 2,990	$ 2,803	$ 3,036
First Lien Term Loans	3,013	2,979	2,877	2,976
First Lien Notes	2,462	2,402	2,299	2,400
Project financing, notes payable and other[1]	1,136	1,153	1,209	1,188
CCFC Term Loan	980	971	938	974
Corporate Revolving Facility	75	75	30	30
Total	$ 10,677	$ 10,570	$ 10,156	$ 10,604

(1) Excludes an agreement that is accounted for as a failed sale-leaseback transaction under U.S. GAAP.

Our Senior Unsecured Notes, First Lien Term Loans, First Lien Notes, CCFC Term Loan and Corporate Revolving Facility are categorized as level 2 within the fair value hierarchy. Our project financing, notes payable and other debt instruments are categorized as level 3 within the fair value hierarchy. We do not have any debt instruments with fair value measurements categorized as level 1 within the fair value hierarchy.

7. Assets and Liabilities with Recurring Fair Value Measurements

Cash Equivalents — Highly liquid investments which meet the definition of cash equivalents, primarily investments in money market accounts and other interest-bearing accounts, are included in both our cash and cash equivalents and our restricted cash on our Consolidated Condensed Balance Sheets. Certain of our money market accounts invest in U.S. Treasury securities or other obligations issued or guaranteed by the U.S. Government, its agencies or instrumentalities. We do not have any cash equivalents invested in institutional prime money market funds which require use of a floating net asset value and are subject to liquidity fees and redemption restrictions. Certain of our cash equivalents are classified within level 1 of the fair value hierarchy.

Derivatives — The primary factors affecting the fair value of our derivative instruments at any point in time are the volume of open derivative positions (MMBtu, MWh and $ notional amounts); changing commodity market prices, primarily for power and natural gas; our credit standing and that of our counterparties and customers for energy commodity derivatives; and prevailing interest rates for our interest rate hedging instruments. Prices for power and natural gas and interest rates are volatile, which can result in material changes in the fair value measurements reported in our financial statements in the future.

We utilize market data, such as pricing services and broker quotes, and assumptions that we believe market participants would use in pricing our assets or liabilities including assumptions about the risks inherent to the inputs in the valuation technique. These inputs can be either readily observable, market corroborated or generally unobservable. The market data obtained from broker pricing services is evaluated to determine the nature of the quotes obtained and, where accepted as a reliable quote, used to validate our assessment of fair value. We use other qualitative assessments to determine the level of activity in any given market. We primarily apply the market approach and income approach for recurring fair value measurements and utilize what we believe to be the best available information. We utilize valuation techniques that seek to maximize the use of observable inputs and minimize the use of unobservable inputs. We classify fair value balances based on the observability of those inputs.

The fair value of our derivatives includes consideration of our credit standing, the credit standing of our counterparties and customers and the effect of credit enhancements, if any. We have also recorded credit reserves in the determination of fair value based on our expectation of how market participants would determine fair value. Such valuation adjustments are generally based on market evidence, if available, or our best estimate.

Our level 1 fair value derivative instruments primarily consist of power and natural gas swaps, futures and options traded on the NYMEX or Intercontinental Exchange.

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Our level 2 fair value derivative instruments primarily consist of interest rate hedging instruments and OTC power and natural gas forwards for which market-based pricing inputs in the principal or most advantageous market are representative of

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executable prices for market participants. These inputs are observable at commonly quoted intervals for substantially the full term of the instruments. In certain instances, our level 2 derivative instruments may utilize models to measure fair value. These models are industry-standard models, including the Black-Scholes option-pricing model, that incorporate various assumptions, including quoted interest rates, correlation, volatility, as well as other relevant economic measures. Substantially all of these assumptions are observable in the marketplace throughout the full term of the instrument, can be derived from observable data or are supported by observable levels at which transactions are executed in the marketplace.

Our level 3 fair value derivative instruments may consist of OTC power and natural gas forwards and options where pricing inputs are unobservable, as well as other complex and structured transactions primarily for the sale and purchase of power and natural gas to both wholesale counterparties and retail customers. Complex or structured transactions are tailored to our customers' needs and can introduce the need for internally-developed model inputs which might not be observable in or corroborated by the market. When such inputs have a significant effect on the measurement of fair value, the instrument is categorized in level 3. Our valuation models may incorporate historical correlation information and extrapolate available broker and other information to future periods.

Financial assets and liabilities are classified in their entirety based on the lowest level of input that is significant to the fair value measurement at period end. Our assessment of the significance of a particular input to the fair value measurement requires judgment and may affect our estimate of the fair value of our assets and liabilities and their placement within the fair value hierarchy levels. The following tables present our financial assets and liabilities that were accounted for at fair value on a recurring basis as of June 30, 2019 and December 31, 2018, by level within the fair value hierarchy:

	Assets and Liabilities with Recurring Fair Value Measures as of June 30, 2019			
	Level 1	Level 2	Level 3	Total
	(in millions)			
Assets:				
Cash equivalents[1]	$ 165	$ —	$ —	$ 165
Commodity instruments:				
Commodity exchange traded derivatives contracts	1,089	—	—	1,089
Commodity forward contracts[2]	—	350	322	672
Interest rate hedging instruments	—	6	—	6
Effect of netting and allocation of collateral[3][4]	(1,089)	(243)	(20)	(1,352)
Total assets	$ 165	$ 113	$ 302	$ 580
Liabilities:				
Commodity instruments:				
Commodity exchange traded derivatives contracts	$ 1,179	$ —	$ —	$ 1,179
Commodity forward contracts[2]	—	474	96	570
Interest rate hedging instruments	—	33	—	33
Effect of netting and allocation of collateral[3][4]	(1,179)	(298)	(21)	(1,498)
Total liabilities	$ —	$ 209	$ 75	$ 284

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	Assets and Liabilities with Recurring Fair Value Measures as of December 31, 2018			
	Level 1	Level 2	Level 3	Total
	(in millions)			
Assets:				
Cash equivalents[1]	$ 168	$ —	$ —	$ 168
Commodity instruments:				
Commodity exchange traded derivatives contracts	933	—	—	933
Commodity forward contracts[2]	—	338	212	550
Interest rate hedging instruments	—	40	—	40
Effect of netting and allocation of collateral[3][4]	(933)	(262)	(26)	(1,221)
Total assets	$ 168	$ 116	$ 186	$ 470
Liabilities:				
Commodity instruments:				
Commodity exchange traded derivatives contracts	$ 932	$ —	$ —	$ 932
Commodity forward contracts[2]	—	549	220	769
Interest rate hedging instruments	—	10	—	10
Effect of netting and allocation of collateral[3][4]	(932)	(310)	(26)	(1,268)
Total liabilities	$ —	$ 249	$ 194	$ 443

(1) At June 30, 2019 and December 31, 2018, we had cash equivalents of $16 million and $23 million included in cash and cash equivalents and $149 million and $145 million included in restricted cash, respectively.

(2) Includes OTC swaps and options.

(3) We offset fair value amounts recognized for derivative instruments executed with the same counterparty under a master netting arrangement for financial statement presentation; therefore, amounts recognized for the right to reclaim, or the obligation to return, cash collateral are presented net with the corresponding derivative instrument fair values. See Note 8 for further discussion of our derivative instruments subject to master netting arrangements.

(4) Cash collateral posted with (received from) counterparties allocated to level 1, level 2 and level 3 derivative instruments totaled $90 million, $55 million and $1 million, respectively, at June 30, 2019. Cash collateral posted with (received from) counterparties allocated to level 1, level 2 and level 3 derivative instruments totaled $(1) million, $48 million and nil, respectively, at December 31, 2018.

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At June 30, 2019 and December 31, 2018, the derivative instruments classified as level 3 primarily included commodity contracts, which are classified as level 3 because the contract terms relate to a delivery location or tenor for which observable market rate information is not available. The fair value of the net derivative position classified as level 3 is predominantly driven by market commodity prices. The following table presents quantitative information for the unobservable inputs used in our most significant level 3 fair value measurements at June 30, 2019 and December 31, 2018:

Quantitative Information about Level 3 Fair Value Measurements

	June 30, 2019						
	Fair Value, Net Asset (Liability) (in millions)	Valuation Technique	Significant Unobservable Input	Range			
Power Contracts[1]	$ 190	Discounted cash flow	Market price (per MWh)	$ 7.09	—	$123.34	/MWh
Power Congestion Products	$ 18	Discounted cash flow	Market price (per MWh)	$ (8.63)	—	$11.48	/MWh
Natural Gas Contracts	$ 6	Discounted cash flow	Market price (per MMBtu)	$ 0.61	—	$9.75	/MMBtu

	December 31, 2018						
	Fair Value, Net Asset (Liability) (in millions)	Valuation Technique	Significant Unobservable Input	Range			
Power Contracts[1]	$ 36	Discounted cash flow	Market price (per MWh)	$ 2.12	—	$227.98	/MWh
Power Congestion Products	$ 26	Discounted cash flow	Market price (per MWh)	$ (11.71)	—	$11.88	/MWh
Natural Gas Contracts	$ (73)	Discounted cash flow	Market price (per MMBtu)	$ 0.75	—	$8.87	/MMBtu

(1) Power contracts include power and heat rate instruments classified as level 3 in the fair value hierarchy.

The following table sets forth a reconciliation of changes in the fair value of our net derivative assets (liabilities) classified as level 3 in the fair value hierarchy for the periods indicated (in millions):

	Three Months Ended June 30,		Six Months Ended June 30,	
	2019	2018	2019	2018
Balance, beginning of period	$ 105	$ 129	$ (8)	$ 197
Realized and mark-to-market gains (losses):				
Included in net income (loss):				
Included in operating revenues[1]	152	31	197	(28)
Included in fuel and purchased energy expense[2]	1	18	2	15
Change in collateral	(1)	1	1	(1)
Purchases, Issuances and settlements:				
Purchases	1	5	3	9
Issuances	(1)	—	(1)	—
Settlements	(35)	(42)	28	(53)
Transfers in and/or out of level 3[3]:				
Transfers into level 3[4]	6	(1)	7	(1)

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Transfers out of level 3[5]	(1)	(10)	(2)	(7)
Balance, end of period	$ 227	$ 131	$ 227	$ 131
Change in unrealized gains (losses) relating to instruments still held at end of period	$ 153	$ 49	$ 199	$ (13)

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(1) For power contracts and other power-related products, included on our Consolidated Condensed Statements of Operations.

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(2) For natural gas and power contracts, swaps and options, included on our Consolidated Condensed Statements of Operations.

(3) We transfer amounts among levels of the fair value hierarchy as of the end of each period. There were no transfers into or out of level 1 for each of the three and six months ended June 30, 2019 and 2018.

(4) We had $6 million in gains and $(1) million in losses transferred out of level 2 into level 3 for the three months ended June 30, 2019 and 2018, respectively, and $7 million in gains and $(1) million in losses transferred out of level 2 into level 3 for the six months ended June 30, 2019 and 2018, respectively, due to changes in market liquidity in various power markets.

(5) We had $1 million and $10 million in gains transferred out of level 3 into level 2 for the three months ended June 30, 2019 and 2018, respectively, and $2 million and $7 million in gains transferred out of level 3 into level 2 for the six months ended June 30, 2019 and 2018, respectively, due to changes in market liquidity in various power markets.

8. Derivative Instruments

Types of Derivative Instruments and Volumetric Information

Commodity Instruments — We are exposed to changes in prices for the purchase and sale of power, natural gas, fuel oil, environmental products and other energy commodities. We use derivatives, which include physical commodity contracts and financial commodity instruments such as OTC and exchange traded swaps, futures, options, forward agreements and instruments that settle on the power price to natural gas price relationships (Heat Rate swaps and options) or instruments that settle on power or natural gas price relationships between delivery points for the purchase and sale of power and natural gas to attempt to maximize the risk-adjusted returns by economically hedging a portion of the commodity price risk associated with our assets. By entering into these transactions, we are able to economically hedge a portion of our Spark Spread at estimated generation and prevailing price levels.

We also engage in limited trading activities related to our commodity derivative portfolio as authorized by our Board of Directors and monitored by our Chief Risk Officer and Risk Management Committee of senior management. These transactions are executed primarily for the purpose of providing improved price and price volatility discovery, greater market access, and profiting from our market knowledge, all of which benefit our asset hedging activities. Our trading results were not material for each of the three and six months ended June 30, 2019 and 2018.

Interest Rate Hedging Instruments — A portion of our debt is indexed to base rates, primarily LIBOR. We have historically used interest rate hedging instruments to adjust the mix between fixed and variable rate debt to hedge our interest rate risk for potential adverse changes in interest rates. As of June 30, 2019, the maximum length of time over which we were hedging using interest rate hedging instruments designated as cash flow hedges was 6 years.

As of June 30, 2019 and December 31, 2018, the net forward notional buy (sell) position of our outstanding commodity derivative instruments that did not qualify or were not designated under the normal purchase normal sale exemption and our interest rate hedging instruments were as follows:

	Notional Amounts		
Derivative Instruments	**June 30, 2019**	**December 31, 2018**	**Unit of Measure**
Power	(181)	(161)	Million MWh
Natural gas	1,048	1,045	Million MMBtu
Environmental credits	13	13	Million Tonnes
Interest rate hedging instruments	$ 4.3	$ 4.5	Billion U.S. dollars

Certain of our derivative instruments contain credit risk-related contingent provisions that require us to maintain collateral balances consistent with our credit ratings. If our credit rating were to be downgraded, it could require us to post additional collateral or could potentially allow our counterparty to request immediate, full settlement on certain derivative instruments in liability positions. The aggregate fair value of our derivative liabilities with credit risk-related contingent provisions as of June 30, 2019, was $230 million for which we have posted collateral of $171 million by posting margin deposits, letters of credit or granting additional first priority liens on the assets currently subject to first priority liens under our First Lien Notes, First Lien Term Loans and Corporate Revolving Facility. However, if our credit rating were downgraded by one notch from its current level, we estimate that additional collateral of $5 million related to our derivative liabilities would be required and that no counterparty could request immediate, full settlement.

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Accounting for Derivative Instruments

We recognize all derivative instruments that qualify for derivative accounting treatment as either assets or liabilities and measure those instruments at fair value unless they qualify for, and we elect, the normal purchase normal sale exemption. For transactions in which we elect the normal purchase normal sale exemption, gains and losses are not reflected on our Consolidated Condensed Statements of Operations until the period of delivery. Revenues and expenses derived from instruments that qualified for hedge accounting or represent an economic hedge are recorded in the same financial statement line item as the item being hedged. Hedge accounting requires us to formally document, designate and assess the effectiveness of transactions that receive hedge accounting. We present the cash flows from our derivatives in the same category as the item being hedged (or economically hedged) within operating activities on our Consolidated Condensed Statements of Cash Flows unless they contain an other-than-insignificant financing element in which case their cash flows are classified within financing activities.

Cash Flow Hedges — We currently apply hedge accounting to our interest rate hedging instruments. We report the mark-to-market gain or loss on our interest rate hedging instruments designated and qualifying as a cash flow hedging instrument as a component of OCI and reclassify such gains and losses into earnings in the same period during which the hedged forecasted transaction affects earnings. Prior to January 1, 2019, gains and losses due to ineffectiveness on interest rate hedging instruments were recognized in earnings as a component of interest expense. Upon the adoption of Accounting Standards Update 2017-12 on January 1, 2019, hedge ineffectiveness is no longer separately measured and recorded in earnings. If it is determined that the forecasted transaction is no longer probable of occurring, then hedge accounting will be discontinued prospectively and future changes in fair value will be recorded in earnings. If the hedging instrument is terminated or de-designated prior to the occurrence of the hedged forecasted transaction, the net accumulated gain or loss associated with the changes in fair value of the hedge instrument remains deferred in AOCI until such time as the forecasted transaction affects earnings or until it is determined that the forecasted transaction is probable of not occurring.

Derivatives Not Designated as Hedging Instruments — We enter into power, natural gas, interest rate, environmental product and fuel oil transactions that primarily act as economic hedges to our asset and interest rate portfolio, but either do not qualify as hedges under the hedge accounting guidelines or qualify under the hedge accounting guidelines and the hedge accounting designation has not been elected. Changes in fair value of commodity derivatives not designated as hedging instruments are recognized currently in earnings and are separately stated on our Consolidated Condensed Statements of Operations in mark-to-market gain/loss as a component of operating revenues (for physical and financial power and Heat Rate and commodity option activity) and fuel and purchased energy expense (for physical and financial natural gas, power, environmental product and fuel oil activity). Changes in fair value of interest rate derivatives not designated as hedging instruments are recognized currently in earnings as interest expense.

Derivatives Included on Our Consolidated Condensed Balance Sheets

We offset fair value amounts associated with our derivative instruments and related cash collateral and margin deposits on our Consolidated Condensed Balance Sheets that are executed with the same counterparty under master netting arrangements. Our netting arrangements include a right to set off or net together purchases and sales of similar products in the margining or settlement process. In some instances, we have also negotiated cross commodity netting rights which allow for the net presentation of activity with a given counterparty regardless of product purchased or sold. We also post and/or receive cash collateral in support of our derivative instruments which may also be subject to a master netting arrangement with the same counterparty.

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The following tables present the fair values of our derivative instruments and our net exposure after offsetting amounts subject to a master netting arrangement with the same counterparty to our derivative instruments recorded on our Consolidated Condensed Balance Sheets by location and hedge type at June 30, 2019 and December 31, 2018 (in millions):

	June 30, 2019		
	Gross Amounts of Assets and (Liabilities)	**Gross Amounts Offset on the Consolidated Condensed Balance Sheets**	**Net Amount Presented on the Consolidated Condensed Balance Sheets[(1)]**
Derivative assets:			
Commodity exchange traded derivatives contracts	$ 861	$ (861)	$ —
Commodity forward contracts	388	(188)	200
Interest rate hedging instruments	5	(3)	2
Total current derivative assets[(2)]	$ 1,254	$ (1,052)	$ 202
Commodity exchange traded derivatives contracts	228	(228)	—
Commodity forward contracts	284	(71)	213
Interest rate hedging instruments	1	(1)	—
Total long-term derivative assets[(2)]	$ 513	$ (300)	$ 213
Total derivative assets	$ 1,767	$ (1,352)	$ 415
Derivative (liabilities):			
Commodity exchange traded derivatives contracts	$ (861)	$ 861	$ —
Commodity forward contracts	(393)	234	(159)
Interest rate hedging instruments	(9)	3	(6)
Total current derivative (liabilities)[(2)]	$ (1,263)	$ 1,098	$ (165)
Commodity exchange traded derivatives contracts	(318)	318	—
Commodity forward contracts	(177)	81	(96)
Interest rate hedging instruments	(24)	1	(23)
Total long-term derivative (liabilities)[(2)]	$ (519)	$ 400	$ (119)
Total derivative liabilities	$ (1,782)	$ 1,498	$ (284)
Net derivative assets (liabilities)	$ (15)	$ 146	$ 131

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	December 31, 2018		
	Gross Amounts of Assets and (Liabilities)	Gross Amounts Offset on the Consolidated Condensed Balance Sheets	Net Amount Presented on the Consolidated Condensed Balance Sheets[1]
Derivative assets:			
Commodity exchange traded derivatives contracts	$ 820	$ (820)	$ —
Commodity forward contracts	341	(229)	112
Interest rate hedging instruments	30	—	30
Total current derivative assets[3]	$ 1,191	$ (1,049)	$ 142
Commodity exchange traded derivatives contracts	113	(113)	—
Commodity forward contracts	209	(59)	150
Interest rate hedging instruments	10	—	10
Total long-term derivative assets[3]	$ 332	$ (172)	$ 160
Total derivative assets	$ 1,523	$ (1,221)	$ 302
Derivative (liabilities):			
Commodity exchange traded derivatives contracts	$ (764)	$ 764	$ —
Commodity forward contracts	(576)	277	(299)
Interest rate hedging instruments	(4)	—	(4)
Total current derivative (liabilities)[3]	$ (1,344)	$ 1,041	$ (303)
Commodity exchange traded derivatives contracts	(168)	168	—
Commodity forward contracts	(193)	59	(134)
Interest rate hedging instruments	(6)	—	(6)
Total long-term derivative (liabilities)[3]	$ (367)	$ 227	$ (140)
Total derivative liabilities	$ (1,711)	$ 1,268	$ (443)
Net derivative assets (liabilities)	$ (188)	$ 47	$ (141)

(1) At June 30, 2019 and December 31, 2018, we had $142 million and $244 million, respectively, of collateral under master netting arrangements that were not offset against our derivative instruments on the Consolidated Condensed Balance Sheets primarily related to initial margin requirements.

(2) At June 30, 2019, current and long-term derivative assets are shown net of collateral of $(27) million and $(3) million, respectively, and current and long-term derivative liabilities are shown net of collateral of $72 million and $104 million, respectively.

(3) At December 31, 2018, current and long-term derivative assets are shown net of collateral of $(58) million and $(8) million, respectively, and current and long-term derivative liabilities are shown net of collateral of $49 million and $64 million, respectively.

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	June 30, 2019		December 31, 2018	
	Fair Value of Derivative Assets	Fair Value of Derivative Liabilities	Fair Value of Derivative Assets	Fair Value of Derivative Liabilities
Derivatives designated as cash flow hedging instruments:				
Interest rate hedging instruments	$ 2	$ 27	$ 40	$ 10
Total derivatives designated as cash flow hedging instruments	$ 2	$ 27	$ 40	$ 10
Derivatives not designated as hedging instruments:				
Commodity instruments	$ 413	$ 255	$ 262	$ 433
Interest rate hedging instruments	—	2	—	—
Total derivatives not designated as hedging instruments	$ 413	$ 257	$ 262	$ 433
Total derivatives	$ 415	$ 284	$ 302	$ 443

Derivatives Included on Our Consolidated Condensed Statements of Operations

Changes in the fair values of our derivative instruments are reflected either in cash for option premiums paid or collected, in OCI, net of tax, for derivative instruments which qualify for and we have elected cash flow hedge accounting treatment, or on our Consolidated Condensed Statements of Operations as a component of mark-to-market activity within our earnings.

The following tables detail the components of our total activity for both the net realized gain (loss) and the net mark-to-market gain (loss) recognized from our derivative instruments in earnings and where these components were recorded on our Consolidated Condensed Statements of Operations for the periods indicated (in millions):

	Three Months Ended June 30,		Six Months Ended June 30,	
	2019	2018	2019	2018
Realized gain (loss)[1][2]				
Commodity derivative instruments	$ 58	$ 69	$ 169	$ 66
Total realized gain (loss)	$ 58	$ 69	$ 169	$ 66
Mark-to-market gain (loss)[3]				
Commodity derivative instruments	$ 187	$ 188	$ 233	$ (183)
Interest rate hedging instruments	(1)	1	(2)	3
Total mark-to-market gain (loss)	$ 186	$ 189	$ 231	$ (180)
Total activity, net	$ 244	$ 258	$ 400	$ (114)

(1) Does not include the realized value associated with derivative instruments that settle through physical delivery.

(2) Includes amortization of acquisition date fair value of financial derivative activity related to the acquisition of Champion Energy and Calpine Solutions.

(3) In addition to changes in market value on derivatives not designated as hedges, changes in mark-to-market gain (loss) also includes adjustments to reflect changes in credit default risk exposure.

	Three Months Ended June 30,		Six Months Ended June 30,	
	2019	2018	2019	2018
Realized and mark-to-market gain (loss)[1]				
Derivatives contracts included in operating revenues[2][3]	$ 541	$ 183	$ 578	$ (176)

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Derivatives contracts included in fuel and purchased energy expense[2][3]	(296)	74	(176)	59
Interest rate hedging instruments included in interest expense	(1)	1	(2)	3
Total activity, net	$ 244	$ 258	$ 400	$ (114)

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(1) In addition to changes in market value on derivatives not designated as hedges, changes in mark-to-market gain (loss) also includes adjustments to reflect changes in credit default risk exposure.

(2) Does not include the realized value associated with derivative instruments that settle through physical delivery.

(3) Includes amortization of acquisition date fair value of financial derivative activity related to the acquisition of Champion Energy and Calpine Solutions.

Derivatives Included in OCI and AOCI

The following table details the effect of our net derivative instruments that qualified for hedge accounting treatment and are included in OCI and AOCI for the periods indicated (in millions):

	Three Months Ended June 30, Gain (Loss) Recognized in OCI		Three Months Ended June 30, Gain (Loss) Reclassified from AOCI into Income[3][4]		
	2019	**2018**	**2019**	**2018**	**Affected Line Item on the Consolidated Condensed Statements of Operations**
Interest rate hedging instruments[1][2]	$ (32)	$ 15	$ 3	$ —	Interest expense
Total	$ (32)	$ 15	$ 3	$ —	

	Six Months Ended June 30, Gain (Loss) Recognized in OCI		Six Months Ended June 30, Gain (Loss) Reclassified from AOCI into Income[3][4]		
	2019	**2018**	**2019**	**2018**	**Affected Line Item on the Consolidated Condensed Statements of Operations**
Interest rate hedging instruments[1][2]	$ (57)	$ 69	$ 5	$ (6)	Interest expense
Interest rate hedging instruments[1][2]	—	1	—	(1)	Depreciation and amortization expense
Total	$ (57)	$ 70	$ 5	$ (7)	

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(1) We recorded $1 million in gains on hedge ineffectiveness related to our interest rate hedging instruments designated as cash flow hedges during each of the three and six months ended June 30, 2018. Upon the adoption of Accounting Standards Update 2017-12 on January 1, 2019, hedge ineffectiveness is no longer separately measured and recorded in earnings.

(2) We recorded an income tax benefit of $1 million and $7 million for the three months ended June 30, 2019 and 2018, respectively, and income tax benefit of $1 million and income tax expense of $4 million for the six months ended June 30, 2019 and 2018, respectively, in AOCI related to our cash flow hedging activities.

(3) Cumulative cash flow hedge losses attributable to Calpine, net of tax, remaining in AOCI were $89 million and $34 million at June 30, 2019 and December 31, 2018, respectively. Cumulative cash flow hedge losses attributable to the noncontrolling interest, net of tax, remaining in AOCI were $4 million and $3 million at June 30, 2019 and December 31, 2018, respectively.

(4) Includes losses (gains) of nil that were reclassified from AOCI to interest expense for the three months ended June 30, 2019 and 2018, and losses of $1 million and nil that were reclassified from AOCI to interest expense for the six months ended June 30, 2019 and 2018, respectively, where the hedged transactions became probable of not occurring.

We estimate that pre-tax net losses of $20 million would be reclassified from AOCI into interest expense during the next 12 months as the hedged transactions settle; however, the actual amounts that will be reclassified will likely vary based on changes in interest rates. Therefore, we are unable to predict what the actual reclassification from AOCI into earnings (positive or negative) will be for the next 12 months.

9. Use of Collateral

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We use margin deposits, prepayments and letters of credit as credit support with and from our counterparties for commodity procurement and risk management activities. In addition, we have granted additional first priority liens on the assets currently subject to first priority liens under various debt agreements as collateral under certain of our power and natural gas agreements and certain of our interest rate hedging instruments in order to reduce the cash collateral and letters of credit that we would otherwise

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be required to provide to the counterparties under such agreements. The counterparties under such agreements share the benefits of the collateral subject to such first priority liens pro rata with the lenders under our various debt agreements.

The table below summarizes the balances outstanding under margin deposits, natural gas and power prepayments, and exposure under letters of credit and first priority liens for commodity procurement and risk management activities as of June 30, 2019 and December 31, 2018 (in millions):

	June 30, 2019		December 31, 2018	
Margin deposits[1]	$	373	$	343
Natural gas and power prepayments		34		31
Total margin deposits and natural gas and power prepayments with our counterparties[2]	$	407	$	374
Letters of credit issued	$	900	$	1,166
First priority liens under power and natural gas agreements		42		92
First priority liens under interest rate hedging instruments		29		10
Total letters of credit and first priority liens with our counterparties	$	971	$	1,268
Margin deposits posted with us by our counterparties[1][3]	$	85	$	52
Letters of credit posted with us by our counterparties		31		27
Total margin deposits and letters of credit posted with us by our counterparties	$	116	$	79

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(1) We offset fair value amounts recognized for derivative instruments executed with the same counterparty under a master netting arrangement for financial statement presentation; therefore, amounts recognized for the right to reclaim, or the obligation to return, cash collateral are presented net with the corresponding derivative instrument fair values. See Note 8 for further discussion of our derivative instruments subject to master netting arrangements.

(2) At June 30, 2019 and December 31, 2018, $162 million and $79 million, respectively, were included in current and long-term derivative assets and liabilities, $237 million and $286 million, respectively, were included in margin deposits and other prepaid expense and $8 million and $9 million, respectively, were included in other assets on our Consolidated Condensed Balance Sheets.

(3) At June 30, 2019 and December 31, 2018, $16 million and $32 million, respectively, were included in current and long-term derivative assets and liabilities, $28 million and $20 million, respectively, were included in other current liabilities and $41 million and nil, respectively, were included in other long-term liabilities on our Consolidated Condensed Balance Sheets.

Future collateral requirements for cash, first priority liens and letters of credit may increase or decrease based on the extent of our involvement in hedging and optimization contracts, movements in commodity prices, and also based on our credit ratings and general perception of creditworthiness in our market.

10. Income Taxes

Income Tax Expense (Benefit)

The table below shows our consolidated income tax expense (benefit) and our effective tax rates for the periods indicated (in millions):

	Three Months Ended June 30,				Six Months Ended June 30,			
	2019		2018		2019		2018	
Income tax expense (benefit)	$	9	$	(158)	$	19	$	(50)
Effective tax rate		3%		(81)%		4%		17%

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Our income tax rates do not bear a customary relationship to statutory income tax rates primarily as a result of the effect of our NOLs, changes in unrecognized tax benefits and valuation allowances. For the three and six months ended June 30, 2019

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and 2018, our income tax expense (benefit) is largely comprised of discrete tax items and estimated state and foreign income taxes in jurisdictions where we do not have NOLs or valuation allowances.

Income Tax Audits — We remain subject to periodic audits and reviews by taxing authorities; however, we do not expect these audits will have a material effect on our tax provision. Any NOLs we claim in future years to reduce taxable income could be subject to IRS examination regardless of when the NOLs were generated. Any adjustment of state or federal returns could result in a reduction of deferred tax assets rather than a cash payment of income taxes in tax jurisdictions where we have NOLs. We are currently under various state income tax audits for various periods. Our Canadian subsidiaries are currently under examination by the Canada Revenue Agency for the years ended December 31, 2013 through 2016.

Valuation Allowance — U.S. GAAP requires that we consider all available evidence, both positive and negative, and tax planning strategies to determine whether, based on the weight of that evidence, a valuation allowance is needed to reduce the value of deferred tax assets. Future realization of the tax benefit of an existing deductible temporary difference or carryforward ultimately depends on the existence of sufficient taxable income of the appropriate character within the carryback or carryforward periods available under the tax law. Due to our history of losses, we were unable to assume future profits; however, we are able to consider available tax planning strategies.

Limitation on Deduction of Net Business Interest Expense — On November 26, 2018, the U.S. Treasury Department released proposed regulations which would limit the current deductibility of net business interest expense. The proposed regulations would be applicable for taxable years ending after the date on which the regulations become final. Companies have the discretion to apply the proposed regulations, but must apply all such provisions of the proposed regulations on a consistent basis. As of June 30, 2019, we have not elected to apply the proposed regulations for the 2018 or 2019 tax years and we do not expect the application of the final regulations will have a material effect on our Consolidated Condensed Financial Statements.

Unrecognized Tax Benefits — At June 30, 2019, we had unrecognized tax benefits of $29 million. If recognized, $17 million of our unrecognized tax benefits could affect the annual effective tax rate and $12 million, related to deferred tax assets, could be offset against the recorded valuation allowance resulting in no effect on our effective tax rate. We had accrued interest and penalties of $3 million for income tax matters at June 30, 2019. We recognize interest and penalties related to unrecognized tax benefits in income tax expense (benefit) on our Consolidated Condensed Statements of Operations. We believe that it is reasonably possible that a decrease within the range of nil and $8 million in unrecognized tax benefits could occur within the next twelve months primarily related to state tax issues.

11. Commitments and Contingencies

Litigation

We are party to various litigation matters, including regulatory and administrative proceedings arising out of the normal course of business. At the present time, we do not expect that the outcome of any of these proceedings, individually or in the aggregate, will have a material adverse effect on our financial condition, results of operations or cash flows.

On a quarterly basis, we review our litigation activities and determine if an unfavorable outcome to us is considered "remote," "reasonably possible" or "probable" as defined by U.S. GAAP. Where we determine an unfavorable outcome is probable and is reasonably estimable, we accrue for potential litigation losses. The liability we may ultimately incur with respect to such litigation matters, in the event of a negative outcome, may be in excess of amounts currently accrued, if any; however, we do not expect that the reasonably possible outcome of these litigation matters would, individually or in the aggregate, have a material adverse effect on our financial condition, results of operations or cash flows. Where we determine an unfavorable outcome is not probable or reasonably estimable, we do not accrue for any potential litigation loss. The ultimate outcome of these litigation matters cannot presently be determined, nor can the liability that could potentially result from a negative outcome be reasonably estimated. As a result, we give no assurance that such litigation matters would, individually or in the aggregate, not have a material adverse effect on our financial condition, results of operations or cash flows.

Environmental Matters

We are subject to complex and stringent environmental laws and regulations related to the operation of our power plants. On occasion, we may incur environmental fees, penalties and fines associated with the operation of our power plants. At the present time, we do not have environmental violations or other matters that would have a material effect on our financial condition, results of operations or cash flows or that would significantly change our operations.

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Guarantees and Indemnifications

Our potential exposure under guarantee and indemnification obligations can range from a specified amount to an unlimited dollar amount, depending on the nature of the claim and the particular transaction. Our total maximum exposure under our guarantee and indemnification obligations is not estimable due to uncertainty as to whether claims will be made or how any potential claim will be resolved. As of June 30, 2019, there are no material outstanding claims related to our guarantee and indemnification obligations and we do not anticipate that we will be required to make any material payments under our guarantee and indemnification obligations. There have been no material changes to our guarantees and indemnifications from those disclosed in Note 16 of our 2018 Form 10-K.

12. Related Party Transactions

We have entered into various agreements with related parties associated with the operation of our business. A description of these related party transactions is provided below:

Calpine Receivables — Under the Accounts Receivable Sales Program, at June 30, 2019 and December 31, 2018, we had $244 million and $238 million, respectively, in trade accounts receivable outstanding that were sold to Calpine Receivables and $57 million and $34 million, respectively, in notes receivable from Calpine Receivables which were recorded on our Consolidated Condensed Balance Sheets. During the six months ended June 30, 2019 and 2018, we sold an aggregate of $1.1 billion and $1.1 billion, respectively, in trade accounts receivable and recorded $1.1 billion and $1.1 billion, respectively, in proceeds. For a further discussion of the Accounts Receivable Sales Program and Calpine Receivables, see Notes 7 and 17 in our 2018 Form 10-K.

Lyondell — We have a ground lease agreement with Houston Refining LP ("Houston Refining"), a subsidiary of Lyondell, for our Channel Energy Center site from which we sell power, capacity and steam to Houston Refining under a PPA. We purchase refinery gas and raw water from Houston Refining under a facilities services agreement. One of the entities which obtained an ownership interest in Calpine through the Merger also has an ownership interest in Lyondell whereby they may significantly influence the management and operating policies of Lyondell. The terms of the PPA with Lyondell were negotiated prior to the Merger closing. We recorded $17 million and $19 million in Commodity revenue during the three months ended June 30, 2019 and 2018, respectively, and $37 million and $38 million in Commodity revenue during the six months ended June 30, 2019 and 2018, associated with this contract with Lyondell. We recorded $4 million and $4 million in Commodity expense during the three months ended June 30, 2019 and 2018, respectively, and $7 million and $6 million in Commodity expense during the six months ended June 30, 2019 and 2018, associated with this contract with Lyondell. At June 30, 2019 and December 31, 2018, the related party receivable and payable associated with this contract with Lyondell were immaterial.

Other — Following the Merger, we have identified other related party contracts for the sale of power, capacity and RECs which are entered into in the ordinary course of our business. Most of these contracts relate to the sale of commodities and capacity for varying tenors. The terms of most of these contracts were negotiated prior to the Merger. As of June 30, 2019 and December 31, 2018, the related party receivables and payables associated with these transactions were immaterial.

13. Segment Information

We assess our business on a regional basis due to the effect on our financial performance of the differing characteristics of these regions, particularly with respect to competition, regulation and other factors affecting supply and demand. At June 30, 2019, our geographic reportable segments for our wholesale business are West (including geothermal), Texas and East (including Canada) and we have a separate reportable segment for our retail business. We continue to evaluate the optimal manner in which we assess our performance including our segments and future changes may result in changes to the composition of our geographic segments.

Commodity Margin is a key operational measure of profit reviewed by our chief operating decision maker to assess the performance of our segments. The tables below show financial data for our segments (including a reconciliation of our Commodity Margin to income (loss) from operations by segment) for the periods indicated (in millions):

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	Three Months Ended June 30, 2019					
	Wholesale				Consolidation	
	West	Texas	East	Retail	Elimination	Total
Total operating revenues[1]	$ 649	$ 899	$ 646	$ 1,082	$ (677)	$ 2,599
Commodity Margin	$ 251	$ 173	$ 235	$ 93	$ —	$ 752
Add: Mark-to-market commodity activity, net and other[2]	58	240	94	(182)	(10)	200
Less:						
Operating and maintenance expense	84	66	72	33	(10)	245
Depreciation and amortization expense	60	54	48	13	—	175
General and other administrative expense	5	15	10	4	—	34
Other operating expenses	7	1	11	—	—	19
Impairment losses	—	—	40	—	—	40
(Income) from unconsolidated subsidiaries	—	—	(6)	1	—	(5)
Income (loss) from operations	153	277	154	(140)	—	444
Interest expense						157
Gain on extinguishment of debt and other (income) expense, net						8
Income before income taxes						$ 279

	Three Months Ended June 30, 2018					
	Wholesale				Consolidation	
	West	Texas	East	Retail	Elimination	Total
Total operating revenues[1]	$ 355	$ 993	$ 341	$ 935	$ (365)	$ 2,259
Commodity Margin	$ 241	$ 151	$ 225	$ 77	$ —	$ 694
Add: Mark-to-market commodity activity, net and other[2]	(23)	301	(7)	(67)	(8)	196
Less:						
Operating and maintenance expense	80	65	65	41	(9)	242
Depreciation and amortization expense	67	57	49	13	—	186
General and other administrative expense	5	13	8	5	—	31
Other operating expenses	8	3	8	—	—	19
(Income) from unconsolidated subsidiaries	—	—	(6)	1	—	(5)
Income (loss) from operations	58	314	94	(50)	1	417
Interest expense						157
Other (income) expense, net						62
Income before income taxes						$ 198

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	Six Months Ended June 30, 2019					
	Wholesale				Consolidation	
	West	Texas	East	Retail	Elimination	Total
Total operating revenues[3]	$ 1,331	$ 1,642	$ 1,335	$ 2,080	$ (1,190)	$ 5,198
Commodity Margin	$ 515	$ 335	$ 500	$ 181	$ —	$ 1,531
Add: Mark-to-market commodity activity, net and other[4]	114	284	107	(235)	(18)	252
Less:						
Operating and maintenance expense	165	131	139	67	(18)	484
Depreciation and amortization expense	133	99	91	26	—	349
General and other administrative expense	12	27	19	8	—	66
Other operating expenses	16	3	19	—	—	38
Impairment losses	—	—	55	—	—	55
(Income) from unconsolidated subsidiaries	—	—	(12)	1	—	(11)
Income (loss) from operations	303	359	296	(156)	—	802
Interest expense						306
Gain on extinguishment of debt and other (income) expense, net						27
Income before income taxes						$ 469

	Six Months Ended June 30, 2018					
	Wholesale				Consolidation	
	West	Texas	East	Retail	Elimination	Total
Total operating revenues[3]	$ 835	$ 1,133	$ 955	$ 1,873	$ (528)	$ 4,268
Commodity Margin	$ 426	$ 317	$ 409	$ 154	$ —	$ 1,306
Add: Mark-to-market commodity activity, net and other[4]	(10)	(246)	33	61	(15)	(177)
Less:						
Operating and maintenance expense	170	145	136	81	(15)	517
Depreciation and amortization expense	134	133	94	26	—	387
General and other administrative expense	21	38	23	9	—	91
Other operating expenses	22	19	15	—	—	56
(Income) from unconsolidated subsidiaries	—	—	(12)	1	—	(11)
Income (loss) from operations	69	(264)	186	98	—	89
Interest expense						308
Other (income) expense, net						69
Loss before income taxes						$ (288)

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(1) Includes intersegment revenues of $100 million and $70 million in the West, $348 million and $276 million in Texas, $228 million and $18 million in the East and $1 million and $1 million in Retail for the three months ended June 30, 2019 and 2018, respectively.

(2) Includes $(19) million and $(19) million of lease levelization and $18 million and $25 million of amortization expense for the three months ended June 30, 2019 and 2018, respectively.

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(3) Includes intersegment revenues of $262 million and $184 million in the West, $559 million and $209 million in Texas, $365 million and $133 million in the East and $4 million and $2 million in Retail for the six months ended June 30, 2019 and 2018, respectively.

(4) Includes $(35) million and $(35) million of lease levelization and $39 million and $53 million of amortization expense for the six months ended June 30, 2019 and 2018, respectively.

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Item 2. Management's Discussion and Analysis of Financial Condition and Results of Operations

Forward-Looking Information

This Management's Discussion and Analysis of Financial Condition and Results of Operations should be read in conjunction with our accompanying Consolidated Condensed Financial Statements and related Notes. See the cautionary statement regarding forward-looking statements at the beginning of this Report for a description of important factors that could cause actual results to differ from expected results.

Introduction and Overview

We are a power generation company engaged in the ownership and operation of primarily natural gas-fired and geothermal power plants in North America. We have a significant presence in major competitive wholesale and retail power markets in California, Texas and the Northeast and Mid-Atlantic regions of the U.S. We sell power, steam, capacity, renewable energy credits and ancillary services to our customers, which include utilities, independent electric system operators, industrial and agricultural companies, retail power providers, municipalities and other governmental entities, power marketers as well as retail commercial, industrial, governmental and residential customers. We continue to focus on providing products and services that are beneficial to our wholesale and retail customers. We purchase primarily natural gas and some fuel oil as fuel for our power plants and engage in related natural gas transportation and storage transactions. We also purchase power for sale to our customers and purchase electric transmission rights to deliver power to our customers. Additionally, consistent with our Risk Management Policy, we enter into natural gas, power, environmental product, fuel oil and other physical and financial commodity contracts to hedge certain business risks and optimize our portfolio of power plants.

We assess our wholesale business on a regional basis due to the effect on our financial performance of the differing characteristics of these regions, particularly with respect to competition, regulation and other factors affecting supply and demand. Our geographic reportable segments for our wholesale business are West (including geothermal), Texas and East (including Canada) and we have a separate reportable segment for our retail business.

Subsequent to the completion of the sale of the Garrison and RockGen Energy Centers on July 10, 2019, our wholesale power plant portfolio, including partnership interests, consists of 78 power plants, including one under construction, with an aggregate current generation capacity of 25,885 MW and 361 MW under construction. In March 2019, our York 2 Energy Center commenced commercial operations, bringing online approximately 828 MW of combined-cycle, natural gas-fired capacity with dual-fuel capability. Our fleet consists of 63 natural gas-fired combustion turbine-based plants, one natural gas and fuel oil-fired steam-based plant, 13 geothermal steam turbine-based plants and one photovoltaic solar plant. Our wholesale geographic segments have an aggregate generation capacity of 7,435 MW in the West, 9,095 MW in Texas and 9,355 MW with an additional 361 MW under construction in the East. Inclusive of our power generation portfolio and our retail sales platforms, we serve customers in 23 states in the U.S. and in Canada and Mexico.

Governmental and Regulatory Matters

We are subject to complex and stringent energy, environmental and other laws and regulations at the federal, state and local levels as well as rules within the ISO and RTO markets in which we participate. Federal and state legislative and regulatory actions, including those by ISO/RTOs, continue to change how our business is regulated. We are actively participating in these debates at the federal, regional, state and ISO/RTO levels. Significant updates are discussed below. For a further discussion of the environmental and other governmental regulations that affect us, see "— Governmental and Regulatory Matters" in Part I, Item 1 of our 2018 Form 10-K.

PJM

On June 29, 2018, the FERC issued a decision finding PJM's current tariff to be unjust and unreasonable due to the price-suppressive effects of out-of-market compensation provided to certain generation resources by states within the PJM market. The FERC rejected both replacement proposals submitted by PJM to address the issue and instead opted for an expedited paper hearing to identify a reasonable replacement mechanism. In its decision, the FERC outlined a Fixed Resource Requirement Alternative ("FRR Alternative") in which power resources receiving out-of-market subsidies could choose to be removed from the PJM market along with a commensurate amount of load. PJM made a compliance filing on October 2, 2018 to implement the FERC's proposed FRR Alternative, which we do not support. In the same compliance filing, however, PJM also included additional market rule changes we do support that would partially mitigate the impact of out-of-market subsidies on wholesale capacity market prices. PJM's filing has been pending for many months. On April 10, 2019, PJM submitted a filing to the FERC requesting authorization to run the auction in August 2019 under the current tariff,

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notwithstanding the FERC's June 2018 ruling that the tariff is unjust and unreasonable. On July 25, 2019, the FERC issued an order rejecting PJM's request and ordered PJM not to run the auction as

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scheduled. As this issue is unresolved, we cannot predict the ultimate effect on our financial condition, results of operations or cash flows.

The Independent Market Monitor ("IMM") for PJM filed a complaint with the FERC on February 21, 2019 regarding a component of PJM's Reliability Pricing Model ("RPM") that allows sellers of the Capacity Performance product ("CP") to offer CP at prices above the competitive level, thereby potentially allowing them to exercise market power. The IMM argues that this provision of the tariff is unjust and unreasonable because the tariff does not provide a mechanism for the IMM to review these offers. Additionally, the IMM argues that the tariff should be revised to lower the Market Seller Offer Cap. This change would require nearly all competitive suppliers to submit their offers to the IMM for review prior to bidding in the RPM. In response to the IMM's complaint, Calpine joined with many other competitive suppliers to urge the FERC to reject the IMM's proposed resolution as inconsistent with CP and, alternatively, to enhance the penalty provisions of CP. This course of action would address the IMM's concerns and would also be more consistent with the CP design. FERC action on the IMM's complaint is pending.

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RESULTS OF OPERATIONS FOR THE THREE MONTHS ENDED JUNE 30, 2019 AND 2018

Below are our results of operations for the three months ended June 30, 2019 as compared to the same period in 2018 (in millions, except for percentages and operating performance metrics). In the comparative tables below, increases in revenue/income or decreases in expense (favorable variances) are shown without brackets while decreases in revenue/income or increases in expense (unfavorable variances) are shown with brackets.

	2019	2018	Change	% Change
Operating revenues:				
Commodity revenue	$ 2,128	$ 2,121	$ 7	—
Mark-to-market gain	467	131	336	#
Other revenue	4	7	(3)	(43)
Operating revenues	2,599	2,259	340	15
Operating expenses:				
Fuel and purchased energy expense:				
Commodity expense	1,367	1,426	59	4
Mark-to-market (gain) loss	280	(57)	(337)	#
Fuel and purchased energy expense	1,647	1,369	(278)	(20)
Operating and maintenance expense	245	242	(3)	(1)
Depreciation and amortization expense	175	186	11	6
General and other administrative expense	34	31	(3)	(10)
Other operating expenses	19	19	—	—
Total operating expenses	2,120	1,847	(273)	(15)
Impairment losses	40	—	(40)	#
(Income) from unconsolidated subsidiaries	(5)	(5)	—	—
Income from operations	444	417	27	6
Interest expense	157	157	—	—
Loss on extinguishment of debt	3	—	(3)	#
Other (income) expense, net	5	62	57	92
Income before income taxes	279	198	81	41
Income tax expense (benefit)	9	(158)	(167)	#
Net income	270	356	(86)	(24)
Net income attributable to the noncontrolling interest	(4)	(4)	—	—
Net income attributable to Calpine	$ 266	$ 352	$ (86)	(24)

	2019	2018	Change	% Change
Operating Performance Metrics:				
MWh generated (in thousands)(1)(2)	21,156	21,451	(295)	(1)
Average availability(2)	81.5%	80.8%	0.7 %	1
Average total MW in operation(1)	25,908	25,153	755	3
Average capacity factor, excluding peakers	41.6%	43.9%	(2.3)%	(5)
Steam Adjusted Heat Rate(2)	7,338	7,387	49	1

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Variance of 100% or greater

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(1) Represents generation and capacity from power plants that we both consolidate and operate and excludes Greenfield LP, Whitby, Freeport Energy Center, 21.5% of Hidalgo Energy Center and 25% each of Freestone Energy Center and Russell City Energy Center.

(2) Generation, average availability and Steam Adjusted Heat Rate exclude power plants and units that are inactive.

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We evaluate our Commodity revenue and Commodity expense on a collective basis because the price of power and natural gas tend to move together as the price for power is generally determined by the variable operating cost of the next marginal generator to be dispatched to meet demand. The spread between our Commodity revenue and Commodity expense represents a significant portion of our Commodity Margin. Our financial performance is correlated to how we maximize our Commodity Margin through management of our portfolio of power plants, as well as our hedging and optimization activities. See additional segment discussion in "Commodity Margin by Segment."

Commodity revenue, net of Commodity expense, increased $66 million for the three months ended June 30, 2019, compared to the same period in 2018, primarily due to (favorable variances are shown without brackets while unfavorable variances are shown with brackets):

(in millions)	
$ 49	Higher energy margins primarily associated with higher contribution from hedging activities in both our wholesale and retail business segments and commencement of commercial operations at our 828 MW York 2 Energy Center in March 2019
9	Higher PJM and ISO-NE regulatory capacity revenue in our East segment
8	Period-over-period change in contract amortization, lease levelization relating to tolling contracts and other[1]
$ 66	

(1) Commodity Margin excludes amortization expense related to contracts recorded at fair value, non-cash GAAP-related adjustments to levelize revenues from tolling agreements, Commodity revenue and Commodity expense attributable to the noncontrolling interest and other unusual items or non-recurring items.

Our normal, recurring operating and maintenance expense, after excluding the effect of restarting our Sutter and South Point Energy Centers in 2018 and York 2 Energy Center achieving commercial operations in March 2019, decreased by $8 million for the three months ended June 30, 2019 compared to the same period in 2018. The decrease was offset by an $11 million increase in operating and maintenance expense primarily associated with higher major maintenance expense resulting from our plant outage schedule and an increase in equipment failure costs.

During the three months ended June 30, 2019, we recorded impairment losses of approximately $40 million related to the sale of our Garrison and RockGen Energy Centers. See Note 4 of the Notes to Consolidated Condensed Financial Statements for further information related to the sale.

Other (income) expense, net decreased by $57 million for the three months ended June 30, 2019 compared to the same period in 2018 primarily due to shareholder settlement costs associated with the Merger, which were recorded during the second quarter of 2018.

During the three months ended June 30, 2019, we recorded income tax expense of $9 million compared to an income tax benefit of $158 million for the three months ended June 30, 2018. The unfavorable period-over-period change primarily resulted from changes in the effect of applying the intraperiod tax allocation rules to our results of operations and related tax expense.

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RESULTS OF OPERATIONS FOR THE SIX MONTHS ENDED JUNE 30, 2019 AND 2018

Below are our results of operations for the six months ended June 30, 2019 as compared to the same period in 2018 (in millions, except for percentages and operating performance metrics). In the comparative tables below, increases in revenue/income or decreases in expense (favorable variances) are shown without brackets while decreases in revenue/income or increases in expense (unfavorable variances) are shown with brackets.

	2019	2018	Change	% Change
Operating revenues:				
Commodity revenue	$ 4,666	$ 4,517	$ 149	3
Mark-to-market gain (loss)	523	(260)	783	#
Other revenue	9	11	(2)	(18)
Operating revenues	5,198	4,268	930	22
Operating expenses:				
Fuel and purchased energy expense:				
Commodity expense	3,125	3,216	91	3
Mark-to-market (gain) loss	290	(77)	(367)	#
Fuel and purchased energy expense	3,415	3,139	(276)	(9)
Operating and maintenance expense	484	517	33	6
Depreciation and amortization expense	349	387	38	10
General and other administrative expense	66	91	25	27
Other operating expenses	38	56	18	32
Total operating expenses	4,352	4,190	(162)	(4)
Impairment losses	55	—	(55)	#
(Income) from unconsolidated subsidiaries	(11)	(11)	—	—
Income from operations	802	89	713	#
Interest expense	306	308	2	1
Gain on extinguishment of debt	(1)	—	1	#
Other (income) expense, net	28	69	41	59
Income (loss) before income taxes	469	(288)	757	#
Income tax expense (benefit)	19	(50)	(69)	#
Net income (loss)	450	(238)	688	#
Net income attributable to the noncontrolling interest	(9)	(8)	(1)	(13)
Net income (loss) attributable to Calpine	$ 441	$ (246)	$ 687	#

	2019	2018	Change	% Change
Operating Performance Metrics:				
MWh generated (in thousands)(1)(2)	43,257	42,251	1,006	2
Average availability(2)	84.2%	84.2%	—%	—
Average total MW in operation(1)	25,558	25,170	388	2
Average capacity factor, excluding peakers	43.9%	43.4%	0.5%	1
Steam Adjusted Heat Rate(2)	7,305	7,356	51	1

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\# Variance of 100% or greater

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(1) Represents generation and capacity from power plants that we both consolidate and operate and excludes Greenfield LP, Whitby, Freeport Energy Center, 21.5% of Hidalgo Energy Center and 25% each of Freestone Energy Center and Russell City Energy Center.

(2) Generation, average availability and Steam Adjusted Heat Rate exclude power plants and units that are inactive.

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We evaluate our Commodity revenue and Commodity expense on a collective basis because the price of power and natural gas tend to move together as the price for power is generally determined by the variable operating cost of the next marginal generator to be dispatched to meet demand. The spread between our Commodity revenue and Commodity expense represents a significant portion of our Commodity Margin. Our financial performance is correlated to how we maximize our Commodity Margin through management of our portfolio of power plants, as well as our hedging and optimization activities. See additional segment discussion in "Commodity Margin by Segment."

Commodity revenue, net of Commodity expense, increased $240 million for the six months ended June 30, 2019, compared to the same period in 2018, primarily due to (favorable variances are shown without brackets while unfavorable variances are shown with brackets):

(in millions)	
$ 202	Higher energy margins primarily associated with higher market Spark Spreads in the West during the first quarter of 2019 compared to the same period in 2018, higher contribution from both wholesale and retail hedging activities and the commencement of commercial operations at our 828 MW York 2 Energy Center in March 2019. The increase was partially offset by a gain associated with the cancellation of a PPA recorded in the first quarter of 2018 with no similar activity in 2019
54	Higher PJM and ISO-NE regulatory capacity revenue in our East segment
(31)	The sale of environmental credits in our Texas segment during the first quarter of 2018 with no similar activity in 2019
15	Period-over-period change in contract amortization, lease levelization relating to tolling contracts and other[(1)]
$ 240	

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(1) Commodity Margin excludes amortization expense related to contracts recorded at fair value, non-cash GAAP-related adjustments to levelize revenues from tolling agreements, Commodity revenue and Commodity expense attributable to the noncontrolling interest and other unusual items or non-recurring items.

Mark-to-market gain/loss, net from hedging our future generation, fuel supply requirements and retail activities had a favorable variance of $416 million primarily driven by lower forward power and natural gas prices during the six months ended June 30, 2019.

Our normal, recurring operating and maintenance expense, after excluding the effect of restarting our Sutter and South Point Energy Centers in 2018 and York 2 Energy Center achieving commercial operations in March 2019, decreased by $6 million for the six months ended June 30, 2019 compared to the same period in 2018. The remaining decrease in operating and maintenance expense for the six months ended June 30, 2019 compared to the same period in 2018 primarily resulted from the acceleration of stock-based compensation expense during the first quarter of 2018 in connection with the consummation of the Merger. We no longer incur stock-based compensation expense subsequent to the consummation of the Merger.

Depreciation and amortization expense decreased by $38 million for the six months ended June 30, 2019 compared to the same period in 2018 primarily due to the change in estimated useful lives for our componentized balance of plant parts and rotable parts initiated in 2018 primarily offset by adjustments related to our asset retirement obligations during the first quarter of 2019.

General and other administrative expense decreased by $25 million for the six months ended June 30, 2019 compared to the same period in 2018 primarily resulting from the acceleration of stock-based compensation expense during the first quarter of 2018 in connection with the consummation of the Merger in March 2018.

Other operating expense decreased by $18 million for the six months ended June 30, 2019 compared to the same period in 2018 primarily due to Merger-related costs associated with legal, investment banking and other professional fees in March 2018 partially offset by the write-off of unamortized balances associated with the termination of a PPA during the first quarter of 2018.

During the six months ended June 30, 2019, we recorded impairment losses of approximately $55 million related to the sale of our Garrison and RockGen Energy Centers. See Note 4 of the Notes to Consolidated Condensed Financial Statements for further information related to the sale.

Other (income) expense, net decreased by $41 million for the six months ended June 30, 2019 compared to the same period in 2018 primarily due to shareholder settlement costs associated with the Merger recorded during the second quarter of 2018. The decrease was partially offset by the net effect of a settlement agreement with GE executed in February 2019 which,

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among other things, terminated our call option and GE's put option related to the Inland Empire Energy Center. See Note 5 of the Notes to Consolidated Condensed Financial Statements for further information related to the Inland Empire Energy Center.

During the six months ended June 30, 2019, we recorded income tax expense of $19 million compared to an income tax benefit of $50 million for the six months ended June 30, 2018. The unfavorable period-over-period change primarily resulted from changes in the effect of applying the intraperiod tax allocation rules to our results of operations and related tax expense.

COMMODITY MARGIN BY SEGMENT

We use Commodity Margin to assess reportable segment performance. Commodity Margin includes revenues recognized on our wholesale and retail power sales activity, electric capacity sales, REC sales, steam sales, realized settlements associated with our marketing, hedging, optimization and trading activity less costs from our fuel and purchased energy expenses, commodity transmission and transportation expenses, environmental compliance expenses and ancillary retail expense. We believe that Commodity Margin is a useful tool for assessing the performance of our core operations and is a key operational measure of profit reviewed by our chief operating decision maker. See Note 13 of the Notes to Consolidated Condensed Financial Statements for a reconciliation of Commodity Margin to income (loss) from operations by segment.

Commodity Margin by Segment for the Three Months Ended June 30, 2019 and 2018

The following tables show our Commodity Margin by segment and related operating performance metrics by regional segment for our wholesale business for the three months ended June 30, 2019 and 2018 (exclusive of the noncontrolling interest). In the comparative tables below, favorable variances are shown without brackets while unfavorable variances are shown with brackets. The MWh generated by regional segment below represent generation from power plants that we both consolidate and operate. Generation, average availability and Steam Adjusted Heat Rate exclude power plants and units that are inactive.

West:	**2019**	**2018**	**Change**	**% Change**
Commodity Margin (in millions)	$ 251	$ 241	$ 10	4
Commodity Margin per MWh generated	$ 62.52	$ 61.29	$ 1.23	2
MWh generated (in thousands)	4,015	3,932	83	2
Average availability	79.7%	78.3%	1.4%	2
Average total MW in operation	7,430	7,425	5	—
Average capacity factor, excluding peakers	26.6%	25.6%	1.0%	4
Steam Adjusted Heat Rate	7,526	7,533	7	—

West — Commodity Margin in our West segment increased by $10 million, or 4%, for the three months ended June 30, 2019 compared to the three months ended June 30, 2018, primarily resulting from higher contribution from hedging activities due to lower market Spark Spreads and higher resource adequacy revenues.

Texas:	**2019**	**2018**	**Change**	**% Change**
Commodity Margin (in millions)	$ 173	$ 151	$ 22	15
Commodity Margin per MWh generated	$ 16.48	$ 13.11	$ 3.37	26
MWh generated (in thousands)	10,497	11,519	(1,022)	(9)
Average availability	80.9%	86.2%	(5.3)%	(6)
Average total MW in operation	8,855	8,850	5	—
Average capacity factor, excluding peakers	54.3%	59.6%	(5.3)%	(9)
Steam Adjusted Heat Rate	7,149	7,124	(25)	—

Texas — Commodity Margin in our Texas segment increased by $22 million, or 15%, for the three months ended June 30, 2019 compared to the three months ended June 30, 2018, primarily due to higher contribution from hedging activities. The increase in

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Commodity Margin was partially offset by lower on-peak market Spark Spreads during the second quarter of 2019 compared to the same period in 2018, which was partially responsible for the 9% period-over-period decrease in generation.

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East:	2019	2018	Change	% Change
Commodity Margin (in millions)	$ 235	$ 225	$ 10	4
Commodity Margin per MWh generated	$ 35.37	$ 37.50	$ (2.13)	(6)
MWh generated (in thousands)	6,644	6,000	644	11
Average availability	83.5%	77.1%	6.4 %	8
Average total MW in operation	9,623	8,878	745	8
Average capacity factor, excluding peakers	41.8%	42.1%	(0.3)%	(1)
Steam Adjusted Heat Rate	7,571	7,832	261	3

East — Commodity Margin in our East segment increased by $10 million, or 4%, for the three months ended June 30, 2019 compared to the three months ended June 30, 2018, primarily due to higher regulatory capacity revenue in ISO-NE and PJM, higher contribution from hedging activities and the commencement of commercial operations at our 828 MW York 2 Energy Center in March 2019. The increase in Commodity Margin was partially offset by lower market Spark Spreads during the second quarter of 2019 compared to the same period in 2018. Generation increased 11% primarily driven by our York 2 Energy Center.

Retail:	2019	2018	Change	% Change
Commodity Margin (in millions)	$ 93	$ 77	$ 16	21

Retail — Commodity Margin in our retail segment increased by $16 million, or 21%, for the three months ended June 30, 2019 compared to the three months ended June 30, 2018, primarily due to increased contribution from power and gas supply hedging activity.

Commodity Margin by Segment for the Six Months Ended June 30, 2019 and 2018

The following tables show our Commodity Margin by segment and related operating performance metrics by regional segment for our wholesale business for the six months ended June 30, 2019 and 2018 (exclusive of the noncontrolling interest). In the comparative tables below, favorable variances are shown without brackets while unfavorable variances are shown with brackets. The MWh generated by regional segment below represent generation from power plants that we both consolidate and operate. Generation, average availability and Steam Adjusted Heat Rate exclude power plants and units that are inactive.

West:	2019	2018	Change	% Change
Commodity Margin (in millions)	$ 515	$ 426	$ 89	21
Commodity Margin per MWh generated	$ 47.76	$ 47.12	$ 0.64	1
MWh generated (in thousands)	10,784	9,041	1,743	19
Average availability	83.3%	82.6%	0.7%	1
Average total MW in operation	7,428	7,425	3	—
Average capacity factor, excluding peakers	35.9%	29.5%	6.4%	22
Steam Adjusted Heat Rate	7,391	7,345	(46)	(1)

West — Commodity Margin in our West segment increased by $89 million, or 21%, for the six months ended June 30, 2019 compared to the six months ended June 30, 2018, primarily resulting from higher market Spark Spreads in the first quarter of 2019 and higher resource adequacy revenues. Additionally, generation increased 19% due to higher market Spark Spreads in the first quarter of 2019 along with the positive effect of a new contract associated with our Sutter Energy Center which became effective during the second quarter of 2018.

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Texas:	2019	2018	Change	% Change
Commodity Margin (in millions)	$ 335	$ 317	$ 18	6
Commodity Margin per MWh generated	$ 16.17	$ 14.98	$ 1.19	8
MWh generated (in thousands)	20,713	21,166	(453)	(2)
Average availability	81.8%	85.7%	(3.9)%	(5)
Average total MW in operation	8,852	8,850	2	—
Average capacity factor, excluding peakers	53.9%	55.1%	(1.2)%	(2)
Steam Adjusted Heat Rate	7,110	7,121	11	—

Texas — Commodity Margin in our Texas segment increased by $18 million, or 6%, for the six months ended June 30, 2019 compared to the six months ended June 30, 2018, primarily due to higher contribution from hedging activities in the second quarter of 2019. The increase in Commodity Margin was partially offset by lower on-peak market Spark Spreads during the first half of 2019 compared to the same period in 2018 and higher revenue in the first quarter of 2018 associated with the sale of environmental credits with no similar activity in the same period in 2019.

East:	2019	2018	Change	% Change
Commodity Margin (in millions)	$ 500	$ 409	$ 91	22
Commodity Margin per MWh generated	$ 42.52	$ 33.96	$ 8.56	25
MWh generated (in thousands)	11,760	12,044	(284)	(2)
Average availability	87.3%	83.9%	3.4 %	4
Average total MW in operation	9,278	8,895	383	4
Average capacity factor, excluding peakers	39.1%	42.4%	(3.3)%	(8)
Steam Adjusted Heat Rate	7,596	7,780	184	2

East — Commodity Margin in our East segment increased by $91 million, or 22%, for the six months ended June 30, 2019 compared to the six months ended June 30, 2018, primarily due to higher regulatory capacity revenue in ISO-NE and PJM, higher contribution from hedging activities and the commencement of commercial operations at our 828 MW York 2 Energy Center in March 2019. The increase in Commodity Margin was partially offset by a gain associated with the cancellation of a PPA recorded during first quarter 2018 with no similar activity during the first quarter of 2019.

Retail:	2019	2018	Change	% Change
Commodity Margin (in millions)	$ 181	$ 154	$ 27	18

Retail — Commodity Margin in our retail segment increased by $27 million, or 18%, for the six months ended June 30, 2019 compared to the six months ended June 30, 2018, primarily due to increased contribution from power and gas supply hedging activity.

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LIQUIDITY AND CAPITAL RESOURCES

We maintain a strong focus on liquidity. We manage our liquidity to help provide access to sufficient funding to meet our business needs and financial obligations throughout business cycles.

Our business is capital intensive. Our ability to successfully implement our strategy is dependent on the continued availability of capital on attractive terms. In addition, our ability to successfully operate our business is dependent on maintaining sufficient liquidity. We believe that we have adequate resources from a combination of cash and cash equivalents on hand and cash expected to be generated from future operations to continue to meet our obligations as they become due.

Liquidity

The following table provides a summary of our liquidity position at June 30, 2019 and December 31, 2018 (in millions):

	June 30, 2019		December 31, 2018	
Cash and cash equivalents, corporate[1]	$	242	$	141
Cash and cash equivalents, non-corporate[2]		55		64
Total cash and cash equivalents		297		205
Restricted cash[2]		262		201
Corporate Revolving Facility availability[3]		1,356		966
CDHI letter of credit facility availability[4]		61		49
Other facilities availability[5]		4		7
Total current liquidity availability[6]	$	1,980	$	1,428

(1) Our ability to use corporate cash and cash equivalents is unrestricted.

(2) See Note 1 of the Notes to Consolidated Condensed Financial Statements for a description of the restrictions on our use of non-corporate cash and cash equivalents and restricted cash.

(3) Our ability to use availability under our Corporate Revolving Facility is unrestricted. On April 5, 2019, we amended our Corporate Revolving Facility to increase the capacity by approximately $330 million from $1.69 billion to approximately $2.02 billion. See “Letter of Credit Facilities” below for amounts issued under letters of credit at June 30, 2019 associated with our Corporate Revolving Facility.

(4) Our CDHI letter of credit facility is restricted to support certain obligations under PPAs and power transmission and natural gas transportation agreements as well as fund the construction of our Washington Parish Energy Center. Pursuant to the terms and conditions of the CDHI credit agreement, the capacity under the CDHI letter of credit facility was reduced to $125 million on June 28, 2019. The decrease in capacity did not have a material effect on our liquidity as alternative sources of liquidity are available.

(5) We have three unsecured letter of credit facilities with two third-party financial institutions totaling approximately $300 million at June 30, 2019.

(6) Includes $85 million and $52 million of margin deposits posted with us by our counterparties at June 30, 2019 and December 31, 2018, respectively. See Note 9 of the Notes to Consolidated Condensed Financial Statements for further information related to our collateral.

Our principal source for future liquidity is cash flows generated from our operations. We believe that cash on hand and expected future cash flows from operations will be sufficient to meet our liquidity needs for our operations, both in the near and longer term. See “Cash Flow Activities” below for a further discussion of our change in cash and cash equivalents.

Our principal uses of liquidity and capital resources, outside of those required for our operations, include, but are not limited to, collateral requirements to support our commercial hedging and optimization activities, debt service obligations including principal and interest payments, capital expenditures for construction, project development and other growth initiatives and opportunistically repaying debt to manage our balance sheet.

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Cash Management — We manage our cash in accordance with our cash management system subject to the requirements of our Corporate Revolving Facility and requirements under certain of our project debt and lease agreements or by regulatory agencies. Our cash and cash equivalents, as well as our restricted cash balances, are invested in money market funds that are not FDIC insured. We place our cash, cash equivalents and restricted cash in what we believe to be creditworthy financial institutions.

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On July 18, 2019, our board of directors approved a special cash dividend of $400 million to be paid to our parent, CPN Management, LP, which was funded with the proceeds from the sale of the Garrison and RockGen Energy Centers and cash on hand and paid on July 18, 2019. See Note 4 of the Notes to Consolidated Condensed Financial Statements for further information related to the sale of the Garrison and RockGen Energy Centers.

Future cash dividends, if any, may be authorized at the discretion of our Board of Directors and will depend upon, among other things, our future operations and earnings, capital requirements, asset sales, general financial condition, contractual and financing restrictions and such other factors as our Board of Directors may deem relevant.

Liquidity Sensitivity

Significant changes in commodity prices and Market Heat Rates can affect our liquidity as we use margin deposits, cash prepayments and letters of credit as credit support (collateral) with and from our counterparties for commodity procurement and risk management activities. We estimate that as of June 30, 2019, a three standard deviation shift in collateral exposure based on commodity market price changes for the previous 12 months applied to our current portfolio of margined transactions would result in an increase in collateral posted of approximately $255 million. This amount is not necessarily indicative of the actual amounts that could be required, which may be higher or lower than the amounts estimated above, and also exclude any correlation between the changes in natural gas prices and Market Heat Rates that may occur concurrently. These sensitivities will change as new contracts or hedging activities are executed.

In order to effectively manage our future Commodity Margin, we have economically hedged a portion of our expected generation and natural gas portfolio as well as retail load supply obligations, where appropriate, mostly through power and natural gas forward physical and financial transactions including retail power sales; however, we currently remain susceptible to significant price movements for 2019 and beyond. In addition to the price of natural gas, our Commodity Margin is highly dependent on other factors such as:

- the level of Market Heat Rates;
- our continued ability to successfully hedge our Commodity Margin;
- changes in U.S. macroeconomic conditions;
- maintaining acceptable availability levels for our fleet;
- the effect of current and pending environmental regulations in the markets in which we participate;
- improving the efficiency and profitability of our operations;
- increasing future contractual cash flows; and
- our significant counterparties performing under their contracts with us.

Additionally, scheduled outages related to the life cycle of our power plant fleet in addition to unscheduled outages may result in maintenance expenditures that are disproportionate in differing periods. In order to manage such liquidity requirements, we maintain additional liquidity availability in the form of our Corporate Revolving Facility (noted in the table above), letters of credit and the ability to issue first priority liens for collateral support. It is difficult to predict future developments and the amount of credit support that we may need to provide should such conditions occur, we experience another economic recession or energy commodity prices increase significantly.

Letter of Credit Facilities

The table below represents amounts issued under our letter of credit facilities at June 30, 2019 and December 31, 2018 (in millions):

	June 30, 2019	December 31, 2018
Corporate Revolving Facility[1]	$ 585	$ 693
CDHI[2]	30	251
Various project financing facilities	227	228
Other corporate facilities[3]	293	193
Total	$ 1,135	$ 1,365

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(1) The Corporate Revolving Facility represents our primary revolving facility. On April 5, 2019, we amended our Corporate Revolving Facility to increase the capacity by approximately $330 million from $1.69 billion to approximately $2.02 billion.

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(2) Pursuant to the terms and conditions of the CDHI credit agreement, the capacity under the CDHI letter of credit facility was reduced to $125 million on June 28, 2019. The decrease in capacity did not have a material effect on our liquidity as alternative sources of liquidity are available.

(3) We have three unsecured letter of credit facilities with two third-party financial institutions totaling approximately $300 million at June 30, 2019.

NOLs

We have significant NOLs that will provide future tax deductions when we generate sufficient taxable income during the applicable carryover periods. At December 31, 2018, our consolidated federal NOLs totaled approximately $6.4 billion.

Cash Flow Activities

The following table summarizes our cash flow activities for the six months ended June 30, 2019 and 2018 (in millions):

	2019	2018
Beginning cash, cash equivalents and restricted cash	$ 406	$ 443
Net cash provided by (used in):		
Operating activities	519	56
Investing activities	(315)	(234)
Financing activities	(51)	69
Net increase (decrease) in cash, cash equivalents and restricted cash	153	(109)
Ending cash, cash equivalents and restricted cash	$ 559	$ 334

Net Cash Provided By Operating Activities

Cash provided by operating activities for the six months ended June 30, 2019, was $519 million compared to $56 million for the six months ended June 30, 2018. The increase was primarily due to:

- *Income from operations* — Income from operations, adjusted for non-cash items, increased by $301 million for the six months ended June 30, 2019, compared to the same period in 2018. Non-cash items consist primarily of depreciation and amortization, income from unconsolidated subsidiaries, gain on sale of assets and mark-to-market activity. The increase in income from operations was primarily driven by a $240 million increase in Commodity revenue, net of Commodity expense, excluding non-cash amortization, a $33 million decrease in operating and maintenance expense and a $25 million decrease in general and other administrative expenses. See “Results of Operations for the Six Months Ended June 30, 2019 and 2018” above for further discussion of these changes.

- *Working capital employed* — Working capital employed decreased by $179 million for the six months ended June 30, 2019 compared to the same period in 2018 after adjusting for changes in debt extinguishment costs and certain mark-to-market related balances that do not impact cash provided by operating activities. This change was primarily due to a net decrease in margin posting activity on our commodity hedging activities as well as a decrease in the purchase of environmental products inventory.

Net Cash Used In Investing Activities

Cash used in investing activities for the six months ended June 30, 2019, was $315 million compared to $234 million for the six months ended June 30, 2018. The increase was primarily due to:

- *Capital expenditures* — We incurred higher capital expenditures on construction and growth projects during the six months ended June 30, 2019 as compared to the six months ended June 30, 2018.

Net Cash (Used In) Provided By Financing Activities

Cash used in financing activities for the six months ended June 30, 2019, was $51 million compared to cash provided by financing activities of $69 million for the six months ended June 30, 2018. The decrease was primarily due to:

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- *First Lien Term Loans* — During the six months ended June 30, 2019, we received net proceeds of $941 million from the issuance of the 2026 First Lien Term Loan, which was used to repay our 2019 First Lien Term Loan and a portion of our 2023 First Lien Term Loans. There was no similar activity during the six months ended June 30, 2018.

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- *Corporate Revolving Facility* — During the six months ended June 30, 2019, we borrowed a net $45 million under our Corporate Revolving Facility, compared to $275 million net borrowings under our Corporate Revolving Facility during the six months ended June 30, 2018. The 2018 borrowing was made in part to fund non-recurring costs associated with the consummation of the Merger, including the repurchase of our equity-classified share based awards on the effective date of the merger.

- *Project Financing, Notes Payable and Other* — During the six months ended June 30, 2019, we borrowed $34 million to fund the construction of our Washington Parish Energy Center. There was no similar activity during the six months ended June 30, 2018.

- *Repurchases of Senior Unsecured Notes* — During the six months ended June 30, 2019, we repurchased $48 million in aggregate principal of our Senior Unsecured Notes for $44 million. There was no similar activity during the six months ended June 30, 2018.

- *Stock Repurchases* — During the six months ended June 30, 2018, we repurchased $79 million of our equity classified share-based awards on the effective date of the Merger. There was no similar activity during the six months ended June 30, 2019.

Off Balance Sheet Arrangements

There have been no material changes to our off balance sheet arrangements from those disclosed in "Management's Discussion and Analysis of Financial Condition and Results of Operations" in our 2018 Form 10-K.

Special Purpose Subsidiaries

Pursuant to applicable transaction agreements, we have established certain of our entities separate from Calpine Corporation and our other subsidiaries. In accordance with applicable accounting standards, we consolidate these entities with the exception of Calpine Receivables (see Notes 7 and 17 of the Notes to Consolidated Financial Statements in our 2018 Form 10-K for further information related to Calpine Receivables). As of the date of filing of this Report, these entities included: Russell City Energy Company, LLC, OMEC and Calpine Receivables.

OMEC — OMEC has a ten-year tolling agreement with SDG&E, which commenced on October 3, 2009. Under a ground lease agreement, OMEC held a put option to sell the Otay Mesa Energy Center for $280 million to SDG&E, pursuant to the terms and conditions of the agreement, which was exercisable until April 1, 2019 and SDG&E held a call option to purchase the Otay Mesa Energy Center for $377 million, which was exercisable through October 3, 2018. The call option held by SDG&E expired unexercised.

OMEC has executed a new 59-month Resource Adequacy ("RA") contract with SDG&E, which would commence on October 3, 2019. The RA contract received initial regulatory approval by the California Public Utilities Commission ("CPUC") on February 21, 2019. This approval was subject to a 30 day appeal period from the date of the issuance of the CPUC decision. On March 27, 2019, an appeal of the CPUC decision was filed with the CPUC, which appeal was denied on August 1, 2019. As a result, we continue to work to commence the RA contract. However, in the event that we are not successful and another alternative is not reached with SDG&E prior to October 3, 2019, OMEC expects to close on the put and transfer the Otay Mesa Energy Center to SDG&E for $280 million on or about October 3, 2019, which transaction could result in a write down of the carrying value of the asset.

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RISK MANAGEMENT AND COMMODITY ACCOUNTING

Our commercial hedging and optimization strategies are designed to maximize our risk-adjusted Commodity Margin by leveraging our knowledge, experience and fundamental views on natural gas and power. We actively manage our risk exposures with a variety of physical and financial instruments with varying time horizons. These instruments include PPAs, tolling arrangements, Heat Rate swaps and options, retail power sales including through our retail subsidiaries, steam sales, buying and selling standard physical power and natural gas products, buying and selling exchange traded instruments, buying and selling environmental and capacity products, natural gas transportation and storage arrangements, electric transmission service and other contracts for the sale and purchase of power products. We utilize these instruments to maximize the risk-adjusted returns for our Commodity Margin. Our retail portfolio has been established to provide an additional source of liquidity for our generation fleet as we hedge retail load from our wholesale generation assets as appropriate.

We conduct our hedging and optimization activities within a structured risk management framework based on controls, policies and procedures. We monitor these activities through active and ongoing management and oversight, defined roles and responsibilities, and daily risk estimates and reporting. Additionally, we seek to manage the associated risks through diversification, by controlling position sizes, by using portfolio position limits, and by actively managing hedge positions to lock in margin. We are exposed to commodity price movements (both profits and losses) in connection with these transactions. These positions are included in and subject to our consolidated risk management portfolio position limits and controls structure. Changes in fair value of commodity positions that do not qualify for or for which we do not elect either hedge accounting or the normal purchase normal sale exemption are recognized currently in earnings and are separately stated on our Consolidated Condensed Statements of Operations in mark-to-market gain/loss as a component of operating revenues (for physical and financial power and Heat Rate and commodity option activity) and fuel and purchased energy expense (for physical and financial natural gas, power, environmental product and fuel oil activity). Our future hedged status and marketing and optimization activities are subject to change as determined by our commercial operations group, Chief Risk Officer, senior management and Board of Directors.

At any point in time, the relative quantity of our products hedged or sold under longer-term contracts is determined by the availability of forward product sales opportunities and our view of the attractiveness of the pricing available for forward sales. We have economically hedged a portion of our expected generation and natural gas portfolio as well as retail load supply obligations, where appropriate, mostly through power and natural gas forward physical and financial transactions including retail power sales; however, we currently remain susceptible to significant price movements for 2019 and beyond. When we elect to enter into these transactions, we are able to economically hedge a portion of our Spark Spread at pre-determined generation and price levels.

We have historically used interest rate hedging instruments to adjust the mix between our fixed and variable rate debt. To the extent eligible, our interest rate hedging instruments have been designated as cash flow hedges, and changes in fair value are recorded in OCI with gains and losses reclassified into earnings in the same period during which the hedged forecasted transaction affects earnings. See Note 8 of the Notes to Consolidated Condensed Financial Statements for further discussion of our derivative instruments.

The primary factors affecting our market risk and the fair value of our derivatives at any point in time are the volume of open derivative positions (MMBtu, MWh and $ notional amounts); changing commodity market prices, primarily for power and natural gas; our credit standing and that of our counterparties for energy commodity derivatives; and prevailing interest rates for our interest rate hedging instruments. Since prices for power and natural gas and interest rates are volatile, there may be material changes in the fair value of our derivatives over time, driven both by price volatility and the changes in volume of open derivative transactions. Our derivative assets have increased to approximately $415 million at June 30, 2019, compared to approximately $302 million at December 31, 2018, and our derivative liabilities have decreased to approximately $284 million at June 30, 2019, compared to approximately $443 million at December 31, 2018. The fair value of our level 3 derivative assets and liabilities at June 30, 2019 represents approximately 52% and 26% of our total assets and liabilities measured at fair value, respectively. See Note 7 of the Notes to Consolidated Condensed Financial Statements for further information related to our level 3 derivative assets and liabilities.

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The change in fair value of our outstanding commodity and interest rate hedging instruments from January 1, 2019, through June 30, 2019, is summarized in the table below (in millions):

	Commodity Instruments	Interest Rate Hedging Instruments	Total
Fair value of contracts outstanding at January 1, 2019	$ (171)	$ 30	$ (141)
Items recognized or otherwise settled during the period[(1)(2)]	(153)	(12)	(165)
Fair value attributable to new contracts[(3)]	125	—	125
Changes in fair value attributable to price movements	357	(45)	312
Fair value of contracts outstanding at June 30, 2019[(4)]	$ 158	$ (27)	$ 131

(1) Commodity contract settlements consist of the realization of previously recognized gains on contracts not designated as hedging instruments of $151 million (represents a portion of Commodity revenue and Commodity expense as reported on our Consolidated Condensed Statements of Operations) and $(2) million related to current period losses from other changes in derivative assets and liabilities not reflected in OCI or earnings.

(2) Interest rate settlements consist of $12 million related to realized gains from settlements of designated cash flow hedges and nil related to roll-off from settlements of undesignated interest rate hedging instruments (represents a portion of interest expense as reported on our Consolidated Condensed Statements of Operations).

(3) Fair value attributable to new contracts includes $(1) million and nil of fair value related to commodity contracts and interest rate hedging instruments, respectively, which are not reflected in OCI or earnings.

(4) We netted all amounts allowed under the derivative accounting guidance on our Consolidated Condensed Balance Sheet, which includes derivative transactions under enforceable master netting arrangements and related cash collateral. Net commodity and interest rate derivative assets and liabilities reported in Notes 7 and 8 of the Notes to Consolidated Condensed Financial Statements are shown net of collateral paid to and received from counterparties under legally enforceable master netting arrangements.

Commodity Price Risk — Commodity price risks result from exposure to changes in spot prices, forward prices, price volatilities and correlations between the price of power, steam and natural gas. We manage the commodity price risk and the variability in future cash flows from forecasted sales of power and purchases of natural gas of our entire portfolio of generating assets and contractual positions by entering into various derivative and non-derivative instruments.

The net fair value of outstanding derivative commodity instruments, net of allocated collateral, at June 30, 2019, based on price source and the period during which the instruments will mature, are summarized in the table below (in millions):

Fair Value Source	2019	2020-2021	2022-2023	After 2023	Total
Prices actively quoted	$ —	$ —	$ —	$ —	$ —
Prices provided by other external sources	(53)	(20)	4	—	(69)
Prices based on models and other valuation methods	42	93	40	52	227
Total fair value	$ (11)	$ 73	$ 44	$ 52	$ 158

We measure the energy commodity price risk in our portfolio on a daily basis using a VAR model to estimate the potential one-day risk of loss based upon historical experience resulting from potential market movements. Our VAR is calculated for our entire portfolio comprising energy commodity derivatives, expected generation and natural gas consumption from our power plants, PPAs, and other physical and financial transactions. We measure VAR using a variance/covariance approach based on a confidence level of 95%, a one-day holding period and actual observed historical correlation. While we believe that our VAR assumptions and approximations are reasonable, different assumptions and/or approximations could produce materially different estimates.

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The table below presents the high, low and average of our daily VAR for the three and six months ended June 30, 2019 and 2018 (in millions):

	2019	2018
Three months ended June 30:		
High	$ 39	$ 45
Low	$ 22	$ 24
Average	$ 28	$ 33
Six months ended June 30:		
High	$ 50	$ 45
Low	$ 22	$ 19
Average	$ 32	$ 30
As of June 30	$ 37	$ 34

Due to the inherent limitations of statistical measures such as VAR, the VAR calculation may not capture the full extent of our commodity price exposure. As a result, actual changes in the value of our energy commodity portfolio could be different from the calculated VAR, and could have a material effect on our financial results. In order to evaluate the risks of our portfolio on a comprehensive basis and augment our VAR analysis, we also measure the risk of the energy commodity portfolio using several analytical methods including sensitivity analysis, non-statistical scenario analysis, including stress testing, and daily position report analysis.

We utilize the forward commodity markets to hedge price risk associated with our power plant portfolio. Our ability to hedge relies in part on market liquidity and the number of counterparties with which to transact. If the number of counterparties in these markets were to decrease, it could decrease our ability to hedge our forward commodity price risk and create incremental volatility in our earnings. The effects of declining liquidity in the forward commodity markets is also mitigated by our retail subsidiaries which provides us with an additional outlet to transact hedging activities related to our wholesale power plant portfolio.

Liquidity Risk — Liquidity risk arises from the general funding requirements needed to manage our activities and assets and liabilities. Fluctuating natural gas prices or Market Heat Rates can cause our collateral requirements for our wholesale and retail activities to increase or decrease. Our liquidity management framework is intended to maximize liquidity access and minimize funding costs during times of rising prices. See further discussion regarding our uses of collateral as they relate to our commodity procurement and risk management activities in Note 9 of the Notes to Consolidated Condensed Financial Statements.

Credit Risk — Credit risk relates to the risk of loss resulting from nonperformance or non-payment by our counterparties or customers related to their contractual obligations with us. Risks surrounding counterparty and customer performance and credit could ultimately affect the amount and timing of expected cash flows. We also have credit risk if counterparties or customers are unable to provide collateral or post margin. We monitor and manage our credit risk through credit policies that include:

- credit approvals;
- routine monitoring of counterparties’ and customer’s credit limits and their overall credit ratings;
- limiting our marketing, hedging and optimization activities with high risk counterparties;
- margin, collateral, or prepayment arrangements; and
- payment netting arrangements, or master netting arrangements that allow for the netting of positive and negative exposures of various contracts associated with a single counterparty.

We have concentrations of credit risk with a few of our wholesale counterparties and retail customers relating to our sales of power and steam and our hedging, optimization and trading activities. For example, our wholesale business currently has contracts with investor owned California utilities, which could be affected should they be found liable for recent wildfires in California and, accordingly, incur substantial costs associated with the wildfires.

On January 29, 2019, PG&E and PG&E Corporation each filed voluntary petitions for relief under Chapter 11. We currently have several power plants that provide energy and energy-related products to PG&E under PPAs, many of which have PG&E collateral posting requirements. Since the bankruptcy filing, we have received all material payments under the PPAs, either directly or through the

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application of collateral. We also currently have numerous other agreements with PG&E related to the operation of our power plants in Northern California, under which PG&E has continued to provide service since its bankruptcy

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filing. We cannot predict the ultimate outcome of this matter and continue to monitor the bankruptcy proceedings. See Note 6 of the Notes to Consolidated Condensed Financial Statements for further information related to the event of default associated with our Russell City and Los Esteros project debt agreements in connection with the PG&E bankruptcy.

We believe that our credit policies and portfolio of transactions adequately monitor and diversify our credit risk, and currently our counterparties and customers are performing and financially settling timely according to their respective agreements. We monitor and manage our total comprehensive credit risk associated with all of our contracts irrespective of whether they are accounted for as an executory contract, a normal purchase normal sale or whether they are marked-to-market and included in our derivative assets and liabilities on our Consolidated Condensed Balance Sheets. Our counterparty and customer credit quality associated with the net fair value of outstanding derivative commodity instruments is included in our derivative assets and (liabilities), net of allocated collateral, at June 30, 2019, and the period during which the instruments will mature are summarized in the table below (in millions):

Credit Quality (Based on Credit Ratings as of June 30, 2019)	2019	2020-2021	2022-2023	After 2023	Total
Investment grade	$ (56)	$ (3)	$ 16	$ 24	$ (19)
Non-investment grade	4	(4)	(2)	—	(2)
No external ratings[(1)]	41	80	30	28	179
Total fair value	$ (11)	$ 73	$ 44	$ 52	$ 158

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(1) Primarily comprised of the fair value of derivative instruments held with customers that are not rated by third-party credit agencies due to the nature and size of the customers.

Interest Rate Risk — Our variable rate financings are indexed to base rates, generally LIBOR. Interest rate risk represents the potential loss in earnings arising from adverse changes in market interest rates. The fair value of our interest rate hedging instruments are validated based upon external quotes. Our interest rate hedging instruments are with counterparties we believe are primarily high quality institutions, and we do not believe that our interest rate hedging instruments expose us to any significant credit risk. Holding all other factors constant, we estimate that a 10% decrease in interest rates would result in a change in the fair value of our interest rate hedging instruments hedging our variable rate debt of approximately $(10) million at June 30, 2019.

New Accounting Standards and Disclosure Requirements

See Note 1 of the Notes to Consolidated Condensed Financial Statements for a discussion of new accounting standards and disclosure requirements.

Item 3. *Quantitative and Qualitative Disclosures About Market Risk*

The information required to be disclosed under this Item 3 is set forth under Item 2 “Management’s Discussion and Analysis of Financial Condition and Results of Operations — Risk Management and Commodity Accounting.” This information should be read in conjunction with the information disclosed in our 2018 Form 10-K.

Item 4. *Controls and Procedures*

Disclosure Controls and Procedures

As of the end of the period covered by this Report, we carried out an evaluation, under the supervision and with the participation of our management, including our Chief Executive Officer and Chief Financial Officer, of the effectiveness of the design and operation of our disclosure controls and procedures as defined in Rule 13a-15(e) and Rule 15d-15(e) of the Exchange Act. Based upon, and as of the date of, this evaluation, the Chief Executive Officer and the Chief Financial Officer concluded that our disclosure controls and procedures were effective such that the information required to be disclosed in our SEC reports is recorded, processed, summarized and reported within the time periods specified in SEC rules and forms, and is accumulated and communicated to our management, including our Chief Executive Officer and Chief Financial Officer, as appropriate, to allow timely decisions regarding required disclosure.

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Changes in Internal Control Over Financial Reporting

During the second quarter of 2019, there were no changes in our internal control over financial reporting (as defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act) that materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

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PART II — OTHER INFORMATION

Item 1. ***Legal Proceedings***

See Note 11 of the Notes to Consolidated Condensed Financial Statements for a description of our legal proceedings.

Item 1A. ***Risk Factors***

There were no material changes to the description of the risk factors associated with our business previously disclosed in Part I, Item 1A "Risk Factors" of our 2018 Form 10-K.

Item 2. ***Unregistered Sales of Equity Securities and Use of Proceeds***

None.

Item 3. ***Defaults Upon Senior Securities***

None.

Item 4. ***Mine Safety Disclosures***

Not applicable.

Item 5. ***Other Information***

None.

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Item 6. ***Exhibits***

EXHIBIT INDEX

Exhibit Number	Description
10.1	Amendment No. 9 to the Credit Agreement, dated as of April 5, 2019, among Calpine Corporation, as borrower, the guarantors party thereto, MUFG Bank, Ltd, as administrative agent, MUFG Union Bank, N.A., as collateral agent, and the lenders party thereto (incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K filed with the SEC on April 5, 2019).
10.2	Credit Agreement, dated April 5, 2019 among Calpine Corporation, as borrower, the lenders party thereto, Morgan Stanley Senior Funding, Inc., as administrative agent, and MUFG Union Bank, N.A., as collateral agent (incorporated by reference to Exhibit 10.2 to the Company's Current Report on Form 8-K filed with the SEC on April 5, 2019).
10.3	Amendment to Award Agreement of Class B Interest in CPN Management, LP to Charles M. Gates dated April 26, 2019.†
10.4	Second Amendment to Award Agreement of Class B Interest in CPN Management, LP to Charles M. Gates dated July 23, 2019.†
10.5	Award Agreement of Class B Interest in CPN Management, LP to Charles M. Gates dated June 28, 2019.†
10.6	Letter Agreement, dated August 7, 2019, between the Company and Charles M. Gates.†
31.1	Certification of the Chief Executive Officer Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
31.2	Certification of the Chief Financial Officer Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
32.1	Certification of the Chief Executive Officer and the Chief Financial Officer Pursuant to 18 U.S.C. Section 1350, as Adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002. *
101.INS	XBRL Instance Document.
101.SCH	XBRL Taxonomy Extension Schema.
101.CAL	XBRL Taxonomy Extension Calculation Linkbase.
101.DEF	XBRL Taxonomy Extension Definition Linkbase.
101.LAB	XBRL Taxonomy Extension Label Linkbase.
101.PRE	XBRL Taxonomy Extension Presentation Linkbase.

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* Furnished herewith.

† Management contract or compensatory plan, contract or arrangement.

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SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this Report to be signed on its behalf by the undersigned thereunto duly authorized.

CALPINE CORPORATION
(Registrant)

By: /s/ ZAMIR RAUF

Zamir Rauf
Executive Vice President and Chief Financial Officer
(Principal Financial Officer)

Date: August 7, 2019

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Exhibit 10.3

AMENDMENT TO CLASS B INTEREST AWARD AGREEMENT

This Amendment to the Class B Interest Award Agreement (this "Amendment") is made and entered into effective as of April 26, 2019 (the "Amendment Date") by and between CPN Management LP, a Delaware limited partnership ("CPN Management"), and Charles Gates (the "Employee"), an employee of Calpine Corporation, a Delaware corporation and a wholly owned subsidiary of CPN Management ("Calpine"). Capitalized terms used herein without definition shall have the meaning ascribed thereto in the Original Agreements (as defined below).

WHEREAS, CPN Management and the Employee entered into that certain Class B Interest Award Agreement effective March 8, 2018 (the "March Agreement");

WHEREAS, CPN Management and the Employee entered into that certain Class B Interest Award Agreement effective August 29, 2018 (the "August Agreement", and together with the March Agreement, the "Original Agreements");

WHEREAS, CPN Management and the Employee desire to amend the Original Agreements to change the vesting schedule of the Awards granted thereunder pursuant to the terms set forth herein.

NOW, THEREFORE, in consideration of the mutual covenants herein contained and other good and valuable consideration, receipt of which is hereby acknowledged, CPN Management and the Employee hereto do hereby agree that, effective as of the date hereof, the Original Agreements are hereby amended as follows:

1. Vesting Schedule. The table setting forth the vesting schedule set forth in Section 1(a) of the March Agreement is hereby deleted in its entirety and replaced with the following:

Total Class B Interest subject to vesting (as of Date of Grant)	Incremental Vesting of Award (as of annual vesting dates)
March 8, 2018: 0.1700%	March 8, 2019: 0.057% March 8, 2020: 0.057% March 8, 2021: 0.056%

2. Vesting Schedule. The table setting forth the vesting schedule set forth in Section 1(a) of the August Agreement is hereby deleted in its entirety and replaced with the following:

Total Class B Interest subject to vesting (as of Date of Grant)	Incremental Vesting of Award (as of annual vesting dates)
August 29, 2018: 0.0200%	March 8, 2019: .007% March 8, 2020: .007% March 8, 2021: .006%

3. Amendment Governs in the Case of Conflict. In the event that any terms or provisions of the Original Agreements conflict or are inconsistent with the terms and provisions of this Amendment, the terms of this Amendment shall govern and control.

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4. No Further Modification. Except as amended hereby, the Original Agreements remain unmodified and in full force and effect.

5. Counterparts. This Amendment may be executed in one or more counterparts, each of which shall be considered an original instrument, but all of which shall be considered one and the same agreement. To the extent signed and delivered by means of a facsimile or other electronic transmission (including email of a PDF signature), the same shall be treated in all manner and respects and for all purposes as an original agreement or instrument and shall be considered to have the same binding legal effect as if it were the original signed version thereof delivered in person.

* * * * *

[signature page follows]

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IN WITNESS WHEREOF, the parties have executed this Amendment to the Class B Interest Award Agreement effective as of the Amendment Date.

CPN MANAGEMENT, LP

By: Volt Parent GP, LLC, its general partner

By: /s/ TYLER REEDER
Name: Tyler Reeder
Title: Managing Partner

[Amendment to Award Agreement between CPN Management, LP and the Employee]

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THE EMPLOYEE

/s/ CHARLES GATES

Charles Gates

* * * * *

[Amendment to Award Agreement between CPN Management, LP and the Employee]

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Exhibit 10.4

AMENDMENT TO CLASS B INTEREST AWARD AGREEMENT

This Amendment to the Class B Interest Award Agreement (this "Amendment") is made and entered into effective as of July 23, 2019 (the "Amendment Date") by and between CPN Management LP, a Delaware limited partnership ("CPN Management"), and Charles Gates (the "Employee"), an employee of Calpine Corporation, a Delaware corporation and a wholly owned subsidiary of CPN Management ("Calpine"). Capitalized terms used herein without definition shall have the meaning ascribed thereto in the Original Agreements (as defined below).

WHEREAS, CPN Management and the Employee entered into that certain Class B Interest Award Agreement effective March 8, 2018 (the "March Agreement");

WHEREAS, CPN Management and the Employee entered into that certain Class B Interest Award Agreement effective August 29, 2018 (the "August Agreement", and together with the March Agreement, the "Original Agreements");

WHEREAS, CPN Management and the Employee amended the Original Agreements effective April 26, 2019 to change the vesting schedule of the Awards granted thereunder (the "First Amendment");

WHEREAS, CPN Management and the Employee desire to further amend the Original Agreements to change the vesting schedule of the Awards back to their original schedule pursuant to the terms set forth herein.

NOW, THEREFORE, in consideration of the mutual covenants herein contained and other good and valuable consideration, receipt of which is hereby acknowledged, CPN Management and the Employee hereto do hereby agree that, effective as of the date hereof, the Original Agreements are hereby amended as follows:

1. Vesting Schedule. The table setting forth the vesting schedule set forth in Section 1(a) of the March Agreement is hereby deleted in its entirety and replaced with the following:

Total Class B Interest subject to vesting (as of Date of Grant)	Incremental Vesting of Award (as of annual vesting dates)
March 8, 2018: 0.1700%	March 8, 2019: 0.057% March 8, 2020: 0.011% March 8, 2021: 0.034% March 8, 2022: 0.034% March 8, 2023: 0.034%

2. Vesting Schedule. The table setting forth the vesting schedule set forth in Section 1(a) of the August Agreement is hereby deleted in its entirety and replaced with the following:

Total Class B Interest subject to vesting (as of Date of Grant)	Incremental Vesting of Award (as of annual vesting dates)
August 29, 2018: 0.0200%	March 8, 2019: 0.007% March 8, 2020: 0.001% March 8, 2021: 0.004% March 8, 2022: 0.004% March 8, 2023: 0.004%

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3. Amendment Governs in the Case of Conflict. In the event that any terms or provisions of the Original Agreements conflict or are inconsistent with the terms and provisions of this Amendment, the terms of this Amendment shall govern and control.

4. No Further Modification. Except as amended hereby, the Original Agreements remain unmodified and in full force and effect.

5. Counterparts. This Amendment may be executed in one or more counterparts, each of which shall be considered an original instrument, but all of which shall be considered one and the same agreement. To the extent signed and delivered by means of a facsimile or other electronic transmission (including email of a PDF signature), the same shall be treated in all manner and respects and for all purposes as an original agreement or instrument and shall be considered to have the same binding legal effect as if it were the original signed version thereof delivered in person.

* * * * *

[signature page follows]

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IN WITNESS WHEREOF, the parties have executed this Second Amendment to the Class B Interest Award Agreement effective as of the Amendment Date.

CPN MANAGEMENT, LP

By: Volt Parent GP, LLC, its general partner

By: /s/ TYLER REEDER
Name: Tyler Reeder
Title: President

[Amendment to Award Agreement between CPN Management, LP and the Employee]

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THE EMPLOYEE

/s/ CHARLES GATES

Charles Gates

* * * * *

{Amendment to Award Agreement between CPN Management, LP and the Employee]

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Exhibit 10.5

CPN MANAGEMENT, LP
717 TEXAS AVENUE
SUITE 100
HOUSTON, TEXAS 77002

June 28, 2019

Charles Gates

Re: Award of Class B Interest in CPN Management, LP

Dear Sir/Madam:

Reference is made to that certain Second Amended and Restated Limited Partnership Agreement of CPN Management, LP, a Delaware limited partnership ("CPN Management"), dated and effective as of August 29, 2018 (as it may be amended, modified or supplemented from time to time, the "CPN Management LP Agreement"), a copy of which is attached as Exhibit A hereto. Capitalized terms used but not otherwise defined in this letter agreement (this "Award Agreement") shall have the meanings set forth in the CPN Management LP Agreement (unless otherwise stated herein).

This Award Agreement sets forth the understanding between CPN Management and Charles Gates (the "Employee"), an employee of Calpine Corporation, a Delaware corporation and a wholly owned subsidiary of CPN Management ("Calpine"), or one of its subsidiaries, regarding the terms and conditions under which CPN Management shall grant the Employee an award of a Class B Interest. Such Class B Interest shall entitle the Employee to share in the profits, losses and distributions of CPN Management to the extent set forth in the CPN Management LP Agreement. The Employee shall be entitled to such other rights, and shall be subject to such obligations, associated with such Class B Interest as are provided in the CPN Management LP Agreement.

1. Award of Class B Interest to the Employee.

(a) As of the date hereof (the "Date of Grant"), CPN Management hereby awards a Class B Interest to the Employee as set forth in the following table with a Benchmark Component of $7,363,655,252 (the "Class B Interest"). The Award shall be subject to the terms and conditions of the CPN Management LP Agreement and this Award Agreement. Subject to the Employee's continuous provision of services to Calpine or any of its subsidiaries through each applicable vesting date, the Award shall vest in accordance with the vesting schedule set forth in the following table.

Total Class B Interest subject to vesting (as of the Date of Grant)	*Incremental Vesting of Award* (as of annual vesting dates)
June 28, 2019: 0.1100%	March 8, 2019: 0.022%

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	March 8, 2020: 0.022% March 8, 2021: 0.022% March 8, 2022: 0.022% March 8, 2023: 0.022%

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(b) As a condition to receiving the Award, the Employee must duly execute and deliver this Award Agreement and a joinder to the CPN Management LP Agreement (a form of which is attached as Exhibit B hereto).

2. Change in Control; Termination of Employment.

(a) In the event of a Change in Control, the Award shall vest in full, to the extent not already then vested.

(b) On a Date of Termination that occurs due to the Employee's death or Disability, the Award shall vest in full, to the extent not already then vested.

(c) On a Date of Termination that occurs for any reason other than as described in Section 2(b) above, the Employee shall forfeit any then unvested portion of the Award without payment therefor.

(d) Following a Change in Control, a Drag-Along Sale, a Tag-Along Sale or a Date of Termination that occurs for any reason, any portion of the Award that is not forfeited in accordance with the terms hereof shall continue to be subject to the terms and conditions of the CPN Management LP Agreement, including, without limitation, the provisions of Section 6.05 (*Repurchase Rights*) and all other provisions of Article VI of the CPN Management LP Agreement.

3. Award Agreement Definitions.

For purposes of this Award Agreement, the following terms shall have the meanings set forth below:

(a) "Cause" shall, if the Employee is party to an Employment Agreement that includes such term, have the meaning ascribed to such term in such Employment Agreement. If the Employee is not a party to such an Employment Agreement, "Cause" shall mean (i) the Employee's willful failure to substantially perform the Employee's duties (other than any such failure resulting from the Employee's Disability); (ii) the Employee's willful failure to carry out, or comply with, in any material respect any lawful directive of Calpine; (iii) the Employee's commission at any time of any act or omission that results in, or may reasonably be expected to result in, a conviction, plea of no contest, plea of *nolo contendere*, or imposition of unadjudicated probation for any felony or crime involving moral turpitude; (iv) the Employee's unlawful use (including being under the influence) or possession of illegal drugs on Calpine's premises or while performing the Employee's duties and responsibilities; (v) the Employee's commission at any time of any act of fraud, embezzlement, misappropriation, material misconduct, conversion of assets of Calpine, or breach of fiduciary duty against Calpine; or (vi) the Employee's material breach of this Award Agreement, the CPN Management LP Agreement or any Employment Agreement or other agreement with Calpine or CPN Management or any of their respective Affiliates (including, without limitation, any breach of the restrictive covenants of any such agreement); and which, in the case of clauses (i), (ii) and (vi), continues beyond thirty (30) days after Calpine or CPN Management, as applicable, has provided the Employee written notice of such failure or breach (to the extent that, in the reasonable judgment of Calpine or CPN Management, as applicable, such failure or breach can be cured by the Employee).

(b) "Change in Control" shall mean (i) a change in beneficial ownership (within the meaning of Rule 13d-3 of the Exchange Act) of Calpine, CPN Management or Volt Parent LP, a

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Delaware limited partnership ("Volt Parent"), effected through a transaction or series of transactions (including, without limitation, any merger, consolidation or other business combination, or sale of assets or equity interests) whereby any "person" or related "group" of "persons" (as such terms are used in Sections 13(d) and 14(d)(2) of the Exchange Act) other than (A) Calpine, CPN Management, Volt Parent or any of their respective Affiliates, (B) any limited partner of Volt Parent as of March 8, 2018 or any Affiliate of any such limited partner, or (C) any employee benefit plan maintained by Calpine or any of its subsidiaries (x) directly or indirectly acquires beneficial ownership of securities of Calpine possessing more than 50% of the total combined voting power of the securities of Calpine outstanding immediately after such acquisition or (y) acquires all or substantially all of the assets of Calpine, CPN Management or Volt Parent, whether by liquidation, dissolution, merger, consolidation or sale, or (ii) any "person" or related "group" of "persons" (as such terms are used in Sections 13(d) and 14(d)(2) of the Exchange Act) other than (1) ECP, Calpine, CPN Management, Volt Parent or any of their respective Affiliates or (2) any employee benefit plan maintained by Calpine or any of its subsidiaries directly or indirectly acquires beneficial ownership from ECP of (I) more than 75% of ECP's aggregate interest in Volt Parent as of March 8, 2018 or (II) interests in Volt Parent such that, following such acquisition, ECP (directly or indirectly) is no longer the largest holder of interests in Volt Parent; provided that, notwithstanding the foregoing, an offering of securities of Calpine or any successor entity to the general public through a registration statement filed with the Securities and Exchange Commission under the Securities Act shall not, on its own, constitute a Change in Control.

(c) "Code" shall mean the Internal Revenue Code of 1986, as amended.

(d) "Date of Termination" shall mean the date on which the Employee's employment with Calpine or any of its subsidiaries terminates for any reason.

(e) "Disability" shall, if the Employee is party to an Employment Agreement that includes such term, have the meaning ascribed to such term in such Employment Agreement, and if the Employee is not a party to such an Employment Agreement that includes such term, mean the Employee's inability to engage in any substantial gainful activity by reason of any medically determinable physical or mental impairment that can be expected to result in death or that can be expected to last for a continuous period of not less than twelve (12) months, as determined by an accredited physician jointly selected by the Employee and Calpine.

(f) "Employment Agreement" shall mean a written employment agreement with Calpine or any of its subsidiaries.

(g) "Exchange Act" shall mean the Securities Exchange Act of 1934, as amended.

(h) "Noncompete Agreement" shall mean any written agreement with Calpine or any of its subsidiaries, other than the agreement in Section 6.10(a) ("*Non-Competition*") of the CPN Management LP Agreement, that restricts or prohibits the Employee from competing with the business of Calpine or any of its subsidiaries.

(i) "Noncompete Option" shall mean the option of Calpine or the applicable employing subsidiary, in its sole discretion, if the Employee is not a party to a Noncompete Agreement as of the Date of Termination, to extend the Restricted Period (as defined below) for purposes of Section 6.10(a) ("*Non-Competition*") of the CPN Management LP Agreement to a date on or prior to (i) in the case of an Employee who is a Vice President or below at the Date of Termination, three (3)

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months following the Date of Termination, and (ii) in the case of an Employee who is a Senior Vice President or above at the Date of Termination, six (6) months following the Date of Termination, in each case upon written notice to the Employee no later than thirty (30) days after the Date of Termination and subject to Section 5.

(j) "Noncompete Option Payment" shall mean an amount equal to (a) the Employee's annual base salary as of the Date of Termination, multiplied by (b) a fraction, the numerator of which is equal to the number of days from the Date of Termination through the expiration date of the Restricted Period (as elected by Calpine or the applicable employing subsidiary pursuant to its Noncompete Option), and the denominator of which is 365.

(k) "Section 409A" shall mean Section 409A of the Code and the Department of Treasury regulations and other interpretive guidance issued thereunder, including without limitation any such regulations or other guidance that may be issued after the date hereof.

4. CPN Management LP Agreement Definitions. For purposes of the CPN Management LP Agreement (solely with respect to the Award being awarded hereunder), the following terms shall have the meanings set forth below:

(a) "Repurchase Price" shall mean (i) in the event of a Date of Termination that occurs due to termination by Calpine for Cause or the Employee's purported "Transfer" in violation of the provisions of Article VI of the CPN Management LP Agreement, $0.00, and (ii) in the event of a Date of Termination that occurs for any other reason, an amount equal to the Fair Market Value of the Class B Interest subject to the Award.

(b) "Restricted Period", for purposes of Section 6.10(b) ("*Non-Solicitation*") of the CPN Management LP Agreement, shall mean the period from the Date of Grant through the first anniversary of the Date of Termination. For purposes of Section 6.10(a) ("*Non-Competition*") of the CPN Management LP Agreement, "Restricted Period" shall mean (i) if the Employee is a party to a Noncompete Agreement as of the Date of Termination, the period from the Date of Grant through the date as may be set forth as the expiration date of any applicable non-competition covenant provided for in such Noncompete Agreement and (ii) if the Employee is not a party to a Noncompete Agreement as of the Date of Termination, the period from the Date of Grant through (A) in the event that Calpine or the applicable employing subsidiary does not exercise its Noncompete Option, the Date of Termination or (B) in the event that Calpine or the applicable employing subsidiary exercises its Noncompete Option, the date elected by such entity thereunder.

5. Noncompete Option Payment. If Calpine or the applicable employing subsidiary exercises its Noncompete Option, then the Employee will be entitled to a payment equal the excess of (y) the amount of the Noncompete Option Payment over (z) the amount of cash severance, if any, to which the Employee is entitled under any severance agreement with or plan or policy of Calpine or any of its subsidiaries as a result of the Employee's termination of employment. Notwithstanding anything herein to the contrary, (i) no portion of the Noncompete Option Payment shall be paid unless, on or prior to the 30th day following the Date of Termination, the Employee timely executes a general waiver and release of claims agreement acceptable to Calpine or the applicable employing subsidiary, and such release shall not have been revoked by the Employee prior to the expiration of the period (if any) during which any portion of such release is revocable under applicable law, and (ii) as of the first date on which the Employee violates any covenant contained in Section 6.10 ("*Non-Competition*; *Non-Solicitation*; *Non-Disparagement*") of the CPN Management LP

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Agreement, any remaining unpaid portion of the Noncompete Option Payment shall thereupon be forfeited. The Noncompete Option Payment shall be paid in equal installments during the period beginning on the Date of Termination and ending on the expiration date of the Restricted Period (as elected by Calpine or the applicable employing subsidiary pursuant to its Noncompete Option), in accordance with the normal payroll policies of the applicable employer as in effect on the Date of Termination; provided that any installment that would otherwise have been paid prior to the first normal payroll payment date that occurs on or after the 30th day following the Date of Termination (such payroll date, the "First Payment Date") shall instead be paid on the First Payment Date.

6. Section 409A. The parties hereto acknowledge and agree that, to the extent applicable, this Award Agreement shall be interpreted in accordance with, and incorporate the terms and conditions required by, Section 409A. Notwithstanding anything herein to the contrary, (a) to the extent that the Noncompete Option Payment is deemed to constitute "nonqualified deferred compensation" within the meaning of Section 409A, for purposes of Section 409A (including, without limitation, for purposes of Section 1.409A-2(b)(2)(iii) of the Department of Treasury regulations), the Employee's right to receive the Noncompete Option Payment in the form of installment payments (the "Installment Payments") shall be treated as a right to receive a series of separate payments and, accordingly, each Installment Payment shall at all times be considered a separate and distinct payment; (b) the Noncompete Option Payment shall not be payable unless the Employee's termination of employment constitutes a "separation from service" within the meaning of Section 1.409A-1(h) of the Department of Treasury regulations; (c) if the Employee is deemed at the time of the Employee's separation from service to be a "specified employee" for purposes of Section 409A(a)(2)(B)(i) of the Code, to the extent delayed commencement of any portion of the Noncompete Option Payment (after taking into account all applicable exclusions under Section 409A) is required in order to avoid a prohibited distribution under Section 409A(a)(2)(B)(i) of the Code, such portion of the Noncompete Option Payment shall not be provided to the Employee prior to the earlier of (i) the expiration of the six (6)-month period measured from the date of the Employee's "separation from service" and (ii) the date of the Employee's death; provided that, upon the earlier of such dates, any portion of the Noncompete Option Payment deferred pursuant to this Section 6 shall be paid in a lump sum to the Employee, and any remaining portion shall be provided as otherwise specified herein; and (d) the determination of whether the Employee is a "specified employee" for purposes of Section 409A(a)(2)(B)(i) of the Code as of the time of the Employee's separation from service shall be made by Calpine in accordance with the terms of Section 409A (including, without limitation, Section 1.409A-1(i) of the Department of Treasury regulations and any successor provision thereto).

7. Tax Consequences.

(a) Calpine and CPN Management have encouraged the Employee to review the tax consequences of the transactions contemplated by this Award Agreement and the CPN Management LP Agreement with the Employee's own personal tax or financial advisor. The Employee understands that, he or she, and not Calpine, CPN Management or any of their respective Affiliates, will be responsible for the Employee's own tax liability that may arise as a result of the transactions contemplated by this Award Agreement and the CPN Management LP Agreement.

(b) The Employee acknowledges that nothing in this Award Agreement or CPN Management LP Agreement constitutes tax advice.

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(c) The Employee is required to file a protective election under Section 83(b) of the Code with the Internal Revenue Service within thirty (30) days following the Date of Grant, with the effect that the income tax event with respect to the grant of the Award will occur on the Date of Grant.

(d) The Employee acknowledges that it is his or her responsibility, and not the responsibility of Calpine, CPN Management or any of their respective Affiliates, to timely file a protective election under Section 83(b) of the Code, even if the Employee requests that Calpine, CPN Management or any of their respective Affiliates or representatives make such filing on the Employee's behalf. The Employee further acknowledges that nothing in this Award Agreement or CPN Management LP Agreement constitutes tax advice.

8. Profits Interest. The Class B Interest awarded pursuant to this Award Agreement is intended to be treated as a "profits interest" for U.S. federal income tax purposes.

9. Securities Laws. The Employee and CPN Management acknowledge that the Class B Interest has been awarded and issued in reliance on applicable exemptions from registration, including without limitation Section 4(a)(2) of the Securities Act and/or the provisions of Regulation D and/or Rule 701 promulgated by the Securities and Exchange Commission, and upon an exemption from registration under any applicable state "blue sky" laws

10. Conflicts. Except to the extent explicitly provided herein, if this Award Agreement contains any provision that conflicts with the CPN Management LP Agreement, the applicable provision of the CPN Management LP shall prevail and control and the conflicting provision of this Award Agreement (and only such provision) shall be of no force or effect.

* * * * *

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CPN MANAGEMENT, LP

By: Volt Parent GP, LLC, its general partner

By: /s/ TYLER REEDER
Name: Tyler Reeder
Title: President

[2018 Award Agreement between CPN Management, LP and the Employee]

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THE EMPLOYEE

/s/ CHARLES GATES

Charles Gates

[2018 Award Agreement between CPN Management, LP and the Employee]

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Exhibit A

CPN Management, LP Amended and Restated Limited Partnership Agreement

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Exhibit B

Form of Joinder to the CPN Management, LP Amended and Restated Limited Partnership Agreement

[See Attached]

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Exhibit 10.6

[Calpine Letterhead]

August 7, 2019

Charles Gates

Re: Bonus Payment

Dear Mr. Gates:

We refer to that certain Class B Interest Award Agreements, effective March 8, 2018 and August 29, 2018, between CPN Management, LP, a Delaware limited partnership ("CPN") and you, as amended, (together the "2018 Agreements") and that certain Class B Interest Award Agreement, effective June 28, 2019 between CPN and you (the "2019 Agreement"). This letter agreement (the "Agreement") memorializes our agreement to pay you a cash bonus (the "Bonus") on each Payment Date in the amount and circumstances set forth herein.

The amount of the Bonus payable on each Payment Date shall be the excess, if any, of

(A) the amount that would have been payable on the Payment Date under the 2018 Agreements had your 2018 Interest been an interest of 0.30% over

(B) the amount actually payable under the 2018 Agreements and the 2019 Agreement, in the aggregate, on the Payment Date.

For purposes of this Agreement, the terms used herein shall have the meanings specified below:

(a) "2018 Interest" means the Total Class B Interest awarded to you under the 2018 Agreements, as amended;

(b) "Payment Date" is the date on which any payment is paid to you in respect of your 2018 Interest;

If the foregoing correctly conforms to your understanding of the agreement between you and CPN, please sign and date the enclosed copy of this Agreement and return it to me on or before August 8, 2019.

Very truly yours,

/s/ HETHER BENJAMIN BROWN

Hether Benjamin Brown
SVP, Chief Administrative Officer

/s/ CHARLIE GATES

Charlie Gates
EVP - Power Operations

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EXHIBIT 31.1

CERTIFICATIONS

I, John B. (Thad) Hill III, certify that:

1. I have reviewed this quarterly report on Form 10-Q of Calpine Corporation (the "registrant");

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: August 7, 2019

/s/ JOHN B. (THAD) HILL III

John B. (Thad) Hill III
President, Chief Executive Officer and Director
Calpine Corporation

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EXHIBIT 31.2

CERTIFICATIONS

I, Zamir Rauf, certify that:

1. I have reviewed this quarterly report on Form 10-Q of Calpine Corporation (the “registrant”);

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant’s other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

c) Evaluated the effectiveness of the registrant’s disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

d) Disclosed in this report any change in the registrant’s internal control over financial reporting that occurred during the registrant’s most recent fiscal quarter (the registrant’s fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant’s internal control over financial reporting; and

5. The registrant’s other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant’s auditors and the audit committee of the registrant’s board of directors (or persons performing the equivalent functions):

a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant’s ability to record, process, summarize and report financial information; and

b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant’s internal control over financial reporting.

Date: August 7, 2019

/s/ ZAMIR RAUF

Zamir Rauf

Executive Vice President and
Chief Financial Officer

Calpine Corporation

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EXHIBIT 32.1

**CERTIFICATION PURSUANT TO
18 U.S.C. SECTION 1350,
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002**

In connection with the Quarterly Report of Calpine Corporation (the “Company”) on Form 10-Q for the period ended June 30, 2019, as filed with the Securities and Exchange Commission on the date hereof (the “Report”), each of the undersigned does hereby certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that, to the best of his or her knowledge, based upon a review of the Report:

(1) The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and

(2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

/s/ JOHN B. (THAD) HILL III	/s/ ZAMIR RAUF
John B. (Thad) Hill III	Zamir Rauf
President,	Executive Vice President and
Chief Executive Officer and Director	Chief Financial Officer
Calpine Corporation	Calpine Corporation

Dated: August 7, 2019

A signed original of this written statement required by Section 906 has been provided to Calpine Corporation and will be retained by Calpine Corporation and furnished to the Securities and Exchange Commission or its staff upon request.

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Document and Entity Information - shares	6 Months Ended Jun. 30, 2019	Aug. 07, 2019
Entity Information [Line Items]		
Entity Registrant Name	CALPINE CORP	
Entity Central Index Key	0000916457	
Current Fiscal Year End Date	--12-31	
Entity Filer Category	Non-accelerated Filer	
Document Type	10-Q	
Document Period End Date	Jun. 30, 2019	
Document Fiscal Year Focus	2019	
Document Fiscal Period Focus	Q2	
Amendment Flag	false	
Entity Small Business	false	
Entity Emerging Growth Company	false	
Entity Shell Company	false	
Entity Current Reporting Status	No	
Entity Common Stock, Shares Outstanding		105.2

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Consolidated Condensed Statements of Operations - USD ($) $ in Millions	3 Months Ended				6 Months Ended			
	Jun. 30, 2019		Jun. 30, 2018		Jun. 30, 2019		Jun. 30, 2018	
Operating revenues:								
Commodity revenue	$ 2,128		$ 2,121		$ 4,666		$ 4,517	
Mark-to-market gain (loss)	467		131		523		(260)	
Other revenue	4		7		9		11	
Operating revenues	2,599	[1]	2,259	[1]	5,198	[2]	4,268	[2]
Operating expenses:								
Commodity expense	1,367		1,426		3,125		3,216	
Mark-to-market (gain) loss	280		(57)		290		(77)	
Fuel and purchased energy expense	1,647		1,369		3,415		3,139	
Operating and maintenance expense	245		242		484		517	
Depreciation and amortization expense	175		186		349		387	
General and other administrative expense	34		31		66		91	
Other operating expenses	19		19		38		56	
Total operating expenses	2,120		1,847		4,352		4,190	
Impairment losses	40		0		55		0	
(Income) from unconsolidated subsidiaries	(5)		(5)		(11)		(11)	
Income from operations	444		417		802		89	
Interest expense	157		157		306		308	
(Gain) loss on extinguishment of debt	3		0		(1)		0	
Other (income) expense, net	5		62		28		69	
Income (loss) before income taxes	279		198		469		(288)	
Income tax expense (benefit)	9		(158)		19		(50)	
Net income (loss)	270		356		450		(238)	
Net income attributable to the noncontrolling interest	(4)		(4)		(9)		(8)	
Net income (loss) attributable to Calpine	$ 266		$ 352		$ 441		$ (246)	

[1] Includes intersegment revenues of $100 million and $70 million in the West, $348 million and $276 million in Texas, $228 million and $18 million in the East and $1 million and $1 million in Retail for the three months ended June 30, 2019 and 2018, respectively.

[2] Includes intersegment revenues of $262 million and $184 million in the West, $559 million and $209 million in Texas, $365 million and $133 million in the East and $4 million and $2 million in Retail for the six months ended June 30, 2019 and 2018, respectively.

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Consolidated Condensed Statements of Comprehensive Income - USD ($) $ in Millions		3 Months Ended		6 Months Ended	
		Jun. 30, 2019	Jun. 30, 2018	Jun. 30, 2019	Jun. 30, 2018
Statement of Comprehensive Income [Abstract]					
Net income (loss)		$ 270	$ 356	$ 450	$ (238)
Cash flow hedging activities:					
Gain (loss) on cash flow hedges before reclassification adjustment for cash flow hedges realized in net income (loss)		(29)	15	(52)	63
Reclassification adjustment for (gain) loss on cash flow hedges realized in net income (loss)	[1],[2]	(3)	0	(5)	7
Foreign currency translation gain (loss)		1	(2)	3	(8)
Income tax benefit (expense)		1	7	1	(4)
Other comprehensive income (loss)		(30)	20	(53)	58
Comprehensive income (loss)		240	376	397	(180)
Comprehensive (income) attributable to the noncontrolling interest		(3)	(4)	(8)	(10)
Comprehensive income (loss) attributable to Calpine		$ 237	$ 372	$ 389	$ (190)

[1] Cumulative cash flow hedge losses attributable to Calpine, net of tax, remaining in AOCI were $89 million and $34 million at June 30, 2019 and December 31, 2018, respectively. Cumulative cash flow hedge losses attributable to the noncontrolling interest, net of tax, remaining in AOCI were $4 million and $3 million at June 30, 2019 and December 31, 2018, respectively.

[2] Includes losses (gains) of nil that were reclassified from AOCI to interest expense for the three months ended June 30, 2019 and 2018, and losses of $1 million and nil that were reclassified from AOCI to interest expense for the six months ended June 30, 2019 and 2018, respectively, where the hedged transactions became probable of not occurring.

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Consolidated Condensed Balance Sheets - USD ($) $ in Millions	Jun. 30, 2019		Dec. 31, 2018	
Current assets:				
Cash and cash equivalents ($33 and $43 attributable to VIEs)	$ 297		$ 205	
Accounts receivable, net of allowance of $8 and $9	806		1,022	
Inventories	541		525	
Margin deposits and other prepaid expense	276		315	
Restricted cash, current ($108 and $90 attributable to VIEs)	182		167	
Derivative assets, current	202	[1]	142	[2] [3]
Current assets held for sale	335		0	
Other current assets	60		43	
Total current assets	2,699		2,419	
Property, plant and equipment, net ($3,873 and $3,919 attributable to VIEs)	12,051		12,442	
Restricted cash, net of current portion ($48 and $33 attributable to VIEs)	80		34	
Investments in unconsolidated subsidiaries	71		76	
Derivative Asset, Noncurrent	213	[1]	160	[2] [3]
Goodwill	242		242	
Intangible assets, net	370		412	
Other assets ($100 and $30 attributable to VIEs)	483		277	
Total assets	16,209		16,062	
Current liabilities:				
Accounts payable	695		958	
Accrued interest payable	98		96	
Debt, current portion ($213 and $201 attributable to VIEs)	263		637	
Derivative Liability, Current	165	[1]	303	[2] [3]
Current liabilitites held for sale	22		0	
Other current liabilities ($71 and $36 attributable to VIEs)	470		489	
Total current liabilities	1,713		2,483	
Debt, net of current portion ($1,889 and $1,978 attributable to VIEs)	10,461		10,148	
Long-term derivative liabilities	119	[1]	140	[2] [3]
Other long-term liabilities ($73 and $36 attributable to VIEs)	463		235	
Total liabilities	12,756		13,006	
Commitments and contingencies (see Note 11)				
Stockholder’s equity:				
Common stock, $0.001 par value per share; authorized 5,000 shares, 105.2 shares issued and outstanding	0		0	
Additional paid-in capital	9,584		9,582	
Accumulated deficit	(6,101)		(6,542)	
Accumulated other comprehensive loss	(129)		(77)	
Total Calpine stockholder’s equity	3,354		2,963	
Noncontrolling interest	99		93	
Total stockholder’s equity	3,453		3,056	

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Total liabilities and stockholder’s equity	$ 16,209	$ 16,062

[1] At June 30, 2019 and December 31, 2018, we had $142 million and $244 million, respectively, of collateral under master netting arrangements that were not offset against our derivative instruments on the Consolidated Condensed Balance Sheets primarily related to initial margin requirements.

[2] At June 30, 2019, current and long-term derivative assets are shown net of collateral of $(27) million and $(3) million, respectively, and current and long-term derivative liabilities are shown net of collateral of $72 million and $104 million, respectively.

[3] At December 31, 2018, current and long-term derivative assets are shown net of collateral of $(58) million and $(8) million, respectively, and current and long-term derivative liabilities are shown net of collateral of $49 million and $64 million, respectively.

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Consolidated Condensed Balance Sheets (Parenthetical) - USD ($) $ in Millions	Jun. 30, 2019	Dec. 31, 2018
Cash and cash equivalents ($33 and $43 attributable to VIEs)	$ 297	$ 205
Accounts receivable, net of allowance of $8 and $9	8	9
Restricted cash, current ($108 and $90 attributable to VIEs)	182	167
Property, plant and equipment, net ($3,873 and $3,919 attributable to VIEs)	12,051	12,442
Restricted cash, net of current portion ($48 and $33 attributable to VIEs)	80	34
Other assets ($100 and $30 attributable to VIEs)	483	277
Debt, current portion ($213 and $201 attributable to VIEs)	263	637
Other current liabilities ($71 and $36 attributable to VIEs)	470	489
Debt, net of current portion ($1,889 and $1,978 attributable to VIEs)	10,461	10,148
Other long-term liabilities ($73 and $36 attributable to VIEs)	$ 463	$ 235
Common Stock, Par or Stated Value Per Share	$ 0.001	$ 0.001
Common Stock, Shares Authorized	5,000	5,000
Common Stock, Shares, Issued	105.2	105.2
Common Stock, Shares, Outstanding	105.2	105.2
Variable Interest Entity, Primary Beneficiary [Member]		
Cash and cash equivalents ($33 and $43 attributable to VIEs)	$ 33	$ 43
Restricted cash, current ($108 and $90 attributable to VIEs)	108	90
Property, plant and equipment, net ($3,873 and $3,919 attributable to VIEs)	3,873	3,919
Restricted cash, net of current portion ($48 and $33 attributable to VIEs)	48	33
Other assets ($100 and $30 attributable to VIEs)	100	30
Debt, current portion ($213 and $201 attributable to VIEs)	213	201
Other current liabilities ($71 and $36 attributable to VIEs)	71	36
Debt, net of current portion ($1,889 and $1,978 attributable to VIEs)	1,889	1,978
Other long-term liabilities ($73 and $36 attributable to VIEs)	$ 73	$ 36

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Consolidated Statements of Stockholders' Equity Statement - USD ($) $ in Millions		Total	Common Stock [Member]	Treasury Stock [Member]	Additional Paid-in Capital [Member]	Retained Earnings [Member]	AOCI Attributable to Parent [Member]	Noncontrolling Interest [Member]
Beginning Balance at Dec. 31, 2017		$ 3,067	$ 0	$ (15)	$ 9,661	$ (6,552)	$ (106)	$ 79
Treasury Stock, Value, Acquired, Cost Method		(7)	0	(7)	0	0	0	0
Stock-based compensation expense		41	0	0	41	0	0	0
Other		(78)	0	22	(100)	0	0	0
Dividends paid		(20)	0	0	(20)	0	0	0
Contribution from the noncontrolling interest		2	0	0	0	0	0	2
Distribution to the noncontrolling interest		(2)	0	0	0	0	0	(2)
Net income (loss)		(594)	0	0	0	(598)	0	4
Other comprehensive income (loss)		38	0	0	0	0	36	2
Ending Balance at Mar. 31, 2018		2,447	0	0	9,582	(7,150)	(70)	85
Beginning Balance at Dec. 31, 2017		3,067	0	(15)	9,661	(6,552)	(106)	79
Dividends paid	[1]	(18)						
Distribution to the noncontrolling interest		(3)						
Net income (loss)		(238)						
Other comprehensive income (loss)		58						
Ending Balance at Jun. 30, 2018		2,822	0	0	9,582	(6,798)	(50)	88
Beginning Balance at Mar. 31, 2018		2,447	0	0	9,582	(7,150)	(70)	85
Distribution to the noncontrolling interest		(1)	0	0	0	0	0	(1)
Net income (loss)		356	0	0	0	352	0	4
Other comprehensive income (loss)		20	0	0	0	0	20	0
Ending Balance at Jun. 30, 2018		2,822	0	0	9,582	(6,798)	(50)	88
Beginning Balance at Dec. 31, 2018		3,056	0	0	9,582	(6,542)	(77)	93
Other		0	0	0	2	0	0	(2)
Net income (loss)		180	0	0	0	175	0	5

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Other comprehensive income (loss)	(23)	0	0	0	0	(23)	0
Ending Balance at Mar. 31, 2019	3,213	0	0	9,584	(6,367)	(100)	96
Beginning Balance at Dec. 31, 2018	3,056	0	0	9,582	(6,542)	(77)	93
Dividends paid [1]	0						
Distribution to the noncontrolling interest	0						
Net income (loss)	450						
Other comprehensive income (loss)	(53)						
Ending Balance at Jun. 30, 2019	3,453	0	0	9,584	(6,101)	(129)	99
Beginning Balance at Mar. 31, 2019	3,213	0	0	9,584	(6,367)	(100)	96
Net income (loss)	270	0	0	0	266	0	4
Other comprehensive income (loss)	(30)	0	0	0	0	(29)	(1)
Ending Balance at Jun. 30, 2019	$ 3,453	$ 0	$ 0	$ 9,584	$ (6,101)	$ (129)	$ 99

[1] Subsequent to the consummation of the Merger on March 8, 2018, we paid certain Merger-related costs incurred by CPN Management, our direct parent.

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Consolidated Condensed Statements of Cash Flows - USD ($) $ in Millions	6 Months Ended	
	Jun. 30, 2019	Jun. 30, 2018
Cash flows from operating activities:		
Net income (loss)	$ 450	$ (238)
Adjustments to reconcile net income (loss) to net cash provided by operating activities:		
Depreciation and amortization(1)	[1] 398	443
Deferred income taxes	16	36
Impairment losses	55	0
Mark-to-market activity, net	[2] (231)	180
(Income) from unconsolidated subsidiaries	(11)	(11)
Return on investments from unconsolidated subsidiaries	11	5
Stock-based compensation expense	0	57
Other	(3)	9
Change in operating assets and liabilities:		
Accounts receivable	215	(8)
Accounts payable	(269)	(11)
Margin deposits and other prepaid expense	40	(90)
Other assets and liabilities, net	(61)	(242)
Derivative instruments, net	(91)	(74)
Net cash provided by operating activities	519	56
Cash flows from investing activities:		
Purchases of property, plant and equipment	(304)	(231)
Other	(11)	(3)
Net cash used in investing activities	(315)	(234)
Cash flows from financing activities:		
Borrowings under First Lien Term Loans	941	0
Repayment of CCFC Term Loan and First Lien Term Loans	(942)	(21)
Repurchases of Senior Unsecured Notes	(44)	0
Borrowings under Corporate Revolving Facility	220	475
Repayments of Corporate Revolving Facility	(175)	(200)
Borrowings from project financing, notes payable and other	34	0
Repayments of project financing, notes payable and other	(77)	(66)
Distribution to noncontrolling interest holder	0	(3)
Financing costs	(8)	(12)
Stock repurchases	0	(79)
Shares repurchased for tax withholding on stock-based awards	0	(7)
Dividends paid(2)	[3] 0	(18)
Net cash (used in) provided by financing activities	(51)	69
Net increase (decrease) in cash, cash equivalents and restricted cash	153	(109)
Cash, cash equivalents and restricted cash, beginning of period	406	443

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Cash, cash equivalents and restricted cash, end of period(3)	[4] 559	334
Cash paid during the period for:		
Interest, net of amounts capitalized	283	284
Income taxes	8	10
Supplemental disclosure of non-cash investing and financing activities:		
Change in capital expenditures included in account payable	19	(14)
Plant tax settlement offset in prepaid assets	(4)	0
Asset retirement obligation adjustment offset in operating activities	(10)	0
Current Assets Held for Sale [Member]		
Supplemental disclosure of non-cash investing and financing activities:		
Current assets (liabilities) held for sale	(335)	0
Current Liabilities Held for Sale [Member]		
Supplemental disclosure of non-cash investing and financing activities:		
Current assets (liabilities) held for sale	$ 22	$ 0

[1] Includes amortization recorded in Commodity revenue and Commodity expense associated with intangible assets and amortization recorded in interest expense associated with debt issuance costs and discounts.

[2] In addition to changes in market value on derivatives not designated as hedges, changes in mark-to-market gain (loss) also includes adjustments to reflect changes in credit default risk exposure.

[3] Subsequent to the consummation of the Merger on March 8, 2018, we paid certain Merger-related costs incurred by CPN Management, our direct parent.

[4] Our cash and cash equivalents, restricted cash, current and restricted cash, net of current portion are stated as separate line items on our Consolidated Condensed Balance Sheets.

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Basis of Presentation and Summary of Significant Accounting Policies	6 Months Ended Jun. 30, 2019
Accounting Policies [Abstract]	
Summary of significant accounting policies	

Basis of Presentation and Summary of Significant Accounting Policies

We are a power generation company engaged in the ownership and operation of primarily natural gas-fired and geothermal power plants in North America. We have a significant presence in major competitive wholesale and retail power markets in California, Texas and the Northeast and Mid-Atlantic regions of the U.S. We sell power, steam, capacity, renewable energy credits and ancillary services to our customers, which include utilities, independent electric system operators, industrial and agricultural companies, retail power providers, municipalities and other governmental entities, power marketers as well as retail commercial, industrial, governmental and residential customers. We continue to focus on providing products and services that are beneficial to our wholesale and retail customers. We purchase primarily natural gas and some fuel oil as fuel for our power plants and engage in related natural gas transportation and storage transactions. We also purchase power for sale to our customers and purchase electric transmission rights to deliver power to our customers. Additionally, consistent with our Risk Management Policy, we enter into natural gas, power, environmental product, fuel oil and other physical and financial commodity contracts to hedge certain business risks and optimize our portfolio of power plants.

Basis of Interim Presentation — The accompanying unaudited, interim Consolidated Condensed Financial Statements of Calpine Corporation, a Delaware corporation, and consolidated subsidiaries have been prepared pursuant to the rules and regulations of the SEC. In the opinion of management, the Consolidated Condensed Financial Statements include the normal, recurring adjustments necessary for a fair statement of the information required to be set forth therein. Certain information and note disclosures, normally included in financial statements prepared in accordance with U.S. GAAP, have been condensed or omitted from these statements pursuant to such rules and regulations and, accordingly, these financial statements should be read in conjunction with our audited Consolidated Financial Statements for the year ended December 31, 2018, included in our 2018 Form 10-K. The results for interim periods are not indicative of the results for the entire year primarily due to acquisitions and disposals of assets, seasonal fluctuations in our revenues and expenses, timing of major maintenance expense, variations resulting from the application of the method to calculate the provision for income tax for interim periods, volatility of commodity prices and mark-to-market gains and losses from commodity and interest rate derivative contracts.

Use of Estimates in Preparation of Financial Statements — The preparation of financial statements in conformity with U.S. GAAP requires management to make estimates and assumptions that affect the reported amounts of assets, liabilities, revenues, expenses and related disclosures included in our Consolidated Condensed Financial Statements. Actual results could differ from those estimates.

Reclassifications — We have reclassified certain prior period amounts for comparative purposes. These reclassifications did not have a material effect on our financial condition, results of operations or cash flows.

Cash and Cash Equivalents — We consider all highly liquid investments with an original maturity of three months or less to be cash equivalents. We have cash and cash equivalents held in non-corporate accounts relating to certain project finance facilities and lease agreements that require us to establish and maintain segregated cash accounts. These accounts have been pledged as security in favor of the lenders under such project finance facilities, and the use of certain cash balances on deposit in such accounts is limited, at least temporarily, to the operations of the respective projects.

Restricted Cash — Certain of our debt agreements, lease agreements or other operating agreements require us to establish and maintain segregated cash accounts, the use of which

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is restricted, making these cash funds unavailable for general use. These amounts are held by depository banks in order to comply with the contractual provisions requiring reserves for payments such as for debt service, rent and major maintenance or with applicable regulatory requirements. Funds that can be used to satisfy obligations due during the next 12 months are classified as current restricted cash, with the remainder classified as non-current restricted cash. Restricted cash is generally invested in accounts earning market rates; therefore, the carrying value approximates fair value. Such cash is excluded from cash and cash equivalents on our Consolidated Condensed Balance Sheets.

The table below represents the components of our restricted cash as of June 30, 2019 and December 31, 2018 (in millions):

	June 30, 2019			December 31, 2018		
	Current	Non-Current	Total	Current	Non-Current	Total
Debt service	$ 51	$ 8	$ 59	$ 13	$ 8	$ 21
Construction/major maintenance	9	39	48	23	24	47
Security/project/insurance	112	31	143	120	—	120
Other	10	2	12	11	2	13
Total	$ 182	$ 80	$ 262	$ 167	$ 34	$ 201

Business Interruption Proceeds — We record business interruption insurance proceeds in operating revenues when they are realizable. We recorded approximately $14 million of business interruption proceeds for each of the three and six months ended June 30, 2018. We have not recorded any business interruption insurance proceeds during the three and six months ended June 30, 2019.

Property, Plant and Equipment, Net — At June 30, 2019 and December 31, 2018, the components of property, plant and equipment are stated at cost less accumulated depreciation as follows (in millions):

	June 30, 2019	December 31, 2018	Depreciable Lives
Buildings, machinery and equipment	$ 16,522	$ 16,400	1.5 – 50 Years
Geothermal properties	1,509	1,501	13 – 58 Years
Other	269	286	3 – 50 Years
	18,300	18,187	
Less: Accumulated depreciation	6,860	6,832	
	11,440	11,355	
Land	128	121	
Construction in progress	483	966	
Property, plant and equipment, net	$ 12,051	$ 12,442	

Capitalized Interest — The total amount of interest capitalized was $1 million and $7 million during the three months ended June 30, 2019 and 2018, respectively, and $8 million and $14 million during the six months ended June 30, 2019 and 2018, respectively.

Goodwill — We have not recorded any impairment losses or changes in the carrying amount of our goodwill during the three and six months ended June 30, 2019 and 2018.

New Accounting Standards and Disclosure Requirements

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Leases — On January 1, 2019, we adopted Accounting Standards Update 2016-02, "Leases" ("Topic 842"). The comprehensive new lease standard superseded all existing lease guidance. The standard requires that a lessee should recognize a right-of-use asset and a lease liability for substantially all operating leases based on the present value of the minimum rental payments. For lessors, the accounting for leases under Topic 842 remained substantially unchanged. The standard also requires expanded disclosures surrounding leases. We adopted the standards under Topic 842 using the modified retrospective method and elected a number of the practical expedients in our implementation of Topic 842. The key change that affected us relates to our accounting for operating leases for which we are the lessee that were historically off-balance sheet. The impact of adopting the standards resulted in the recognition of a right-of-use asset and lease obligation liability of $191 million on our Consolidated Condensed Balance Sheet on January 1, 2019, exclusive of previously recognized lease balances. The implementation of Topic 842 did not have a material effect on our Consolidated Condensed Statement of Operations or Consolidated Condensed Statement of Cash Flows for the six months ended June 30, 2019. See Note 3 for a discussion of the practical expedients we elected and additional disclosures required by Topic 842.

Derivatives and Hedging — In August 2017, the FASB issued Accounting Standards Update 2017-12, "Targeted Improvements to Accounting for Hedging Activities." The standard better aligns an entity's hedging activities and financial reporting for hedging relationships through changes to both the designation and measurement guidance for qualifying hedging relationships and the presentation of hedge results in the financial statements. The standard will prospectively make hedge accounting easier to apply to hedging activities and also enhances disclosure requirements for how hedge transactions are reflected in the financial statements when hedge accounting is elected. We adopted Accounting Standards Update 2017-12 in the first quarter of 2019 which did not have a material effect on our financial condition, results of operations or cash flows.

Fair Value Measurements — In August 2018, the FASB issued Accounting Standards Update 2018-13, "Disclosure Framework – Changes to the Disclosure Requirements for Fair Value Measurement." The standard removes, modifies and adds disclosures about fair value measurements and is effective for fiscal years beginning after December 15, 2019. The changes required by this standard to remove or modify disclosures may be early adopted with adoption of the additional disclosures required by this standard delayed until their effective date. We do not anticipate a material effect on our financial condition, results of operations or cash flows as a result of adopting this standard.

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Revenue From Contracts with Customers (Notes)	6 Months Ended Jun. 30, 2019
Revenue from Contract with Customer [Abstract]	
Revenue from Contract with Customer [Text Block]	

Revenue from Contracts with Customers

Disaggregation of Revenues with Customers

The following tables represent a disaggregation of our revenue for the three and six months ended June 30, 2019 and 2018 by reportable segment (in millions). See Note 13 for a description of our segments.

	Three Months Ended June 30, 2019					
	Wholesale					
	West	Texas	East	Retail	Elimination	Total
Third-Party:						
Energy & other products	$ 145	$ 318	$ 124	$ 413	$ —	$ 1,000
Capacity	36	33	154	—	—	223
Revenues relating to physical or executory contracts – third-party	$ 181	$ 351	$ 278	$ 413	$ —	$ 1,223
Affiliate[(1)]:	$ 6	$ 14	$ 30	$ 1	$ (51)	$ —
Revenues relating to leases and derivative instruments[(2)]						$ 1,376
Total operating revenues						$ 2,599

	Three Months Ended June 30, 2018					
	Wholesale					
	West	Texas	East	Retail	Elimination	Total
Third-Party:						
Energy & other products	$ 176	$ 326	$ 120	$ 451	$ —	$ 1,073
Capacity	35	23	140	—	—	198
Revenues relating to physical or executory contracts – third-party	$ 211	$ 349	$ 260	$ 451	$ —	$ 1,271
Affiliate[(1)]:	$ 5	$ 9	$ 21	$ 1	$ (36)	$ —
Revenues relating to leases and derivative instruments[(2)]						$ 988
Total operating revenues						$ 2,259

	Six Months Ended June 30, 2019
	Wholesale

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	West	Texas	East	Retail	Elimination	Total
Third-Party:						
Energy & other products	$ 437	$ 620	$ 327	$ 825	$ —	$ 2,209
Capacity	71	65	331	—	—	467
Revenues relating to physical or executory contracts – third-party	$ 508	$ 685	$ 658	$ 825	$ —	$ 2,676
Affiliate(1):	$ 17	$ 28	$ 57	$ 4	$ (106)	$ —
Revenues relating to leases and derivative instruments(2)						$ 2,522
Total operating revenues						$ 5,198

	Six Months Ended June 30, 2018					
	Wholesale					
	West	Texas	East	Retail	Elimination	Total
Third-Party:						
Energy & other products	$ 375	$ 630	$ 252	$ 894	$ —	$ 2,151
Capacity	54	49	289	—	—	392
Revenues relating to physical or executory contracts – third-party	$ 429	$ 679	$ 541	$ 894	$ —	$ 2,543
Affiliate(1):	$ 13	$ 13	$ 42	$ 2	$ (70)	$ —
Revenues relating to leases and derivative instruments(2)						$ 1,725
Total operating revenues						$ 4,268

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(1) Affiliate energy, other and capacity revenues reflect revenues on transactions between wholesale and retail affiliates excluding affiliate activity related to leases and derivative instruments. All such activity supports retail supply needs from the wholesale business and/or allows for collateral margin netting efficiencies at Calpine.

(2) Revenues relating to contracts accounted for as leases and derivatives include energy and capacity revenues relating to PPAs that we are required to account for as operating leases and physical and financial commodity derivative contracts, primarily relating to power, natural gas and environmental products. Revenue related to derivative instruments includes revenue recorded in Commodity revenue and mark-to-market gain (loss) within our operating revenues on our Consolidated Condensed Statements of Operations.

Performance Obligations and Contract Balances

At June 30, 2019 and December 31, 2018, deferred revenue balances relating to contracts with our customers were included in other current liabilities on our Consolidated Condensed Balance Sheets and primarily relate to sales of environmental products and capacity. We classify deferred revenue as current or long-term based on the timing of when we expect to recognize revenue. The balance outstanding at June 30, 2019 and December 31, 2018 was $22 million and

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$14 million, respectively. Revenue recognized during the three months ended June 30, 2019 and 2018, relating to the deferred revenue balance at the beginning of each period was $2 million and $3 million, respectively. Revenue recognized during the six months ended June 30, 2019 and 2018, relating to the deferred revenue balance at the beginning of each period was and $3 million and $9 million, respectively. Revenue recognized each period relating to deferred revenue balances resulted from our performance under the customer contracts. The change in the deferred revenue balance during the three and six months ended June 30, 2019 and 2018 was primarily due to the timing difference of when consideration was received and when the related good or service was transferred.

Performance Obligations not yet Satisfied

As of June 30, 2019, we have entered into certain contracts for fixed and determinable amounts with customers under which we have not yet completed our performance obligations which primarily includes agreements for which we are providing capacity from our generating facilities. We have revenues related to the sale of capacity through participation in various ISO capacity auctions estimated based upon cleared volumes and the sale of capacity to our customers of $258 million that will be recognized during the remainder of 2019, and $517 million, $468 million, $249 million and $50 million that will be recognized during the years ending December 31, 2020, 2021, 2022 and 2023, respectively, and $72 million thereafter. Revenues under these contracts will be recognized as we transfer control of the commodities to our customers.

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Leases (Notes)	6 Months Ended Jun. 30, 2019
Leases [Abstract]	
LesseeandLessorLeases [Text Block]	**Leases**

Leases

Accounting for Leases – Lessee

We evaluate contracts for lease accounting at contract inception and assess lease classification at the lease commencement date. For our leases, we recognize a right-of-use asset and corresponding lease obligation liability at the lease commencement date where the lease obligation liability is measured at the present value of the minimum lease payments. For our operating leases, the amortization of the right-of-use asset and the accretion of our lease obligation liability result in a single straight-line expense recognized over the lease term.

We determine the discount rate associated with our operating and finance leases using our incremental borrowing rate at lease commencement. For our operating leases, we use an interest rate commensurate with the interest rate to borrow on a collateralized basis over a similar term with an amount equal to the lease payments. Factors management considers in the calculation of the discount rate include the amount of the borrowing, the lease term including options that are reasonably certain of exercise, the current interest rate environment and the credit rating of the entity. For our finance leases, we use the interest rate commensurate with the interest rate for a project finance borrowing arrangement with a similar collateral package, repayment terms, restrictive covenants and guarantees.

Our operating leases are primarily related to office space for our corporate and regional offices as well as land and operating related leases for our power plants. Additionally, one of our power plants is accounted for as a long-term operating lease. Payments made by Calpine on this lease are recognized on a straight-line basis with capital improvements associated with our leased power plant deemed leasehold improvements that are amortized over the shorter of the term of the lease or the economic life of the capital improvement. Several of our leases contain renewal options held by us to extend the lease term. The inclusion of these renewal periods in the lease term and in the minimum lease payments included in our lease liabilities is dependent on specific facts and circumstances for each lease and whether it is determined to be reasonably certain that we will exercise our option to extend the term. Our office, land and other operating leases do not contain any material restrictive covenants or residual value guarantees.

We have entered into finance leases for certain power plants and related equipment with terms that range up to 30 years (including lease renewal options). The finance leases generally provide for the lessee to pay taxes, maintenance, insurance, and certain other operating costs of the leased property.

In connection with our adoption of Topic 842 on January 1, 2019, we elected certain practical expedients that were available under the new lease standards including:

- we elected not to separate lease and nonlease components for our current classes of underlying leased assets as the lessee;
- we did not evaluate existing and expired land easements that were not previously accounted for as leases prior to January 1, 2019; and
- we did not reassess the classification of leases, the accounting for initial direct costs or whether contractual arrangements contained a lease for all contracts that expired or commenced prior to January 1, 2019.

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Further, upon the adoption of Topic 842, we made an accounting policy election to not recognize lease assets and liabilities for leases with a term of 12 months or less. We do not have any material subleases associated with our operating and finance leases.

The components of our operating and finance lease expense are as follows for the three and six months ended June 30, 2019 (in millions):

	Three Months Ended June 30, 2019	Six Months Ended June 30, 2019
Operating Leases		
Operating lease expense	$ 12	$ 23
Finance Leases		
Amortization of the right-of-use assets	$ 1	$ 4
Interest expense	2	4
Finance lease expense	$ 3	$ 8
Variable lease expense	$ 4	$ 5
Total lease expense	$ 19	$ 36

The following is a schedule by year of future minimum lease payments associated with our operating and finance leases together with the present value of the net minimum lease payments as of June 30, 2019 (in millions):

	Operating Leases(1)(2)	Finance Leases(2)(3)
2019	$ 39	$ 8
2020	20	16
2021	21	16
2022	19	16
2023	18	19
Thereafter	201	33
Total minimum lease payments	318	108
Less: Amount representing interest	108	30
Total lease obligation	210	78
Less: current lease obligation	39	10
Long-term lease obligation	$ 171	$ 68

(1) The lease liabilities associated with our operating leases as of June 30, 2019 are included in other current liabilities and other long-term liabilities on our Consolidated Condensed Balance Sheet.

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(2) Excludes an operating lease obligation of $1 million and a finance lease obligation of $18 million related to Garrison Energy Center which are included in current liabilities held for sale on our Consolidated Condensed Balance Sheet. See Note 4 for further information related to the sale of the Garrison Energy Center.

(3) The lease liabilities associated with our finance leases as of June 30, 2019 are included in debt, current portion and debt, net of current portion on our Consolidated Condensed Balance Sheet.

Supplemental balance sheet information related to our operating and finance leases is as follows as of June 30, 2019 (in millions, except lease term and discount rate):

		June 30, 2019[1]
Operating leases[2]		
Right-of-use assets associated with operating leases	$	184
Finance leases[3]		
Property, plant and equipment, gross	$	213
Accumulated amortization		(104)
Property, plant and equipment, net	$	109
Weighted average remaining lease term (in years)		
Operating leases		15.8
Finance leases		7.4
Weighted average discount rate		
Operating leases		5.1%
Finance leases		8.0%

(1) Excludes a right-of-use asset and property, plant and equipment, net of $1 million and $17 million, respectively, related to Garrison Energy Center which are included in current assets held for sale on our Consolidated Condensed Balance Sheet. See Note 4 for further information related to the sale of the Garrison Energy Center.

(2) The right-of-use assets associated with our operating leases as of June 30, 2019 are included in other assets on our Consolidated Condensed Balance Sheet.

(3) The right-of-use assets associated with our finance leases as of June 30, 2019 are included in property, plant and equipment, net on our Consolidated Condensed Balance Sheet.

Supplemental cash flow information related to our operating and finance leases is as follows for the period presented (in millions):

		Six Month Ended June 30, 2019
Cash paid for amounts included in the measurement of lease liabilities		
Operating cash flows from operating leases	$	13
Operating cash flows from finance leases	$	4
Financing cash flows from finance leases	$	6

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Right-of-use assets obtained in exchange for lease obligations:		
Operating leases	$	9
Finance leases	$	—

As of June 30, 2019, we have executed agreements that contain a lease with a future lease commencement date and future lease commitments of $1 million primarily related to an office lease which is scheduled to commence in September 2019.

Accounting for Leases – Lessor

We apply lease accounting to PPAs that meet the definition of a lease and determine lease classification treatment at commencement of the agreement. We currently do not have any contracts which are accounted for as sales-type leases or direct financing leases and all of our leases as the lessor are classified as operating leases. As part of the implementation of Topic 842, we elected the practical expedient to not reassess leases that have commenced prior to January 1, 2019.

Revenue from contracts accounted for as operating leases, such as certain tolling agreements, with minimum lease rentals (capacity payments) which vary over time must be levelized. Generally, we levelize these contract revenues on a straight-line basis over the term of the contract. Our operating leases that have commenced contain terms extending through December 2034. These contracts also generally contain variable payment components based on generation volumes or operating efficiency over a period of time. Revenues associated with the variable payments are recognized over time as the goods or services are provided to the lessee. Our operating leases generally do not contain renewal or purchase options or residual value guarantees. We have elected to not separate our lease and non-lease components as the lease components reflect the predominant characteristics of these agreements.

Revenue recognized related to fixed lease payments on our operating leases for the period presented is as follows (in millions):

	Three Months Ended June 30, 2019	Six Months Ended June 30, 2019
Operating Leases[(1)]		
Fixed lease payments	$ 70	$ 139

(1) Revenues associated with our operating leases are included in Commodity revenue and other revenue on our Consolidated Condensed Statement of Operations.

The total contractual future minimum lease rentals for our contracts that have commenced and are accounted for as operating leases at June 30, 2019, are as follows (in millions):

2019	$ 204
2020	287
2021	261

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2022	227
2023	144
Thereafter	284
Total	$ 1,407

We do not recognize lease receivables associated with our operating leases as the long-lived assets subject to the lease contracts are recorded on our Consolidated Condensed Balance Sheet and are being depreciated over their estimated useful lives. Amounts recorded on our Consolidated Condensed Balance Sheet associated with the long-lived assets subject to our operating leases as of June 30, 2019 are as follows (in millions):

	June 30, 2019
Assets subject to contracts accounted for as operating leases	
Property, plant and equipment, gross	$ 3,076
Accumulated depreciation	(903)
Property, plant and equipment, net[1]	$ 2,173

(1) Our assets subject to contracts that are accounted for as operating leases primarily consist of our power plants subject to tolling contracts.

We also record lease levelization assets and liabilities for any difference between the timing of the contractual payments made related to our operating lease contracts and revenue recognized on a straight-line basis. These balances are included in current and long-term assets and liabilities on our Consolidated Condensed Balance Sheet.

Disclosures for periods prior to the adoption of Topic 842

Lessee

The following is a schedule by year of future minimum lease payments under operating and capital leases as of December 31, 2018 (in millions):

	Operating Leases	Capital Leases[1]
2019	$ 50	$ 40
2020	19	40
2021	20	38
2022	18	33
2023	17	27
Thereafter	192	92
Total minimum lease payments	$ 316	270
Less: Amount representing interest		89
Present value of net minimum lease payments		$ 181

(1) Includes a failed sale-leaseback transaction related to our Pasadena Power Plant.

At December 31, 2018, the asset balance for our assets under capital leases totaled approximately $715 million with accumulated amortization of $353 million.

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Lessor

The total contractual future minimum lease rentals for our contracts accounted for as operating leases at December 31, 2018, are as follows (in millions):

2019	$ 342
2020	261
2021	257
2022	224
2023	141
Thereafter	239
Total	$ 1,464

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Divestitures (Notes)	6 Months Ended Jun. 30, 2019
Business Combinations [Abstract]	
Mergers, Acquisitions and Dispositions Disclosures [Text Block]	***Sale of Garrison Energy Center and RockGen Energy Center*** On July 10, 2019, we, through our indirect, wholly owned subsidiaries Calpine Holdings, LLC and Calpine Northbrook Project Holdings, LLC, completed the sale of 100% of our ownership interests in Garrison Energy Center LLC (“Garrison”) and RockGen Energy LLC (“RockGen”) to Cobalt Power, L.L.C. for approximately $360 million, subject to certain working capital adjustments and the execution of financial commodity contracts. Garrison owns the Garrison Energy Center, a 309 MW natural gas-fired, combined-cycle power plant located in Dover, Delaware, and RockGen owns the RockGen Energy Center, a 503 MW natural gas-fired, simple-cycle power plant located in Christiana, Wisconsin. We used the sale proceeds, together with cash on hand, to fund a dividend of $400 million to our parent, CPN Management, LP. At June 30, 2019, the assets and liabilities of Garrison and RockGen, which are part of our East segment, were classified as current assets and liabilities held for sale on our Consolidated Condensed Balance Sheet consisting primarily of property, plant and equipment, net, and finance leases, respectively. We recorded impairment losses of $40 million and $55 million during the three and six months ended June 30, 2019, respectively, associated with the sale to adjust the carrying value of the assets to reflect fair value less cost to sell.

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Variable Interest Entities and Unconsolidated Investments in Power Plants	6 Months Ended Jun. 30, 2019
Variable Interest Entities and Unconsolidated Investments [Abstract]	
Variable interest entities and unconsolidated investments in power plants	**Variable Interest Entities and Unconsolidated Investments**

Variable Interest Entities and Unconsolidated Investments

We consolidate all of our VIEs where we have determined that we are the primary beneficiary. There were no changes to our determination of whether we are the primary beneficiary of our VIEs for the six months ended June 30, 2019. See Note 7 in our 2018 Form 10-K for further information regarding our VIEs.

VIE Disclosures

Our consolidated VIEs include natural gas-fired power plants with an aggregate capacity of 7,880 MW and 7,880 MW at June 30, 2019 and December 31, 2018, respectively. For these VIEs, we may provide other operational and administrative support through various affiliate contractual arrangements among the VIEs, Calpine Corporation and its other wholly owned subsidiaries whereby we support the VIE through the reimbursement of costs and/or the purchase and sale of energy. Other than amounts contractually required, we provided support to these VIEs in the form of cash and other contributions of nil during each of the three and six months ended June 30, 2019 and 2018.

OMEC — OMEC has a ten-year tolling agreement with SDG&E, which commenced on October 3, 2009. Under a ground lease agreement, OMEC held a put option to sell the Otay Mesa Energy Center for $280 million to SDG&E, pursuant to the terms and conditions of the agreement, which was exercisable until April 1, 2019 and SDG&E held a call option to purchase the Otay Mesa Energy Center for $377 million, which was exercisable through October 3, 2018. The call option held by SDG&E expired unexercised.

OMEC has executed a new 59-month Resource Adequacy (“RA”) contract with SDG&E, which would commence on October 3, 2019. The RA contract received initial regulatory approval by the California Public Utilities Commission (“CPUC”) on February 21, 2019. This approval was subject to a 30 day appeal period from the date of the issuance of the CPUC decision. On March 27, 2019, an appeal of the CPUC decision was filed with the CPUC, which appeal was denied on August 1, 2019. As a result, we continue to work to commence the RA contract. However, in the event that we are not successful and another alternative is not reached with SDG&E prior to October 3, 2019, OMEC expects to close on the put and transfer the Otay Mesa Energy Center to SDG&E for $280 million on or about October 3, 2019, which transaction could result in a write down of the carrying value of the asset.

On December 19, 2018, we refinanced the project debt associated with OMEC which lowered the aggregate debt balance to $220 million and extended the maturity to August 2024. In the event that the exercise of the OMEC put option is not rescinded, the OMEC project debt will become payable on November 3, 2019.

We have concluded that we are the primary beneficiary of OMEC as we believe the activity that has the most effect on the financial performance of OMEC is operations and maintenance which is controlled by us. As a result, we consolidate OMEC.

Unconsolidated VIEs and Investments in Unconsolidated Subsidiaries

We have a 50% partnership interest in Greenfield LP and in Whitby. Greenfield LP and Whitby are VIEs; however, we do not have the power to direct the most significant activities of these entities and therefore do not consolidate them. Greenfield LP is a limited partnership between certain subsidiaries of ours and of Mitsui & Co., Ltd., which operates the Greenfield Energy Centre, a 1,038 MW natural gas-fired, combined-cycle power plant located in Ontario,

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Canada. We and Mitsui & Co., Ltd. each hold a 50% interest in Greenfield LP. Whitby is a limited partnership between certain of our subsidiaries and Atlantic Packaging Ltd., which operates the Whitby facility, a 50 MW natural gas-fired, simple-cycle cogeneration power plant located in Ontario, Canada. We and Atlantic Packaging Ltd. each hold a 50% partnership interest in Whitby.

Calpine Receivables is a VIE and a bankruptcy remote entity created for the special purpose of purchasing trade accounts receivable from Calpine Solutions under the Accounts Receivable Sales Program. We have determined that we do not have the power to direct the activities of the VIE that most significantly affect the VIE's economic performance nor the obligation to absorb losses or receive benefits from the VIE. Accordingly, we have determined that we are not the primary beneficiary of Calpine Receivables because we do not have the power to affect its financial performance as the unaffiliated financial institutions that purchase the receivables from Calpine Receivables control the selection criteria of the receivables sold and appoint the servicer of the receivables which controls management of default. Thus, we do not consolidate Calpine Receivables in our Consolidated Condensed Financial Statements and use the equity method of accounting to record our net interest in Calpine Receivables.

We account for these entities under the equity method of accounting and include our net equity interest in investments in unconsolidated subsidiaries on our Consolidated Condensed Balance Sheets. At June 30, 2019 and December 31, 2018, our equity method investments included on our Consolidated Condensed Balance Sheets were comprised of the following (in millions):

	Ownership Interest as of June 30, 2019	June 30, 2019	December 31, 2018
Greenfield LP[1]	50%	$ 56	$ 55
Whitby	50%	10	15
Calpine Receivables	100%	5	6
Total investments in unconsolidated subsidiaries		$ 71	$ 76

(1) Includes our share of accumulated other comprehensive income/loss related to interest rate hedging instruments associated with our unconsolidated subsidiary Greenfield LP's debt.

Our risk of loss related to our investments in Greenfield LP and Whitby is limited to our investment balance. Our risk of loss related to our investment in Calpine Receivables is $67 million which consists of our notes receivable from Calpine Receivables at June 30, 2019 and our initial investment associated with Calpine Receivables. See Note 12 for further information associated with our related party activity with Calpine Receivables.

Holders of the debt of our unconsolidated investments do not have recourse to Calpine Corporation and its other subsidiaries; therefore, the debt of our unconsolidated investments is not reflected on our Consolidated Condensed Balance Sheets. At June 30, 2019 and December 31, 2018, Greenfield LP's debt was approximately $304 million and $301 million, respectively, and based on our pro rata share of our investment in Greenfield LP, our share of such debt would be approximately $152 million and $151 million at June 30, 2019 and December 31, 2018, respectively.

Our equity interest in the net income from our investments in unconsolidated subsidiaries for the three and six months ended June 30, 2019 and 2018, is recorded in (income) from unconsolidated subsidiaries. The following table sets forth details of our (income) from unconsolidated subsidiaries for the periods indicated (in millions):

	Three Months Ended June 30,		Six Months Ended June 30,	
	2019	2018	2019	2018

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Greenfield LP	$ (4)	$ (2)	$ (6)	$ (4)
Whitby	(2)	(4)	(6)	(8)
Calpine Receivables	1	1	1	1
Total	$ (5)	$ (5)	$ (11)	$ (11)

Distributions from Greenfield LP were nil during each of the three and six months ended June 30, 2019 and 2018. Distributions from Whitby were nil and $11 million during the three and six months ended June 30, 2019, respectively, and $2 million and $5 million during the three and six months ended June 30, 2018, respectively. We did not have material distributions from our investment in Calpine Receivables for the three and six months ended June 30, 2019 and 2018.

Inland Empire Energy Center Put and Call Options — We held a call option to purchase the Inland Empire Energy Center (a 775 MW natural gas-fired power plant located in California) at predetermined prices from GE that could be exercised between years 2017 and 2024. GE held a put option whereby they could require us to purchase the power plant, if certain plant performance criteria were met by 2025. On February 1, 2019, we entered into an agreement with GE, which among other things, terminated our call option and GE's put option related to the Inland Empire Energy Center. As per this agreement, we will take ownership of the facility site and certain remaining site infrastructure and equipment after closure and decommissioning of the facility at a future date, until such time GE continues to own, operate and maintain the power plant, including directing any closure activities. As GE continues to direct all such significant activities of the power plant, we have determined that we no longer hold any variable interests in the Inland Empire Energy Center and it is not a VIE to Calpine.

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Debt	6 Months Ended Jun. 30, 2019
Debt Disclosure [Abstract]	
Debt	**Debt** Our debt at June 30, 2019 and December 31, 2018, was as follows (in millions):

	June 30, 2019	December 31, 2018
Senior Unsecured Notes	$ 2,990	$ 3,036
First Lien Term Loans	2,979	2,976
First Lien Notes	2,402	2,400
Project financing, notes payable and other	1,229	1,264
CCFC Term Loan	971	974
Finance lease obligations	78	105
Corporate Revolving Facility	75	30
Subtotal	10,724	10,785
Less: Current maturities	263	637
Total long-term debt	$ 10,461	$ 10,148

Our effective interest rate on our consolidated debt, excluding the effects of capitalized interest and mark-to-market gains (losses) on interest rate hedging instruments, increased to 5.9% for the six months ended June 30, 2019, from 5.7% for the same period in 2018. Since the fourth quarter of 2018, we have cumulatively repurchased $438 million in aggregate principal of our Senior Unsecured Notes for $399 million.

Senior Unsecured Notes

The amounts outstanding under our Senior Unsecured Notes are summarized in the table below (in millions):

	June 30, 2019	December 31, 2018
2023 Senior Unsecured Notes	$ 1,228	$ 1,227
2024 Senior Unsecured Notes	589	599
2025 Senior Unsecured Notes	1,173	1,210
Total Senior Unsecured Notes	$ 2,990	$ 3,036

During the six months ended June 30, 2019, we repurchased $48 million in aggregate principal of our Senior Unsecured Notes for $44 million. In connection with the repurchases, we recorded approximately $4 million in gain on extinguishment of debt.

First Lien Term Loans

The amounts outstanding under our senior secured First Lien Term Loans are summarized in the table below (in millions):

	June 30, 2019	December 31, 2018
2019 First Lien Term Loan	$ —	$ 389
2023 First Lien Term Loans	535	1,059

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2024 First Lien Term Loan	1,522	1,528
2026 First Lien Term Loan	922	—
Total First Lien Term Loans	$ 2,979	$ 2,976

On April 5, 2019, we entered into a $950 million first lien senior secured term loan which bears interest, at our option, at either (i) the Base Rate, equal to the highest of (a) the Federal Funds Effective Rate plus 0.50% per annum, (b) the Prime Rate or (c) the Eurodollar Rate for a one month interest period plus 1.0% (in each case, as such terms are defined in the credit agreement), plus an applicable margin of 1.75%, or (ii) LIBOR plus 2.75% per annum (with a 0% LIBOR floor) and matures on April 5, 2026. An aggregate amount equal to 0.25% of the aggregate principal amount of the 2026 First Lien Term Loan is payable at the end of each quarter with the remaining balance payable on the maturity date. We paid an upfront fee of an amount equal to 1.0% of the aggregate principal amount of the 2026 First Lien Term Loan, which is structured as original issue discount and recorded approximately $7 million in debt issuance costs during the second quarter of 2019 related to the issuance of our 2026 First Lien Term Loan. The 2026 First Lien Term Loan contains substantially similar covenants, qualifications, exceptions and limitations as our First Lien Term Loans and First Lien Notes. We used the proceeds from our 2026 First Lien Term Loan to repay our 2019 First Lien Term Loan and a portion of our 2023 First Lien Term Loans with a maturity date in January 2023 and recorded approximately $3 million in loss on extinguishment of debt during the second quarter of 2019 associated with the repayment.

First Lien Notes

The amounts outstanding under our senior secured First Lien Notes are summarized in the table below (in millions):

	June 30, 2019	December 31, 2018
2022 First Lien Notes	$ 744	$ 743
2024 First Lien Notes	487	486
2026 First Lien Notes	1,171	1,171
Total First Lien Notes	$ 2,402	$ 2,400

Project Financing, Notes Payable and Other

On January 29, 2019, Pacific Gas and Electric Company ("PG&E") and PG&E Corporation each filed voluntary petitions for relief under Chapter 11. Our power plants that sell energy and energy-related products to PG&E through PPAs, include Russell City Energy Center and Los Esteros Critical Energy Facility. Since the bankruptcy filing, we have received all material payments under the PPAs, either directly or through the application of collateral. As a result of PG&E's bankruptcy, we are currently unable to make distributions from our Russell City and Los Esteros projects in accordance with the terms of the project debt agreements associated with each related project. In July 2019, we executed forbearance agreements associated with the Russell City and Los Esteros project debt agreements, under which the lenders have agreed to forbear enforcement of their rights and remedies, including the ability to accelerate the repayment of borrowings outstanding, otherwise arising because PG&E did not assume our PPAs during the first 180 days of PG&E's bankruptcy proceeding. The forbearance agreements are effective for rolling 90-day periods, so long as we continue to meet certain conditions, including that the PPAs have not been rejected and there are no other defaults under the project debt agreements or the forbearance agreements. We may be required to reclassify $362 million of Russell City and Los Esteros long-term project debt outstanding at June 30, 2019 to a current liability in a future period. We continue to monitor the bankruptcy proceedings and are assessing our options.

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In the event that the exercise of the OMEC put option is not rescinded, the OMEC project debt will become payable on November 3, 2019. See Note 5 for further information related to the OMEC put option.

Corporate Revolving Facility and Other Letter of Credit Facilities

The table below represents amounts issued under our letter of credit facilities at June 30, 2019 and December 31, 2018 (in millions):

	June 30, 2019	December 31, 2018
Corporate Revolving Facility[1]	$ 585	$ 693
CDHI[2]	30	251
Various project financing facilities	227	228
Other corporate facilities[3]	293	193
Total	$ 1,135	$ 1,365

(1) The Corporate Revolving Facility represents our primary revolving facility. On April 5, 2019, we amended our Corporate Revolving Facility to increase the capacity by approximately $330 million from $1.69 billion to approximately $2.02 billion.

(2) Pursuant to the terms and conditions of the CDHI credit agreement, the capacity under the CDHI letter of credit facility was reduced to $125 million on June 28, 2019. The decrease in capacity did not have a material effect on our liquidity as alternative sources of liquidity are available.

(3) We have three unsecured letter of credit facilities with two third-party financial institutions totaling approximately $300 million at June 30, 2019.

Fair Value of Debt

We record our debt instruments based on contractual terms, net of any applicable premium or discount and debt issuance costs. The following table details the fair values and carrying values of our debt instruments at June 30, 2019 and December 31, 2018 (in millions):

	June 30, 2019		December 31, 2018	
	Fair Value	Carrying Value	Fair Value	Carrying Value
Senior Unsecured Notes	$ 3,011	$ 2,990	$ 2,803	$ 3,036
First Lien Term Loans	3,013	2,979	2,877	2,976
First Lien Notes	2,462	2,402	2,299	2,400
Project financing, notes payable and other[1]	1,136	1,153	1,209	1,188
CCFC Term Loan	980	971	938	974
Corporate Revolving Facility	75	75	30	30
Total	$ 10,677	$ 10,570	$ 10,156	$ 10,604

(1) Excludes an agreement that is accounted for as a failed sale-leaseback transaction under U.S. GAAP.

Our Senior Unsecured Notes, First Lien Term Loans, First Lien Notes, CCFC Term Loan and Corporate Revolving Facility are categorized as level 2 within the fair value hierarchy. Our project financing, notes payable and other debt instruments are categorized as level 3 within the fair value hierarchy. We do not have any debt instruments with fair value measurements categorized as level 1 within the fair value hierarchy.

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Assets and Liabilities with Recurring Fair Value Measurements	6 Months Ended
	Jun. 30, 2019
Fair Value Disclosures [Abstract]	
Assets and Liabilities with Recurring Fair Value Measurements	**Assets and Liabilities with Recurring Fair Value Measurements** *Cash Equivalents* — Highly liquid investments which meet the definition of cash equivalents, primarily investments in money market accounts and other interest-bearing accounts, are included in both our cash and cash equivalents and our restricted cash on our Consolidated Condensed Balance Sheets. Certain of our money market accounts invest in U.S. Treasury securities or other obligations issued or guaranteed by the U.S. Government, its agencies or instrumentalities. We do not have any cash equivalents invested in institutional prime money market funds which require use of a floating net asset value and are subject to liquidity fees and redemption restrictions. Certain of our cash equivalents are classified within level 1 of the fair value hierarchy. *Derivatives* — The primary factors affecting the fair value of our derivative instruments at any point in time are the volume of open derivative positions (MMBtu, MWh and $ notional amounts); changing commodity market prices, primarily for power and natural gas; our credit standing and that of our counterparties and customers for energy commodity derivatives; and prevailing interest rates for our interest rate hedging instruments. Prices for power and natural gas and interest rates are volatile, which can result in material changes in the fair value measurements reported in our financial statements in the future. We utilize market data, such as pricing services and broker quotes, and assumptions that we believe market participants would use in pricing our assets or liabilities including assumptions about the risks inherent to the inputs in the valuation technique. These inputs can be either readily observable, market corroborated or generally unobservable. The market data obtained from broker pricing services is evaluated to determine the nature of the quotes obtained and, where accepted as a reliable quote, used to validate our assessment of fair value. We use other qualitative assessments to determine the level of activity in any given market. We primarily apply the market approach and income approach for recurring fair value measurements and utilize what we believe to be the best available information. We utilize valuation techniques that seek to maximize the use of observable inputs and minimize the use of unobservable inputs. We classify fair value balances based on the observability of those inputs. The fair value of our derivatives includes consideration of our credit standing, the credit standing of our counterparties and customers and the effect of credit enhancements, if any. We have also recorded credit reserves in the determination of fair value based on our expectation of how market participants would determine fair value. Such valuation adjustments are generally based on market evidence, if available, or our best estimate. Our level 1 fair value derivative instruments primarily consist of power and natural gas swaps, futures and options traded on the NYMEX or Intercontinental Exchange. Our level 2 fair value derivative instruments primarily consist of interest rate hedging instruments and OTC power and natural gas forwards for which market-based pricing inputs in the principal or most advantageous market are representative of executable prices for market participants. These inputs are observable at commonly quoted intervals for substantially the full term of the instruments. In certain instances, our level 2 derivative instruments may utilize models to measure fair value. These models are industry-standard models, including the Black-Scholes option-pricing model, that incorporate various assumptions, including quoted interest rates, correlation, volatility, as well as other relevant economic measures. Substantially all of these assumptions are observable in the marketplace throughout the full term of the instrument, can be derived from observable data or are supported by observable levels at which transactions are executed in the marketplace.

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Our level 3 fair value derivative instruments may consist of OTC power and natural gas forwards and options where pricing inputs are unobservable, as well as other complex and structured transactions primarily for the sale and purchase of power and natural gas to both wholesale counterparties and retail customers. Complex or structured transactions are tailored to our customers' needs and can introduce the need for internally-developed model inputs which might not be observable in or corroborated by the market. When such inputs have a significant effect on the measurement of fair value, the instrument is categorized in level 3. Our valuation models may incorporate historical correlation information and extrapolate available broker and other information to future periods.

Financial assets and liabilities are classified in their entirety based on the lowest level of input that is significant to the fair value measurement at period end. Our assessment of the significance of a particular input to the fair value measurement requires judgment and may affect our estimate of the fair value of our assets and liabilities and their placement within the fair value hierarchy levels. The following tables present our financial assets and liabilities that were accounted for at fair value on a recurring basis as of June 30, 2019 and December 31, 2018, by level within the fair value hierarchy:

	Assets and Liabilities with Recurring Fair Value Measures as of June 30, 2019			
	Level 1	Level 2	Level 3	Total
	(in millions)			
Assets:				
Cash equivalents(1)	$ 165	$ —	$ —	$ 165
Commodity instruments:				
Commodity exchange traded derivatives contracts	1,089	—	—	1,089
Commodity forward contracts(2)	—	350	322	672
Interest rate hedging instruments	—	6	—	6
Effect of netting and allocation of collateral(3)(4)	(1,089)	(243)	(20)	(1,352)
Total assets	$ 165	$ 113	$ 302	$ 580
Liabilities:				
Commodity instruments:				
Commodity exchange traded derivatives contracts	$ 1,179	$ —	$ —	$ 1,179
Commodity forward contracts(2)	—	474	96	570
Interest rate hedging instruments	—	33	—	33
Effect of netting and allocation of collateral(3)(4)	(1,179)	(298)	(21)	(1,498)
Total liabilities	$ —	$ 209	$ 75	$ 284

	Assets and Liabilities with Recurring Fair Value Measures as of December 31, 2018			
	Level 1	Level 2	Level 3	Total
	(in millions)			
Assets:				
Cash equivalents(1)	$ 168	$ —	$ —	$ 168
Commodity instruments:				
Commodity exchange traded derivatives contracts	933	—	—	933

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Commodity forward contracts[2]	—	338	212	550
Interest rate hedging instruments	—	40	—	40
Effect of netting and allocation of collateral[3][4]	(933)	(262)	(26)	(1,221)
Total assets	$ 168	$ 116	$ 186	$ 470
Liabilities:				
Commodity instruments:				
Commodity exchange traded derivatives contracts	$ 932	$ —	$ —	$ 932
Commodity forward contracts[2]	—	549	220	769
Interest rate hedging instruments	—	10	—	10
Effect of netting and allocation of collateral[3][4]	(932)	(310)	(26)	(1,268)
Total liabilities	$ —	$ 249	$ 194	$ 443

(1) At June 30, 2019 and December 31, 2018, we had cash equivalents of $16 million and $23 million included in cash and cash equivalents and $149 million and $145 million included in restricted cash, respectively.

(2) Includes OTC swaps and options.

(3) We offset fair value amounts recognized for derivative instruments executed with the same counterparty under a master netting arrangement for financial statement presentation; therefore, amounts recognized for the right to reclaim, or the obligation to return, cash collateral are presented net with the corresponding derivative instrument fair values. See Note 8 for further discussion of our derivative instruments subject to master netting arrangements.

(4) Cash collateral posted with (received from) counterparties allocated to level 1, level 2 and level 3 derivative instruments totaled $90 million, $55 million and $1 million, respectively, at June 30, 2019. Cash collateral posted with (received from) counterparties allocated to level 1, level 2 and level 3 derivative instruments totaled $(1) million, $48 million and nil, respectively, at December 31, 2018.

At June 30, 2019 and December 31, 2018, the derivative instruments classified as level 3 primarily included commodity contracts, which are classified as level 3 because the contract terms relate to a delivery location or tenor for which observable market rate information is not available. The fair value of the net derivative position classified as level 3 is predominantly driven by market commodity prices. The following table presents quantitative information for the unobservable inputs used in our most significant level 3 fair value measurements at June 30, 2019 and December 31, 2018:

Quantitative Information about Level 3 Fair Value Measurements

	June 30, 2019			
	Fair Value, Net Asset (Liability)	**Valuation Technique**	**Significant Unobservable Input**	**Range**
	(in millions)			
Power Contracts[1]	$ 190	Discounted cash flow	Market price (per MWh)	$ 7.09 — $123.34 /MWh
Power Congestion Products	$ 18	Discounted cash flow	Market price (per MWh)	$ (8.63) — $11.48 /MWh

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Natural Gas Contracts	$ 6	Discounted cash flow	Market price (per MMBtu)	$ 0.61 — $9.75 /MMBtu

	December 31, 2018			
	Fair Value, Net Asset (Liability)	Valuation Technique	Significant Unobservable Input	Range
	(in millions)			
Power Contracts[1]	$ 36	Discounted cash flow	Market price (per MWh)	$ 2.12 — $227.98 /MWh
Power Congestion Products	$ 26	Discounted cash flow	Market price (per MWh)	$(11.71) — $11.88 /MWh
Natural Gas Contracts	$ (73)	Discounted cash flow	Market price (per MMBtu)	$ 0.75 — $8.87 /MMBtu

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(1) Power contracts include power and heat rate instruments classified as level 3 in the fair value hierarchy.

The following table sets forth a reconciliation of changes in the fair value of our net derivative assets (liabilities) classified as level 3 in the fair value hierarchy for the periods indicated (in millions):

	Three Months Ended June 30,		Six Months Ended June 30,	
	2019	2018	2019	2018
Balance, beginning of period	$ 105	$ 129	$ (8)	$ 197
Realized and mark-to-market gains (losses):				
Included in net income (loss):				
Included in operating revenues[1]	152	31	197	(28)
Included in fuel and purchased energy expense[2]	1	18	2	15
Change in collateral	(1)	1	1	(1)
Purchases, Issuances and settlements:				
Purchases	1	5	3	9
Issuances	(1)	—	(1)	—
Settlements	(35)	(42)	28	(53)
Transfers in and/or out of level 3[3]:				
Transfers into level 3[4]	6	(1)	7	(1)
Transfers out of level 3[5]	(1)	(10)	(2)	(7)
Balance, end of period	$ 227	$ 131	$ 227	$ 131
Change in unrealized gains (losses) relating to instruments still held at end of period	$ 153	$ 49	$ 199	$ (13)

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(1) For power contracts and other power-related products, included on our Consolidated Condensed Statements of Operations.

(2) For natural gas and power contracts, swaps and options, included on our Consolidated Condensed Statements of Operations.

(3) We transfer amounts among levels of the fair value hierarchy as of the end of each period. There were no transfers into or out of level 1 for each of the three and six months ended June 30, 2019 and 2018.

(4) We had $6 million in gains and $(1) million in losses transferred out of level 2 into level 3 for the three months ended June 30, 2019 and 2018, respectively, and $7 million in gains and $(1) million in losses transferred out of level 2 into level 3 for the six months ended June 30, 2019 and 2018, respectively, due to changes in market liquidity in various power markets.

(5) We had $1 million and $10 million in gains transferred out of level 3 into level 2 for the three months ended June 30, 2019 and 2018, respectively, and $2 million and $7 million in gains transferred out of level 3 into level 2 for the six months ended June 30, 2019 and 2018, respectively, due to changes in market liquidity in various power markets.

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Derivative Instruments	6 Months Ended Jun. 30, 2019
Derivative Instruments and Hedging Activities Disclosure [Abstract]	
Derivative Instruments	

Derivative Instruments

Types of Derivative Instruments and Volumetric Information

Commodity Instruments — We are exposed to changes in prices for the purchase and sale of power, natural gas, fuel oil, environmental products and other energy commodities. We use derivatives, which include physical commodity contracts and financial commodity instruments such as OTC and exchange traded swaps, futures, options, forward agreements and instruments that settle on the power price to natural gas price relationships (Heat Rate swaps and options) or instruments that settle on power or natural gas price relationships between delivery points for the purchase and sale of power and natural gas to attempt to maximize the risk-adjusted returns by economically hedging a portion of the commodity price risk associated with our assets. By entering into these transactions, we are able to economically hedge a portion of our Spark Spread at estimated generation and prevailing price levels.

We also engage in limited trading activities related to our commodity derivative portfolio as authorized by our Board of Directors and monitored by our Chief Risk Officer and Risk Management Committee of senior management. These transactions are executed primarily for the purpose of providing improved price and price volatility discovery, greater market access, and profiting from our market knowledge, all of which benefit our asset hedging activities. Our trading results were not material for each of the three and six months ended June 30, 2019 and 2018.

Interest Rate Hedging Instruments — A portion of our debt is indexed to base rates, primarily LIBOR. We have historically used interest rate hedging instruments to adjust the mix between fixed and variable rate debt to hedge our interest rate risk for potential adverse changes in interest rates. As of June 30, 2019, the maximum length of time over which we were hedging using interest rate hedging instruments designated as cash flow hedges was 6 years.

As of June 30, 2019 and December 31, 2018, the net forward notional buy (sell) position of our outstanding commodity derivative instruments that did not qualify or were not designated under the normal purchase normal sale exemption and our interest rate hedging instruments were as follows:

	Notional Amounts		
Derivative Instruments	June 30, 2019	December 31, 2018	Unit of Measure
Power	(181)	(161)	Million MWh
Natural gas	1,048	1,045	Million MMBtu
Environmental credits	13	13	Million Tonnes
Interest rate hedging instruments	$ 4.3	$ 4.5	Billion U.S. dollars

Certain of our derivative instruments contain credit risk-related contingent provisions that require us to maintain collateral balances consistent with our credit ratings. If our credit rating were to be downgraded, it could require us to post additional collateral or could potentially allow our counterparty to request immediate, full settlement on certain derivative instruments in liability positions. The aggregate fair value of our derivative liabilities with credit risk-related contingent provisions as of June 30, 2019, was $230 million for which we have posted collateral of $171 million by posting margin deposits, letters of credit or granting additional first priority liens on the assets currently subject to first priority liens under our First Lien Notes, First Lien Term Loans

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and Corporate Revolving Facility. However, if our credit rating were downgraded by one notch from its current level, we estimate that additional collateral of $5 million related to our derivative liabilities would be required and that no counterparty could request immediate, full settlement.

Accounting for Derivative Instruments

We recognize all derivative instruments that qualify for derivative accounting treatment as either assets or liabilities and measure those instruments at fair value unless they qualify for, and we elect, the normal purchase normal sale exemption. For transactions in which we elect the normal purchase normal sale exemption, gains and losses are not reflected on our Consolidated Condensed Statements of Operations until the period of delivery. Revenues and expenses derived from instruments that qualified for hedge accounting or represent an economic hedge are recorded in the same financial statement line item as the item being hedged. Hedge accounting requires us to formally document, designate and assess the effectiveness of transactions that receive hedge accounting. We present the cash flows from our derivatives in the same category as the item being hedged (or economically hedged) within operating activities on our Consolidated Condensed Statements of Cash Flows unless they contain an other-than-insignificant financing element in which case their cash flows are classified within financing activities.

Cash Flow Hedges — We currently apply hedge accounting to our interest rate hedging instruments. We report the mark-to-market gain or loss on our interest rate hedging instruments designated and qualifying as a cash flow hedging instrument as a component of OCI and reclassify such gains and losses into earnings in the same period during which the hedged forecasted transaction affects earnings. Prior to January 1, 2019, gains and losses due to ineffectiveness on interest rate hedging instruments were recognized in earnings as a component of interest expense. Upon the adoption of Accounting Standards Update 2017-12 on January 1, 2019, hedge ineffectiveness is no longer separately measured and recorded in earnings. If it is determined that the forecasted transaction is no longer probable of occurring, then hedge accounting will be discontinued prospectively and future changes in fair value will be recorded in earnings. If the hedging instrument is terminated or de-designated prior to the occurrence of the hedged forecasted transaction, the net accumulated gain or loss associated with the changes in fair value of the hedge instrument remains deferred in AOCI until such time as the forecasted transaction affects earnings or until it is determined that the forecasted transaction is probable of not occurring.

Derivatives Not Designated as Hedging Instruments — We enter into power, natural gas, interest rate, environmental product and fuel oil transactions that primarily act as economic hedges to our asset and interest rate portfolio, but either do not qualify as hedges under the hedge accounting guidelines or qualify under the hedge accounting guidelines and the hedge accounting designation has not been elected. Changes in fair value of commodity derivatives not designated as hedging instruments are recognized currently in earnings and are separately stated on our Consolidated Condensed Statements of Operations in mark-to-market gain/loss as a component of operating revenues (for physical and financial power and Heat Rate and commodity option activity) and fuel and purchased energy expense (for physical and financial natural gas, power, environmental product and fuel oil activity). Changes in fair value of interest rate derivatives not designated as hedging instruments are recognized currently in earnings as interest expense.

Derivatives Included on Our Consolidated Condensed Balance Sheets

We offset fair value amounts associated with our derivative instruments and related cash collateral and margin deposits on our Consolidated Condensed Balance Sheets that are executed with the same counterparty under master netting arrangements. Our netting arrangements include a right to set off or net together purchases and sales of similar products in the margining or settlement process. In some instances, we have also negotiated cross commodity netting rights which allow for the net presentation of activity with a given counterparty regardless of product purchased or sold. We also post and/or receive cash collateral in support of our derivative instruments which may also be subject to a master netting arrangement with the same counterparty.

The following tables present the fair values of our derivative instruments and our net exposure after offsetting amounts subject to a master netting arrangement with the same

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counterparty to our derivative instruments recorded on our Consolidated Condensed Balance Sheets by location and hedge type at June 30, 2019 and December 31, 2018 (in millions):

	June 30, 2019		
	Gross Amounts of Assets and (Liabilities)	Gross Amounts Offset on the Consolidated Condensed Balance Sheets	Net Amount Presented on the Consolidated Condensed Balance Sheets[1]
Derivative assets:			
Commodity exchange traded derivatives contracts	$ 861	$ (861)	$ —
Commodity forward contracts	388	(188)	200
Interest rate hedging instruments	5	(3)	2
Total current derivative assets[2]	$ 1,254	$ (1,052)	$ 202
Commodity exchange traded derivatives contracts	228	(228)	—
Commodity forward contracts	284	(71)	213
Interest rate hedging instruments	1	(1)	—
Total long-term derivative assets[2]	$ 513	$ (300)	$ 213
Total derivative assets	$ 1,767	$ (1,352)	$ 415
Derivative (liabilities):			
Commodity exchange traded derivatives contracts	$ (861)	$ 861	$ —
Commodity forward contracts	(393)	234	(159)
Interest rate hedging instruments	(9)	3	(6)
Total current derivative (liabilities)[2]	$ (1,263)	$ 1,098	$ (165)
Commodity exchange traded derivatives contracts	(318)	318	—
Commodity forward contracts	(177)	81	(96)
Interest rate hedging instruments	(24)	1	(23)
Total long-term derivative (liabilities)[2]	$ (519)	$ 400	$ (119)
Total derivative liabilities	$ (1,782)	$ 1,498	$ (284)
Net derivative assets (liabilities)	$ (15)	$ 146	$ 131

	December 31, 2018		
	Gross Amounts of Assets and (Liabilities)	Gross Amounts Offset on the Consolidated Condensed Balance Sheets	Net Amount Presented on the Consolidated Condensed Balance Sheets[1]
Derivative assets:			
Commodity exchange traded derivatives contracts	$ 820	$ (820)	$ —
Commodity forward contracts	341	(229)	112
Interest rate hedging instruments	30	—	30
Total current derivative assets[3]	$ 1,191	$ (1,049)	$ 142
Commodity exchange traded derivatives contracts	113	(113)	—
Commodity forward contracts	209	(59)	150

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Interest rate hedging instruments	10	—	10
Total long-term derivative assets[3]	$ 332	$ (172)	$ 160
Total derivative assets	$ 1,523	$ (1,221)	$ 302
Derivative (liabilities):			
Commodity exchange traded derivatives contracts	$ (764)	$ 764	$ —
Commodity forward contracts	(576)	277	(299)
Interest rate hedging instruments	(4)	—	(4)
Total current derivative (liabilities)[3]	$ (1,344)	$ 1,041	$ (303)
Commodity exchange traded derivatives contracts	(168)	168	—
Commodity forward contracts	(193)	59	(134)
Interest rate hedging instruments	(6)	—	(6)
Total long-term derivative (liabilities)[3]	$ (367)	$ 227	$ (140)
Total derivative liabilities	$ (1,711)	$ 1,268	$ (443)
Net derivative assets (liabilities)	$ (188)	$ 47	$ (141)

(1) At June 30, 2019 and December 31, 2018, we had $142 million and $244 million, respectively, of collateral under master netting arrangements that were not offset against our derivative instruments on the Consolidated Condensed Balance Sheets primarily related to initial margin requirements.

(2) At June 30, 2019, current and long-term derivative assets are shown net of collateral of $(27) million and $(3) million, respectively, and current and long-term derivative liabilities are shown net of collateral of $72 million and $104 million, respectively.

(3) At December 31, 2018, current and long-term derivative assets are shown net of collateral of $(58) million and $(8) million, respectively, and current and long-term derivative liabilities are shown net of collateral of $49 million and $64 million, respectively.

	June 30, 2019		December 31, 2018	
	Fair Value of Derivative Assets	Fair Value of Derivative Liabilities	Fair Value of Derivative Assets	Fair Value of Derivative Liabilities
Derivatives designated as cash flow hedging instruments:				
Interest rate hedging instruments	$ 2	$ 27	$ 40	$ 10
Total derivatives designated as cash flow hedging instruments	$ 2	$ 27	$ 40	$ 10
Derivatives not designated as hedging instruments:				
Commodity instruments	$ 413	$ 255	$ 262	$ 433
Interest rate hedging instruments	—	2	—	—
Total derivatives not designated as hedging instruments	$ 413	$ 257	$ 262	$ 433
Total derivatives	$ 415	$ 284	$ 302	$ 443

Derivatives Included on Our Consolidated Condensed Statements of Operations

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Changes in the fair values of our derivative instruments are reflected either in cash for option premiums paid or collected, in OCI, net of tax, for derivative instruments which qualify for and we have elected cash flow hedge accounting treatment, or on our Consolidated Condensed Statements of Operations as a component of mark-to-market activity within our earnings.

The following tables detail the components of our total activity for both the net realized gain (loss) and the net mark-to-market gain (loss) recognized from our derivative instruments in earnings and where these components were recorded on our Consolidated Condensed Statements of Operations for the periods indicated (in millions):

	Three Months Ended June 30,		Six Months Ended June 30,	
	2019	2018	2019	2018
Realized gain (loss)[1][2]				
Commodity derivative instruments	$ 58	$ 69	$ 169	$ 66
Total realized gain (loss)	$ 58	$ 69	$ 169	$ 66
Mark-to-market gain (loss)[3]				
Commodity derivative instruments	$ 187	$ 188	$ 233	$ (183)
Interest rate hedging instruments	(1)	1	(2)	3
Total mark-to-market gain (loss)	$ 186	$ 189	$ 231	$ (180)
Total activity, net	$ 244	$ 258	$ 400	$ (114)

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(1) Does not include the realized value associated with derivative instruments that settle through physical delivery.

(2) Includes amortization of acquisition date fair value of financial derivative activity related to the acquisition of Champion Energy and Calpine Solutions.

(3) In addition to changes in market value on derivatives not designated as hedges, changes in mark-to-market gain (loss) also includes adjustments to reflect changes in credit default risk exposure.

	Three Months Ended June 30,		Six Months Ended June 30,	
	2019	2018	2019	2018
Realized and mark-to-market gain (loss)[1]				
Derivatives contracts included in operating revenues[2][3]	$ 541	$ 183	$ 578	$ (176)
Derivatives contracts included in fuel and purchased energy expense[2][3]	(296)	74	(176)	59
Interest rate hedging instruments included in interest expense	(1)	1	(2)	3
Total activity, net	$ 244	$ 258	$ 400	$ (114)

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(1) In addition to changes in market value on derivatives not designated as hedges, changes in mark-to-market gain (loss) also includes adjustments to reflect changes in credit default risk exposure.

(2) Does not include the realized value associated with derivative instruments that settle through physical delivery.

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(3) Includes amortization of acquisition date fair value of financial derivative activity related to the acquisition of Champion Energy and Calpine Solutions.

Derivatives Included in OCI and AOCI

The following table details the effect of our net derivative instruments that qualified for hedge accounting treatment and are included in OCI and AOCI for the periods indicated (in millions):

	Three Months Ended June 30, Gain (Loss) Recognized in OCI		Three Months Ended June 30, Gain (Loss) Reclassified from AOCI into Income[3][4]		
	2019	2018	2019	2018	Affected Line Item on the Consolidated Condensed Statements of Operations
Interest rate hedging instruments[1][2]	$ (32)	$ 15	$ 3	$ —	Interest expense
Total	$ (32)	$ 15	$ 3	$ —	

	Six Months Ended June 30, Gain (Loss) Recognized in OCI		Six Months Ended June 30, Gain (Loss) Reclassified from AOCI into Income[3][4]		
	2019	2018	2019	2018	Affected Line Item on the Consolidated Condensed Statements of Operations
Interest rate hedging instruments[1][2]	$ (57)	$ 69	$ 5	$ (6)	Interest expense
Interest rate hedging instruments[1][2]	—	1	—	(1)	Depreciation and amortization expense
Total	$ (57)	$ 70	$ 5	$ (7)	

(1) We recorded $1 million in gains on hedge ineffectiveness related to our interest rate hedging instruments designated as cash flow hedges during each of the three and six months ended June 30, 2018. Upon the adoption of Accounting Standards Update 2017-12 on January 1, 2019, hedge ineffectiveness is no longer separately measured and recorded in earnings.

(2) We recorded an income tax benefit of $1 million and $7 million for the three months ended June 30, 2019 and 2018, respectively, and income tax benefit of $1 million and income tax expense of $4 million for the six months ended June 30, 2019 and 2018, respectively, in AOCI related to our cash flow hedging activities.

(3) Cumulative cash flow hedge losses attributable to Calpine, net of tax, remaining in AOCI were $89 million and $34 million at June 30, 2019 and December 31, 2018, respectively. Cumulative cash flow hedge losses attributable to the noncontrolling interest, net of tax, remaining in AOCI were $4 million and $3 million at June 30, 2019 and December 31, 2018, respectively.

(4) Includes losses (gains) of nil that were reclassified from AOCI to interest expense for the three months ended June 30, 2019 and 2018, and losses of $1 million and nil that were reclassified from AOCI to interest expense for the six months ended June 30, 2019 and 2018, respectively, where the hedged transactions became probable of not occurring.

We estimate that pre-tax net losses of $20 million would be reclassified from AOCI into interest expense during the next 12 months as the hedged transactions settle; however, the actual amounts that will be reclassified will likely vary based on changes in interest rates. Therefore, we are unable to predict what the actual reclassification from AOCI into earnings (positive or negative) will be for the next 12 months.

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Use of Collateral	6 Months Ended Jun. 30, 2019
Use of Collateral [Abstract]	
Use of Collateral [Text Block]	**Use of Collateral**

We use margin deposits, prepayments and letters of credit as credit support with and from our counterparties for commodity procurement and risk management activities. In addition, we have granted additional first priority liens on the assets currently subject to first priority liens under various debt agreements as collateral under certain of our power and natural gas agreements and certain of our interest rate hedging instruments in order to reduce the cash collateral and letters of credit that we would otherwise be required to provide to the counterparties under such agreements. The counterparties under such agreements share the benefits of the collateral subject to such first priority liens pro rata with the lenders under our various debt agreements.

The table below summarizes the balances outstanding under margin deposits, natural gas and power prepayments, and exposure under letters of credit and first priority liens for commodity procurement and risk management activities as of June 30, 2019 and December 31, 2018 (in millions):

	June 30, 2019		December 31, 2018	
Margin deposits[1]	$	373	$	343
Natural gas and power prepayments		34		31
Total margin deposits and natural gas and power prepayments with our counterparties[2]	$	407	$	374
Letters of credit issued	$	900	$	1,166
First priority liens under power and natural gas agreements		42		92
First priority liens under interest rate hedging instruments		29		10
Total letters of credit and first priority liens with our counterparties	$	971	$	1,268
Margin deposits posted with us by our counterparties[1][3]	$	85	$	52
Letters of credit posted with us by our counterparties		31		27
Total margin deposits and letters of credit posted with us by our counterparties	$	116	$	79

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(1) We offset fair value amounts recognized for derivative instruments executed with the same counterparty under a master netting arrangement for financial statement presentation; therefore, amounts recognized for the right to reclaim, or the obligation to return, cash collateral are presented net with the corresponding derivative instrument fair values. See Note 8 for further discussion of our derivative instruments subject to master netting arrangements.

(2) At June 30, 2019 and December 31, 2018, $162 million and $79 million, respectively, were included in current and long-term derivative assets and liabilities, $237 million and $286 million, respectively, were included in margin deposits and other prepaid expense and $8 million and $9 million, respectively, were included in other assets on our Consolidated Condensed Balance Sheets.

(3) At June 30, 2019 and December 31, 2018, $16 million and $32 million, respectively, were included in current and long-term derivative assets and liabilities, $28 million and $20 million, respectively, were included in other current liabilities and $41 million and nil,

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respectively, were included in other long-term liabilities on our Consolidated Condensed Balance Sheets.

Future collateral requirements for cash, first priority liens and letters of credit may increase or decrease based on the extent of our involvement in hedging and optimization contracts, movements in commodity prices, and also based on our credit ratings and general perception of creditworthiness in our market.

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Income Taxes	6 Months Ended Jun. 30, 2019
Income Tax Disclosure [Abstract]	
Income Taxes	

Income Taxes

Income Tax Expense (Benefit)

The table below shows our consolidated income tax expense (benefit) and our effective tax rates for the periods indicated (in millions):

	Three Months Ended June 30,		Six Months Ended June 30,	
	2019	2018	2019	2018
Income tax expense (benefit)	$ 9	$ (158)	$ 19	$ (50)
Effective tax rate	3%	(81)%	4%	17%

Our income tax rates do not bear a customary relationship to statutory income tax rates primarily as a result of the effect of our NOLs, changes in unrecognized tax benefits and valuation allowances. For the three and six months ended June 30, 2019 and 2018, our income tax expense (benefit) is largely comprised of discrete tax items and estimated state and foreign income taxes in jurisdictions where we do not have NOLs or valuation allowances.

Income Tax Audits — We remain subject to periodic audits and reviews by taxing authorities; however, we do not expect these audits will have a material effect on our tax provision. Any NOLs we claim in future years to reduce taxable income could be subject to IRS examination regardless of when the NOLs were generated. Any adjustment of state or federal returns could result in a reduction of deferred tax assets rather than a cash payment of income taxes in tax jurisdictions where we have NOLs. We are currently under various state income tax audits for various periods. Our Canadian subsidiaries are currently under examination by the Canada Revenue Agency for the years ended December 31, 2013 through 2016.

Valuation Allowance — U.S. GAAP requires that we consider all available evidence, both positive and negative, and tax planning strategies to determine whether, based on the weight of that evidence, a valuation allowance is needed to reduce the value of deferred tax assets. Future realization of the tax benefit of an existing deductible temporary difference or carryforward ultimately depends on the existence of sufficient taxable income of the appropriate character within the carryback or carryforward periods available under the tax law. Due to our history of losses, we were unable to assume future profits; however, we are able to consider available tax planning strategies.

Limitation on Deduction of Net Business Interest Expense — On November 26, 2018, the U.S. Treasury Department released proposed regulations which would limit the current deductibility of net business interest expense. The proposed regulations would be applicable for taxable years ending after the date on which the regulations become final. Companies have the discretion to apply the proposed regulations, but must apply all such provisions of the proposed regulations on a consistent basis. As of June 30, 2019, we have not elected to apply the proposed regulations for the 2018 or 2019 tax years and we do not expect the application of the final regulations will have a material effect on our Consolidated Condensed Financial Statements.

Unrecognized Tax Benefits — At June 30, 2019, we had unrecognized tax benefits of $29 million. If recognized, $17 million of our unrecognized tax benefits could affect the annual effective tax rate and $12 million, related to deferred tax assets, could be offset against the recorded valuation allowance resulting in no effect on our effective tax rate. We had accrued interest and penalties of $3 million for income tax matters at June 30, 2019. We recognize interest and

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penalties related to unrecognized tax benefits in income tax expense (benefit) on our Consolidated Condensed Statements of Operations. We believe that it is reasonably possible that a decrease within the range of nil and $8 million in unrecognized tax benefits could occur within the next twelve months primarily related to state tax issues.

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Commitments and Contingencies	6 Months Ended Jun. 30, 2019
Commitments and Contingencies Disclosure [Abstract]	
Commitments and Contingencies	**Commitments and Contingencies** ***Litigation*** We are party to various litigation matters, including regulatory and administrative proceedings arising out of the normal course of business. At the present time, we do not expect that the outcome of any of these proceedings, individually or in the aggregate, will have a material adverse effect on our financial condition, results of operations or cash flows. On a quarterly basis, we review our litigation activities and determine if an unfavorable outcome to us is considered “remote,” “reasonably possible” or “probable” as defined by U.S. GAAP. Where we determine an unfavorable outcome is probable and is reasonably estimable, we accrue for potential litigation losses. The liability we may ultimately incur with respect to such litigation matters, in the event of a negative outcome, may be in excess of amounts currently accrued, if any; however, we do not expect that the reasonably possible outcome of these litigation matters would, individually or in the aggregate, have a material adverse effect on our financial condition, results of operations or cash flows. Where we determine an unfavorable outcome is not probable or reasonably estimable, we do not accrue for any potential litigation loss. The ultimate outcome of these litigation matters cannot presently be determined, nor can the liability that could potentially result from a negative outcome be reasonably estimated. As a result, we give no assurance that such litigation matters would, individually or in the aggregate, not have a material adverse effect on our financial condition, results of operations or cash flows. ***Environmental Matters*** We are subject to complex and stringent environmental laws and regulations related to the operation of our power plants. On occasion, we may incur environmental fees, penalties and fines associated with the operation of our power plants. At the present time, we do not have environmental violations or other matters that would have a material effect on our financial condition, results of operations or cash flows or that would significantly change our operations. ***Guarantees and Indemnifications*** Our potential exposure under guarantee and indemnification obligations can range from a specified amount to an unlimited dollar amount, depending on the nature of the claim and the particular transaction. Our total maximum exposure under our guarantee and indemnification obligations is not estimable due to uncertainty as to whether claims will be made or how any potential claim will be resolved. As of June 30, 2019, there are no material outstanding claims related to our guarantee and indemnification obligations and we do not anticipate that we will be required to make any material payments under our guarantee and indemnification obligations. There have been no material changes to our guarantees and indemnifications from those disclosed in Note 16 of our 2018 Form 10-K.

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Related Party Transactions	6 Months Ended Jun. 30, 2019
Related Party Transactions [Abstract]	
Related Party Transactions Disclosure [Text Block]	

Related Party Transactions

We have entered into various agreements with related parties associated with the operation of our business. A description of these related party transactions is provided below:

Calpine Receivables — Under the Accounts Receivable Sales Program, at June 30, 2019 and December 31, 2018, we had $244 million and $238 million, respectively, in trade accounts receivable outstanding that were sold to Calpine Receivables and $57 million and $34 million, respectively, in notes receivable from Calpine Receivables which were recorded on our Consolidated Condensed Balance Sheets. During the six months ended June 30, 2019 and 2018, we sold an aggregate of $1.1 billion and $1.1 billion, respectively, in trade accounts receivable and recorded $1.1 billion and $1.1 billion, respectively, in proceeds. For a further discussion of the Accounts Receivable Sales Program and Calpine Receivables, see Notes 7 and 17 in our 2018 Form 10-K.

Lyondell — We have a ground lease agreement with Houston Refining LP ("Houston Refining"), a subsidiary of Lyondell, for our Channel Energy Center site from which we sell power, capacity and steam to Houston Refining under a PPA. We purchase refinery gas and raw water from Houston Refining under a facilities services agreement. One of the entities which obtained an ownership interest in Calpine through the Merger also has an ownership interest in Lyondell whereby they may significantly influence the management and operating policies of Lyondell. The terms of the PPA with Lyondell were negotiated prior to the Merger closing. We recorded $17 million and $19 million in Commodity revenue during the three months ended June 30, 2019 and 2018, respectively, and $37 million and $38 million in Commodity revenue during the six months ended June 30, 2019 and 2018, associated with this contract with Lyondell. We recorded $4 million and $4 million in Commodity expense during the three months ended June 30, 2019 and 2018, respectively, and $7 million and $6 million in Commodity expense during the six months ended June 30, 2019 and 2018, associated with this contract with Lyondell. At June 30, 2019 and December 31, 2018, the related party receivable and payable associated with this contract with Lyondell were immaterial.

Other — Following the Merger, we have identified other related party contracts for the sale of power, capacity and RECs which are entered into in the ordinary course of our business. Most of these contracts relate to the sale of commodities and capacity for varying tenors. The terms of most of these contracts were negotiated prior to the Merger. As of June 30, 2019 and December 31, 2018, the related party receivables and payables associated with these transactions were immaterial.

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Segment Information

Segment Reporting [Abstract]

Segment Information

6 Months Ended Jun. 30, 2019

Segment Information

We assess our business on a regional basis due to the effect on our financial performance of the differing characteristics of these regions, particularly with respect to competition, regulation and other factors affecting supply and demand. At June 30, 2019, our geographic reportable segments for our wholesale business are West (including geothermal), Texas and East (including Canada) and we have a separate reportable segment for our retail business. We continue to evaluate the optimal manner in which we assess our performance including our segments and future changes may result in changes to the composition of our geographic segments.

Commodity Margin is a key operational measure of profit reviewed by our chief operating decision maker to assess the performance of our segments. The tables below show financial data for our segments (including a reconciliation of our Commodity Margin to income (loss) from operations by segment) for the periods indicated (in millions):

	Three Months Ended June 30, 2019					
	Wholesale				Consolidation	
	West	Texas	East	Retail	Elimination	Total
Total operating revenues[1]	$ 649	$ 899	$ 646	$ 1,082	$ (677)	$ 2,599
Commodity Margin	$ 251	$ 173	$ 235	$ 93	$ —	$ 752
Add: Mark-to-market commodity activity, net and other[2]	58	240	94	(182)	(10)	200
Less:						
Operating and maintenance expense	84	66	72	33	(10)	245
Depreciation and amortization expense	60	54	48	13	—	175
General and other administrative expense	5	15	10	4	—	34
Other operating expenses	7	1	11	—	—	19
Impairment losses	—	—	40	—	—	40
(Income) from unconsolidated subsidiaries	—	—	(6)	1	—	(5)
Income (loss) from operations	153	277	154	(140)	—	444
Interest expense						157
Gain on extinguishment of debt and other (income) expense, net						8
Income before income taxes						$ 279

Three Months Ended June 30, 2018

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	Wholesale				Consolidation	
	West	Texas	East	Retail	Elimination	Total
Total operating revenues[1]	$ 355	$ 993	$ 341	$ 935	$ (365)	$ 2,259
Commodity Margin	$ 241	$ 151	$ 225	$ 77	$ —	$ 694
Add: Mark-to-market commodity activity, net and other[2]	(23)	301	(7)	(67)	(8)	196
Less:						
Operating and maintenance expense	80	65	65	41	(9)	242
Depreciation and amortization expense	67	57	49	13	—	186
General and other administrative expense	5	13	8	5	—	31
Other operating expenses	8	3	8	—	—	19
(Income) from unconsolidated subsidiaries	—	—	(6)	1	—	(5)
Income (loss) from operations	58	314	94	(50)	1	417
Interest expense						157
Other (income) expense, net						62
Income before income taxes						$ 198

	Six Months Ended June 30, 2019					
	Wholesale				Consolidation	
	West	Texas	East	Retail	Elimination	Total
Total operating revenues[3]	$ 1,331	$ 1,642	$ 1,335	$ 2,080	$ (1,190)	$ 5,198
Commodity Margin	$ 515	$ 335	$ 500	$ 181	$ —	$ 1,531
Add: Mark-to-market commodity activity, net and other[4]	114	284	107	(235)	(18)	252
Less:						
Operating and maintenance expense	165	131	139	67	(18)	484
Depreciation and amortization expense	133	99	91	26	—	349
General and other administrative expense	12	27	19	8	—	66
Other operating expenses	16	3	19	—	—	38
Impairment losses	—	—	55	—	—	55
(Income) from unconsolidated subsidiaries	—	—	(12)	1	—	(11)

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	West	Texas	East	Retail	Consolidation Elimination	Total
Income (loss) from operations	303	359	296	(156)	—	802
Interest expense						306
Gain on extinguishment of debt and other (income) expense, net						27
Income before income taxes						$ 469

	Six Months Ended June 30, 2018					
	Wholesale				Consolidation	
	West	Texas	East	Retail	Elimination	Total
Total operating revenues[3]	$ 835	$ 1,133	$ 955	$ 1,873	$ (528)	$ 4,268
Commodity Margin	$ 426	$ 317	$ 409	$ 154	$ —	$ 1,306
Add: Mark-to-market commodity activity, net and other[4]	(10)	(246)	33	61	(15)	(177)
Less:						
Operating and maintenance expense	170	145	136	81	(15)	517
Depreciation and amortization expense	134	133	94	26	—	387
General and other administrative expense	21	38	23	9	—	91
Other operating expenses	22	19	15	—	—	56
(Income) from unconsolidated subsidiaries	—	—	(12)	1	—	(11)
Income (loss) from operations	69	(264)	186	98	—	89
Interest expense						308
Other (income) expense, net						69
Loss before income taxes						$ (288)

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(1) Includes intersegment revenues of $100 million and $70 million in the West, $348 million and $276 million in Texas, $228 million and $18 million in the East and $1 million and $1 million in Retail for the three months ended June 30, 2019 and 2018, respectively.

(2) Includes $(19) million and $(19) million of lease levelization and $18 million and $25 million of amortization expense for the three months ended June 30, 2019 and 2018, respectively.

(3) Includes intersegment revenues of $262 million and $184 million in the West, $559 million and $209 million in Texas, $365 million and $133 million in the East and $4 million and $2 million in Retail for the six months ended June 30, 2019 and 2018, respectively.

(4) Includes $(35) million and $(35) million of lease levelization and $39 million and $53 million of amortization expense for the six months ended June 30, 2019 and 2018, respectively.

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Basis of Presentation and Summary of Significant Accounting Policies (Policies)	6 Months Ended
	Jun. 30, 2019
Accounting Policies [Abstract]	
Basis of interim presentation	*Basis of Interim Presentation* — The accompanying unaudited, interim Consolidated Condensed Financial Statements of Calpine Corporation, a Delaware corporation, and consolidated subsidiaries have been prepared pursuant to the rules and regulations of the SEC. In the opinion of management, the Consolidated Condensed Financial Statements include the normal, recurring adjustments necessary for a fair statement of the information required to be set forth therein. Certain information and note disclosures, normally included in financial statements prepared in accordance with U.S. GAAP, have been condensed or omitted from these statements pursuant to such rules and regulations and, accordingly, these financial statements should be read in conjunction with our audited Consolidated Financial Statements for the year ended December 31, 2018, included in our 2018 Form 10-K. The results for interim periods are not indicative of the results for the entire year primarily due to acquisitions and disposals of assets, seasonal fluctuations in our revenues and expenses, timing of major maintenance expense, variations resulting from the application of the method to calculate the provision for income tax for interim periods, volatility of commodity prices and mark-to-market gains and losses from commodity and interest rate derivative contracts.
Use of estimates in preparation of financial statements	*Use of Estimates in Preparation of Financial Statements* — The preparation of financial statements in conformity with U.S. GAAP requires management to make estimates and assumptions that affect the reported amounts of assets, liabilities, revenues, expenses and related disclosures included in our Consolidated Condensed Financial Statements. Actual results could differ from those estimates.
Reclassification, Policy [Policy Text Block]	*Reclassifications* — We have reclassified certain prior period amounts for comparative purposes. These reclassifications did not have a material effect on our financial condition, results of operations or cash flows.
Cash and cash equivalents	*Cash and Cash Equivalents* — We consider all highly liquid investments with an original maturity of three months or less to be cash equivalents. We have cash and cash equivalents held in non-corporate accounts relating to certain project finance facilities and lease agreements that require us to establish and maintain segregated cash accounts. These accounts have been pledged as security in favor of the lenders under such project finance facilities, and the use of certain cash balances on deposit in such accounts is limited, at least temporarily, to the operations of the respective projects.
Restricted cash	*Restricted Cash* — Certain of our debt agreements, lease agreements or other operating agreements require us to establish and maintain segregated cash accounts, the use of which is restricted, making these cash funds unavailable for general use. These amounts are held by depository banks in order to comply with the contractual provisions requiring reserves for payments such as for debt service, rent and major maintenance or with applicable regulatory requirements. Funds that can be used to satisfy obligations due during the next 12 months are classified as current restricted cash, with the remainder classified as non-current restricted cash. Restricted cash is generally invested in accounts earning market rates; therefore, the carrying value approximates fair value. Such cash is excluded from cash and cash equivalents on our Consolidated Condensed Balance Sheets.
Business Interruption Proceeds [Policy Text Block]	*Business Interruption Proceeds* — We record business interruption insurance proceeds in operating revenues when they are realizable.
New accounting pronouncements, policy	*Leases* — On January 1, 2019, we adopted Accounting Standards Update 2016-02, "Leases" ("Topic 842"). The comprehensive new lease standard superseded all existing lease

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guidance. The standard requires that a lessee should recognize a right-of-use asset and a lease liability for substantially all operating leases based on the present value of the minimum rental payments. For lessors, the accounting for leases under Topic 842 remained substantially unchanged. The standard also requires expanded disclosures surrounding leases. We adopted the standards under Topic 842 using the modified retrospective method and elected a number of the practical expedients in our implementation of Topic 842. The key change that affected us relates to our accounting for operating leases for which we are the lessee that were historically off-balance sheet. The impact of adopting the standards resulted in the recognition of a right-of-use asset and lease obligation liability of $191 million on our Consolidated Condensed Balance Sheet on January 1, 2019, exclusive of previously recognized lease balances. The implementation of Topic 842 did not have a material effect on our Consolidated Condensed Statement of Operations or Consolidated Condensed Statement of Cash Flows for the six months ended June 30, 2019. See Note 3 for a discussion of the practical expedients we elected and additional disclosures required by Topic 842.

Derivatives and Hedging — In August 2017, the FASB issued Accounting Standards Update 2017-12, "Targeted Improvements to Accounting for Hedging Activities." The standard better aligns an entity's hedging activities and financial reporting for hedging relationships through changes to both the designation and measurement guidance for qualifying hedging relationships and the presentation of hedge results in the financial statements. The standard will prospectively make hedge accounting easier to apply to hedging activities and also enhances disclosure requirements for how hedge transactions are reflected in the financial statements when hedge accounting is elected. We adopted Accounting Standards Update 2017-12 in the first quarter of 2019 which did not have a material effect on our financial condition, results of operations or cash flows.

Fair Value Measurements — In August 2018, the FASB issued Accounting Standards Update 2018-13, "Disclosure Framework – Changes to the Disclosure Requirements for Fair Value Measurement." The standard removes, modifies and adds disclosures about fair value measurements and is effective for fiscal years beginning after December 15, 2019. The changes required by this standard to remove or modify disclosures may be early adopted with adoption of the additional disclosures required by this standard delayed until their effective date. We do not anticipate a material effect on our financial condition, results of operations or cash flows as a result of adopting this standard.

Lessee, Leases [Policy Text Block]

Accounting for Leases – Lessee

We evaluate contracts for lease accounting at contract inception and assess lease classification at the lease commencement date. For our leases, we recognize a right-of-use asset and corresponding lease obligation liability at the lease commencement date where the lease obligation liability is measured at the present value of the minimum lease payments. For our operating leases, the amortization of the right-of-use asset and the accretion of our lease obligation liability result in a single straight-line expense recognized over the lease term.

We determine the discount rate associated with our operating and finance leases using our incremental borrowing rate at lease commencement. For our operating leases, we use an interest rate commensurate with the interest rate to borrow on a collateralized basis over a similar term with an amount equal to the lease payments. Factors management considers in the calculation of the discount rate include the amount of the borrowing, the lease term including options that are reasonably certain of exercise, the current interest rate environment and the credit rating of the entity. For our finance leases, we use the interest rate commensurate with the interest rate for a project finance borrowing arrangement with a similar collateral package, repayment terms, restrictive covenants and guarantees.

Our operating leases are primarily related to office space for our corporate and regional offices as well as land and operating related leases for our power plants. Additionally, one of our power plants is accounted for as a long-term operating lease. Payments made by Calpine on this lease are recognized on a straight-line basis with capital improvements associated with our leased power plant deemed leasehold improvements that are amortized over the shorter of the term of

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the lease or the economic life of the capital improvement. Several of our leases contain renewal options held by us to extend the lease term. The inclusion of these renewal periods in the lease term and in the minimum lease payments included in our lease liabilities is dependent on specific facts and circumstances for each lease and whether it is determined to be reasonably certain that we will exercise our option to extend the term. Our office, land and other operating leases do not contain any material restrictive covenants or residual value guarantees.

We have entered into finance leases for certain power plants and related equipment with terms that range up to 30 years (including lease renewal options). The finance leases generally provide for the lessee to pay taxes, maintenance, insurance, and certain other operating costs of the leased property.

In connection with our adoption of Topic 842 on January 1, 2019, we elected certain practical expedients that were available under the new lease standards including:

- we elected not to separate lease and nonlease components for our current classes of underlying leased assets as the lessee;
- we did not evaluate existing and expired land easements that were not previously accounted for as leases prior to January 1, 2019; and
- we did not reassess the classification of leases, the accounting for initial direct costs or whether contractual arrangements contained a lease for all contracts that expired or commenced prior to January 1, 2019.

Further, upon the adoption of Topic 842, we made an accounting policy election to not recognize lease assets and liabilities for leases with a term of 12 months or less. We do not have any material subleases associated with our operating and finance leases.

Lessor, Leases [Policy Text Block]

Accounting for Leases – Lessor

We apply lease accounting to PPAs that meet the definition of a lease and determine lease classification treatment at commencement of the agreement. We currently do not have any contracts which are accounted for as sales-type leases or direct financing leases and all of our leases as the lessor are classified as operating leases. As part of the implementation of Topic 842, we elected the practical expedient to not reassess leases that have commenced prior to January 1, 2019.

Revenue from contracts accounted for as operating leases, such as certain tolling agreements, with minimum lease rentals (capacity payments) which vary over time must be levelized. Generally, we levelize these contract revenues on a straight-line basis over the term of the contract. Our operating leases that have commenced contain terms extending through December 2034. These contracts also generally contain variable payment components based on generation volumes or operating efficiency over a period of time. Revenues associated with the variable payments are recognized over time as the goods or services are provided to the lessee. Our operating leases generally do not contain renewal or purchase options or residual value guarantees. We have elected to not separate our lease and non-lease components as the lease components reflect the predominant characteristics of these agreements.

Consolidation, Variable Interest Entity, Policy [Policy Text Block]

We consolidate all of our VIEs where we have determined that we are the primary beneficiary.

We have a 50% partnership interest in Greenfield LP and in Whitby. Greenfield LP and Whitby are VIEs; however, we do not have the power to direct the most significant activities of these entities and therefore do not consolidate them. Greenfield LP is a limited partnership between certain subsidiaries of ours and of Mitsui & Co., Ltd., which operates the Greenfield Energy Centre, a 1,038 MW natural gas-fired, combined-cycle power plant located in Ontario,

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Canada. We and Mitsui & Co., Ltd. each hold a 50% interest in Greenfield LP. Whitby is a limited partnership between certain of our subsidiaries and Atlantic Packaging Ltd., which operates the Whitby facility, a 50 MW natural gas-fired, simple-cycle cogeneration power plant located in Ontario, Canada. We and Atlantic Packaging Ltd. each hold a 50% partnership interest in Whitby.

Calpine Receivables is a VIE and a bankruptcy remote entity created for the special purpose of purchasing trade accounts receivable from Calpine Solutions under the Accounts Receivable Sales Program. We have determined that we do not have the power to direct the activities of the VIE that most significantly affect the VIE's economic performance nor the obligation to absorb losses or receive benefits from the VIE. Accordingly, we have determined that we are not the primary beneficiary of Calpine Receivables because we do not have the power to affect its financial performance as the unaffiliated financial institutions that purchase the receivables from Calpine Receivables control the selection criteria of the receivables sold and appoint the servicer of the receivables which controls management of default. Thus, we do not consolidate Calpine Receivables in our Consolidated Condensed Financial Statements and use the equity method of accounting to record our net interest in Calpine Receivables.

We account for these entities under the equity method of accounting and include our net equity interest in investments in unconsolidated subsidiaries on our Consolidated Condensed Balance Sheets.

Fair Value of Financial Instruments, Policy [Policy Text Block]

Our Senior Unsecured Notes, First Lien Term Loans, First Lien Notes, CCFC Term Loan and Corporate Revolving Facility are categorized as level 2 within the fair value hierarchy. Our project financing, notes payable and other debt instruments are categorized as level 3 within the fair value hierarchy. We do not have any debt instruments with fair value measurements categorized as level 1 within the fair value hierarchy.

Cash Equivalents — Highly liquid investments which meet the definition of cash equivalents, primarily investments in money market accounts and other interest-bearing accounts, are included in both our cash and cash equivalents and our restricted cash on our Consolidated Condensed Balance Sheets. Certain of our money market accounts invest in U.S. Treasury securities or other obligations issued or guaranteed by the U.S. Government, its agencies or instrumentalities. We do not have any cash equivalents invested in institutional prime money market funds which require use of a floating net asset value and are subject to liquidity fees and redemption restrictions. Certain of our cash equivalents are classified within level 1 of the fair value hierarchy.

Derivatives — The primary factors affecting the fair value of our derivative instruments at any point in time are the volume of open derivative positions (MMBtu, MWh and $ notional amounts); changing commodity market prices, primarily for power and natural gas; our credit standing and that of our counterparties and customers for energy commodity derivatives; and prevailing interest rates for our interest rate hedging instruments. Prices for power and natural gas and interest rates are volatile, which can result in material changes in the fair value measurements reported in our financial statements in the future.

We utilize market data, such as pricing services and broker quotes, and assumptions that we believe market participants would use in pricing our assets or liabilities including assumptions about the risks inherent to the inputs in the valuation technique. These inputs can be either readily observable, market corroborated or generally unobservable. The market data obtained from broker pricing services is evaluated to determine the nature of the quotes obtained and, where accepted as a reliable quote, used to validate our assessment of fair value. We use other qualitative assessments to determine the level of activity in any given market. We primarily apply the market approach and income approach for recurring fair value measurements and utilize what we believe to be the best available information. We utilize valuation techniques that seek to maximize the use of observable inputs and minimize the use of unobservable inputs. We classify fair value balances based on the observability of those inputs.

The fair value of our derivatives includes consideration of our credit standing, the credit standing of our counterparties and customers and the effect of credit enhancements, if any. We have

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also recorded credit reserves in the determination of fair value based on our expectation of how market participants would determine fair value. Such valuation adjustments are generally based on market evidence, if available, or our best estimate.

Our level 1 fair value derivative instruments primarily consist of power and natural gas swaps, futures and options traded on the NYMEX or Intercontinental Exchange.

Our level 2 fair value derivative instruments primarily consist of interest rate hedging instruments and OTC power and natural gas forwards for which market-based pricing inputs in the principal or most advantageous market are representative of executable prices for market participants. These inputs are observable at commonly quoted intervals for substantially the full term of the instruments. In certain instances, our level 2 derivative instruments may utilize models to measure fair value. These models are industry-standard models, including the Black-Scholes option-pricing model, that incorporate various assumptions, including quoted interest rates, correlation, volatility, as well as other relevant economic measures. Substantially all of these assumptions are observable in the marketplace throughout the full term of the instrument, can be derived from observable data or are supported by observable levels at which transactions are executed in the marketplace.

Our level 3 fair value derivative instruments may consist of OTC power and natural gas forwards and options where pricing inputs are unobservable, as well as other complex and structured transactions primarily for the sale and purchase of power and natural gas to both wholesale counterparties and retail customers. Complex or structured transactions are tailored to our customers' needs and can introduce the need for internally-developed model inputs which might not be observable in or corroborated by the market. When such inputs have a significant effect on the measurement of fair value, the instrument is categorized in level 3. Our valuation models may incorporate historical correlation information and extrapolate available broker and other information to future periods.

Derivatives, Policy [Policy Text Block]

We offset fair value amounts associated with our derivative instruments and related cash collateral and margin deposits on our Consolidated Condensed Balance Sheets that are executed with the same counterparty under master netting arrangements. Our netting arrangements include a right to set off or net together purchases and sales of similar products in the margining or settlement process. In some instances, we have also negotiated cross commodity netting rights which allow for the net presentation of activity with a given counterparty regardless of product purchased or sold. We also post and/or receive cash collateral in support of our derivative instruments which may also be subject to a master netting arrangement with the same counterparty.

We recognize all derivative instruments that qualify for derivative accounting treatment as either assets or liabilities and measure those instruments at fair value unless they qualify for, and we elect, the normal purchase normal sale exemption. For transactions in which we elect the normal purchase normal sale exemption, gains and losses are not reflected on our Consolidated Condensed Statements of Operations until the period of delivery. Revenues and expenses derived from instruments that qualified for hedge accounting or represent an economic hedge are recorded in the same financial statement line item as the item being hedged. Hedge accounting requires us to formally document, designate and assess the effectiveness of transactions that receive hedge accounting. We present the cash flows from our derivatives in the same category as the item being hedged (or economically hedged) within operating activities on our Consolidated Condensed Statements of Cash Flows unless they contain an other-than-insignificant financing element in which case their cash flows are classified within financing activities.

Cash Flow Hedges — We currently apply hedge accounting to our interest rate hedging instruments. We report the mark-to-market gain or loss on our interest rate hedging instruments designated and qualifying as a cash flow hedging instrument as a component of OCI and reclassify such gains and losses into earnings in the same period during which the hedged forecasted transaction affects earnings. Prior to January 1, 2019, gains and losses due to ineffectiveness on interest rate hedging instruments were recognized in earnings as a component of interest expense. Upon the adoption of Accounting Standards Update 2017-12 on January 1, 2019, hedge ineffectiveness is no longer separately measured and recorded in earnings. If it is determined

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that the forecasted transaction is no longer probable of occurring, then hedge accounting will be discontinued prospectively and future changes in fair value will be recorded in earnings. If the hedging instrument is terminated or de-designated prior to the occurrence of the hedged forecasted transaction, the net accumulated gain or loss associated with the changes in fair value of the hedge instrument remains deferred in AOCI until such time as the forecasted transaction affects earnings or until it is determined that the forecasted transaction is probable of not occurring.

Derivatives Not Designated as Hedging Instruments — We enter into power, natural gas, interest rate, environmental product and fuel oil transactions that primarily act as economic hedges to our asset and interest rate portfolio, but either do not qualify as hedges under the hedge accounting guidelines or qualify under the hedge accounting guidelines and the hedge accounting designation has not been elected. Changes in fair value of commodity derivatives not designated as hedging instruments are recognized currently in earnings and are separately stated on our Consolidated Condensed Statements of Operations in mark-to-market gain/loss as a component of operating revenues (for physical and financial power and Heat Rate and commodity option activity) and fuel and purchased energy expense (for physical and financial natural gas, power, environmental product and fuel oil activity). Changes in fair value of interest rate derivatives not designated as hedging instruments are recognized currently in earnings as interest expense.

Commitments and Contingencies, Policy [Policy Text Block]

On a quarterly basis, we review our litigation activities and determine if an unfavorable outcome to us is considered “remote,” “reasonably possible” or “probable” as defined by U.S. GAAP. Where we determine an unfavorable outcome is probable and is reasonably estimable, we accrue for potential litigation losses. The liability we may ultimately incur with respect to such litigation matters, in the event of a negative outcome, may be in excess of amounts currently accrued, if any; however, we do not expect that the reasonably possible outcome of these litigation matters would, individually or in the aggregate, have a material adverse effect on our financial condition, results of operations or cash flows. Where we determine an unfavorable outcome is not probable or reasonably estimable, we do not accrue for any potential litigation loss. The ultimate outcome of these litigation matters cannot presently be determined, nor can the liability that could potentially result from a negative outcome be reasonably estimated. As a result, we give no assurance that such litigation matters would, individually or in the aggregate, not have a material adverse effect on our financial condition, results of operations or cash flows.

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Basis of Presentation and Summary of Significant Accounting Policies (Tables)	6 Months Ended
	Jun. 30, 2019
Accounting Policies [Abstract]	
Schedule of components of restricted cash	The table below represents the components of our restricted cash as of June 30, 2019 and December 31, 2018 (in millions):
Schedule of property, plant and equipment	*Property, Plant and Equipment, Net* — At June 30, 2019 and December 31, 2018, the components of property, plant and equipment are stated at cost less accumulated depreciation as follows (in millions):

	June 30, 2019			December 31, 2018		
	Current	Non-Current	Total	Current	Non-Current	Total
Debt service	$ 51	$ 8	$ 59	$ 13	$ 8	$ 21
Construction/major maintenance	9	39	48	23	24	47
Security/project/insurance	112	31	143	120	—	120
Other	10	2	12	11	2	13
Total	$ 182	$ 80	$ 262	$ 167	$ 34	$ 201

	June 30, 2019	December 31, 2018	Depreciable Lives
Buildings, machinery and equipment	$ 16,522	$ 16,400	1.5 – 50 Years
Geothermal properties	1,509	1,501	13 – 58 Years
Other	269	286	3 – 50 Years
	18,300	18,187	
Less: Accumulated depreciation	6,860	6,832	
	11,440	11,355	
Land	128	121	
Construction in progress	483	966	
Property, plant and equipment, net	$ 12,051	$ 12,442	

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Revenue From Contracts with Customers (Tables)	6 Months Ended Jun. 30, 2019
Revenue from Contract with Customer [Abstract]	
Disaggregation of Revenue [Table Text Block]	The following tables represent a disaggregation of our revenue for the three and six months ended June 30, 2019 and 2018 by reportable segment (in millions). See Note 13 for a description of our segments.

	Three Months Ended June 30, 2019					
	Wholesale					
	West	Texas	East	Retail	Elimination	Total
Third-Party:						
Energy & other products	$ 145	$ 318	$ 124	$ 413	$ —	$ 1,000
Capacity	36	33	154	—	—	223
Revenues relating to physical or executory contracts – third-party	$ 181	$ 351	$ 278	$ 413	$ —	$ 1,223
Affiliate[(1)]:	$ 6	$ 14	$ 30	$ 1	$ (51)	$ —
Revenues relating to leases and derivative instruments[(2)]						$ 1,376
Total operating revenues						$ 2,599

	Three Months Ended June 30, 2018					
	Wholesale					
	West	Texas	East	Retail	Elimination	Total
Third-Party:						
Energy & other products	$ 176	$ 326	$ 120	$ 451	$ —	$ 1,073
Capacity	35	23	140	—	—	198
Revenues relating to physical or executory contracts – third-party	$ 211	$ 349	$ 260	$ 451	$ —	$ 1,271
Affiliate[(1)]:	$ 5	$ 9	$ 21	$ 1	$ (36)	$ —
Revenues relating to leases and derivative instruments[(2)]						$ 988
Total operating revenues						$ 2,259

	Six Months Ended June 30, 2019					
	Wholesale					
	West	Texas	East	Retail	Elimination	Total
Third-Party:						
Energy & other products	$ 437	$ 620	$ 327	$ 825	$ —	$ 2,209

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	West	Texas	East	Retail	Elimination	Total
Capacity	71	65	331	—	—	467
Revenues relating to physical or executory contracts – third-party	$ 508	$ 685	$ 658	$ 825	$ —	$ 2,676
Affiliate[1]:	$ 17	$ 28	$ 57	$ 4	$ (106)	$ —
Revenues relating to leases and derivative instruments[2]						$ 2,522
Total operating revenues						$ 5,198

	Six Months Ended June 30, 2018					
	Wholesale					
	West	Texas	East	Retail	Elimination	Total
Third-Party:						
Energy & other products	$ 375	$ 630	$ 252	$ 894	$ —	$ 2,151
Capacity	54	49	289	—	—	392
Revenues relating to physical or executory contracts – third-party	$ 429	$ 679	$ 541	$ 894	$ —	$ 2,543
Affiliate[1]:	$ 13	$ 13	$ 42	$ 2	$ (70)	$ —
Revenues relating to leases and derivative instruments[2]						$ 1,725
Total operating revenues						$ 4,268

(1) Affiliate energy, other and capacity revenues reflect revenues on transactions between wholesale and retail affiliates excluding affiliate activity related to leases and derivative instruments. All such activity supports retail supply needs from the wholesale business and/or allows for collateral margin netting efficiencies at Calpine.

(2) Revenues relating to contracts accounted for as leases and derivatives include energy and capacity revenues relating to PPAs that we are required to account for as operating leases and physical and financial commodity derivative contracts, primarily relating to power, natural gas and environmental products. Revenue related to derivative instruments includes revenue recorded in Commodity revenue and mark-to-market gain (loss) within our operating revenues on our Consolidated Condensed Statements of Operations.

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Leases (Tables)	6 Months Ended Jun. 30, 2019

Leases [Abstract]

Lease, Cost [Table Text Block]

The components of our operating and finance lease expense are as follows for the three and six months ended June 30, 2019 (in millions):

	Three Months Ended June 30, 2019	Six Months Ended June 30, 2019
Operating Leases		
Operating lease expense	$ 12	$ 23
Finance Leases		
Amortization of the right-of-use assets	$ 1	$ 4
Interest expense	2	4
Finance lease expense	$ 3	$ 8
Variable lease expense	$ 4	$ 5
Total lease expense	$ 19	$ 36

Lessee, Operating Lease, Liability, Maturity [Table Text Block]

The following is a schedule by year of future minimum lease payments associated with our operating and finance leases together with the present value of the net minimum lease payments as of June 30, 2019 (in millions):

	Operating Leases[(1)(2)]	Finance Leases[(2)(3)]
2019	$ 39	$ 8
2020	20	16
2021	21	16
2022	19	16
2023	18	19
Thereafter	201	33
Total minimum lease payments	318	108
Less: Amount representing interest	108	30
Total lease obligation	210	78
Less: current lease obligation	39	10
Long-term lease obligation	$ 171	$ 68

(1) The lease liabilities associated with our operating leases as of June 30, 2019 are included in other current liabilities and other long-term liabilities on our Consolidated Condensed Balance Sheet.

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(2) Excludes an operating lease obligation of $1 million and a finance lease obligation of $18 million related to Garrison Energy Center which are included in current liabilities held for sale on our Consolidated Condensed Balance Sheet. See Note 4 for further information related to the sale of the Garrison Energy Center.

(3) The lease liabilities associated with our finance leases as of June 30, 2019 are included in debt, current portion and debt, net of current portion on our Consolidated Condensed Balance Sheet.

Finance Lease, Liability, Maturity [Table Text Block]

The following is a schedule by year of future minimum lease payments associated with our operating and finance leases together with the present value of the net minimum lease payments as of June 30, 2019 (in millions):

	Operating Leases(1)(2)	Finance Leases(2)(3)
2019	$ 39	$ 8
2020	20	16
2021	21	16
2022	19	16
2023	18	19
Thereafter	201	33
Total minimum lease payments	318	108
Less: Amount representing interest	108	30
Total lease obligation	210	78
Less: current lease obligation	39	10
Long-term lease obligation	$ 171	$ 68

(1) The lease liabilities associated with our operating leases as of June 30, 2019 are included in other current liabilities and other long-term liabilities on our Consolidated Condensed Balance Sheet.

(2) Excludes an operating lease obligation of $1 million and a finance lease obligation of $18 million related to Garrison Energy Center which are included in current liabilities held for sale on our Consolidated Condensed Balance Sheet. See Note 4 for further information related to the sale of the Garrison Energy Center.

(3) The lease liabilities associated with our finance leases as of June 30, 2019 are included in debt, current portion and debt, net of current portion on our Consolidated Condensed Balance Sheet.

Supplemental Balance Sheet Info Lessee [Table Text Block]

Supplemental balance sheet information related to our operating and finance leases is as follows as of June 30, 2019 (in millions, except lease term and discount rate):

	June 30, 2019(1)
Operating leases(2)	
Right-of-use assets associated with operating leases	$ 184
Finance leases(3)	
Property, plant and equipment, gross	$ 213
Accumulated amortization	(104)

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Property, plant and equipment, net	$ 109

Weighted average remaining lease term (in years)	
Operating leases	15.8
Finance leases	7.4

Weighted average discount rate	
Operating leases	5.1%
Finance leases	8.0%

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(1) Excludes a right-of-use asset and property, plant and equipment, net of $1 million and $17 million, respectively, related to Garrison Energy Center which are included in current assets held for sale on our Consolidated Condensed Balance Sheet. See Note 4 for further information related to the sale of the Garrison Energy Center.

(2) The right-of-use assets associated with our operating leases as of June 30, 2019 are included in other assets on our Consolidated Condensed Balance Sheet.

(3) The right-of-use assets associated with our finance leases as of June 30, 2019 are included in property, plant and equipment, net on our Consolidated Condensed Balance Sheet.

Supplemental Cash Flow Lessee [Table Text Block]

Supplemental cash flow information related to our operating and finance leases is as follows for the period presented (in millions):

	Six Month Ended June 30, 2019
Cash paid for amounts included in the measurement of lease liabilities	
Operating cash flows from operating leases	$ 13
Operating cash flows from finance leases	$ 4
Financing cash flows from finance leases	$ 6
Right-of-use assets obtained in exchange for lease obligations:	
Operating leases	$ 9
Finance leases	$ —

Lease Cost - Lessor [Table Text Block]

Revenue recognized related to fixed lease payments on our operating leases for the period presented is as follows (in millions):

	Three Months Ended June 30, 2019	Six Months Ended June 30, 2019
Operating Leases[(1)]		
Fixed lease payments	$ 70	$ 139

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(1) Revenues associated with our operating leases are included in Commodity revenue and other revenue on our Consolidated Condensed Statement of Operations.

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	June 30, 2019
Assets subject to contracts accounted for as operating leases	
Property, plant and equipment, gross	$ 3,076
Accumulated depreciation	(903)
Property, plant and equipment, net[(1)]	$ 2,173

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(1) Our assets subject to contracts that are accounted for as operating leases primarily consist of our power plants subject to tolling contracts.

Lessor, Operating Lease, Payments to be Received, Maturity [Table Text Block]

The total contractual future minimum lease rentals for our contracts that have commenced and are accounted for as operating leases at June 30, 2019, are as follows (in millions):

2019	$ 204
2020	287
2021	261
2022	227
2023	144
Thereafter	284
Total	$ 1,407

Schedule of Future Minimum Lease Payments for Capital Leases [Table Text Block]

The following is a schedule by year of future minimum lease payments under operating and capital leases as of December 31, 2018 (in millions):

	Operating Leases	Capital Leases[(1)]
2019	$ 50	$ 40
2020	19	40
2021	20	38
2022	18	33
2023	17	27
Thereafter	192	92
Total minimum lease payments	$ 316	270
Less: Amount representing interest		89
Present value of net minimum lease payments		$ 181

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(1) Includes a failed sale-leaseback transaction related to our Pasadena Power Plant.

Schedule of Future Minimum Rental Payments for Operating Leases [Table Text Block]

The total contractual future minimum lease rentals for our contracts accounted for as operating leases at December 31, 2018, are as follows (in millions):

2019	$ 342
2020	261
2021	257
2022	224
2023	141
Thereafter	239
Total	$ 1,464

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The following is a schedule by year of future minimum lease payments under operating and capital leases as of December 31, 2018 (in millions):

	Operating Leases	Capital Leases[1]
2019	$ 50	$ 40
2020	19	40
2021	20	38
2022	18	33
2023	17	27
Thereafter	192	92
Total minimum lease payments	$ 316	270
Less: Amount representing interest		89
Present value of net minimum lease payments		$ 181

(1) Includes a failed sale-leaseback transaction related to our Pasadena Power Plant.

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Variable Interest Entities and Unconsolidated Investments in Power Plants (Tables)	6 Months Ended
	Jun. 30, 2019
Variable Interest Entities and Unconsolidated Investments [Abstract]	
Schedule of equity method investments	At June 30, 2019 and December 31, 2018, our equity method investments included on our Consolidated Condensed Balance Sheets were comprised of the following (in millions):

	Ownership Interest as of June 30, 2019	June 30, 2019	December 31, 2018
Greenfield LP[(1)]	50%	$ 56	$ 55
Whitby	50%	10	15
Calpine Receivables	100%	5	6
Total investments in unconsolidated subsidiaries		$ 71	$ 76

(1) Includes our share of accumulated other comprehensive income/loss related to interest rate hedging instruments associated with our unconsolidated subsidiary Greenfield LP's debt.

Income (loss) from unconsolidated investments in power plants

The following table sets forth details of our (income) from unconsolidated subsidiaries for the periods indicated (in millions):

	Three Months Ended June 30,		Six Months Ended June 30,	
	2019	2018	2019	2018
Greenfield LP	$ (4)	$ (2)	$ (6)	$ (4)
Whitby	(2)	(4)	(6)	(8)
Calpine Receivables	1	1	1	1
Total	$ (5)	$ (5)	$ (11)	$ (11)

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Debt (Tables)

6 Months Ended Jun. 30, 2019

Debt Disclosure [Abstract]

Schedule of long-term debt instruments

Our debt at June 30, 2019 and December 31, 2018, was as follows (in millions):

	June 30, 2019	December 31, 2018
Senior Unsecured Notes	$ 2,990	$ 3,036
First Lien Term Loans	2,979	2,976
First Lien Notes	2,402	2,400
Project financing, notes payable and other	1,229	1,264
CCFC Term Loan	971	974
Finance lease obligations	78	105
Corporate Revolving Facility	75	30
Subtotal	10,724	10,785
Less: Current maturities	263	637
Total long-term debt	$ 10,461	$ 10,148

Senior Unsecured Notes

The amounts outstanding under our Senior Unsecured Notes are summarized in the table below (in millions):

	June 30, 2019	December 31, 2018
2023 Senior Unsecured Notes	$ 1,228	$ 1,227
2024 Senior Unsecured Notes	589	599
2025 Senior Unsecured Notes	1,173	1,210
Total Senior Unsecured Notes	$ 2,990	$ 3,036

First Lien Term Loans

The amounts outstanding under our senior secured First Lien Term Loans are summarized in the table below (in millions):

	June 30, 2019	December 31, 2018
2019 First Lien Term Loan	$ —	$ 389
2023 First Lien Term Loans	535	1,059
2024 First Lien Term Loan	1,522	1,528
2026 First Lien Term Loan	922	—
Total First Lien Term Loans	$ 2,979	$ 2,976

First Lien Notes

The amounts outstanding under our senior secured First Lien Notes are summarized in the table below (in millions):

	June 30, 2019	December 31, 2018
2022 First Lien Notes	$ 744	$ 743
2024 First Lien Notes	487	486
2026 First Lien Notes	1,171	1,171

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Total First Lien Notes	$ 2,402	$ 2,400

Schedule of line of credit facilities

The table below represents amounts issued under our letter of credit facilities at June 30, 2019 and December 31, 2018 (in millions):

	June 30, 2019	December 31, 2018
Corporate Revolving Facility[1]	$ 585	$ 693
CDHI[2]	30	251
Various project financing facilities	227	228
Other corporate facilities[3]	293	193
Total	$ 1,135	$ 1,365

(1) The Corporate Revolving Facility represents our primary revolving facility. On April 5, 2019, we amended our Corporate Revolving Facility to increase the capacity by approximately $330 million from $1.69 billion to approximately $2.02 billion.

(2) Pursuant to the terms and conditions of the CDHI credit agreement, the capacity under the CDHI letter of credit facility was reduced to $125 million on June 28, 2019. The decrease in capacity did not have a material effect on our liquidity as alternative sources of liquidity are available.

(3) We have three unsecured letter of credit facilities with two third-party financial institutions totaling approximately $300 million at June 30, 2019.

Schedule of carrying values and estimated fair values of debt instruments

The following table details the fair values and carrying values of our debt instruments at June 30, 2019 and December 31, 2018 (in millions):

	June 30, 2019		December 31, 2018	
	Fair Value	Carrying Value	Fair Value	Carrying Value
Senior Unsecured Notes	$ 3,011	$ 2,990	$ 2,803	$ 3,036
First Lien Term Loans	3,013	2,979	2,877	2,976
First Lien Notes	2,462	2,402	2,299	2,400
Project financing, notes payable and other[1]	1,136	1,153	1,209	1,188
CCFC Term Loan	980	971	938	974
Corporate Revolving Facility	75	75	30	30
Total	$ 10,677	$ 10,570	$ 10,156	$ 10,604

(1) Excludes an agreement that is accounted for as a failed sale-leaseback transaction under U.S. GAAP.

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Assets and Liabilities with Recurring Fair Value Measurements (Tables)	6 Months Ended Jun. 30, 2019

[Fair Value Disclosures [Abstract]]

[Fair Value, Measurement Inputs, Disclosure]

The following tables present our financial assets and liabilities that were accounted for at fair value on a recurring basis as of June 30, 2019 and December 31, 2018, by level within the fair value hierarchy:

	Assets and Liabilities with Recurring Fair Value Measures as of June 30, 2019			
	Level 1	Level 2	Level 3	Total
	(in millions)			
Assets:				
Cash equivalents[1]	$ 165	$ —	$ —	$ 165
Commodity instruments:				
Commodity exchange traded derivatives contracts	1,089	—	—	1,089
Commodity forward contracts[2]	—	350	322	672
Interest rate hedging instruments	—	6	—	6
Effect of netting and allocation of collateral[3][4]	(1,089)	(243)	(20)	(1,352)
Total assets	$ 165	$ 113	$ 302	$ 580
Liabilities:				
Commodity instruments:				
Commodity exchange traded derivatives contracts	$ 1,179	$ —	$ —	$ 1,179
Commodity forward contracts[2]	—	474	96	570
Interest rate hedging instruments	—	33	—	33
Effect of netting and allocation of collateral[3][4]	(1,179)	(298)	(21)	(1,498)
Total liabilities	$ —	$ 209	$ 75	$ 284

	Assets and Liabilities with Recurring Fair Value Measures as of December 31, 2018			
	Level 1	Level 2	Level 3	Total
	(in millions)			
Assets:				
Cash equivalents[1]	$ 168	$ —	$ —	$ 168
Commodity instruments:				
Commodity exchange traded derivatives contracts	933	—	—	933
Commodity forward contracts[2]	—	338	212	550
Interest rate hedging instruments	—	40	—	40
Effect of netting and allocation of collateral[3][4]	(933)	(262)	(26)	(1,221)
Total assets	$ 168	$ 116	$ 186	$ 470

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Liabilities:				
Commodity instruments:				
Commodity exchange traded derivatives contracts	$ 932	$ —	$ —	$ 932
Commodity forward contracts(2)	—	549	220	769
Interest rate hedging instruments	—	10	—	10
Effect of netting and allocation of collateral(3)(4)	(932)	(310)	(26)	(1,268)
Total liabilities	$ —	$ 249	$ 194	$ 443

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(1) At June 30, 2019 and December 31, 2018, we had cash equivalents of $16 million and $23 million included in cash and cash equivalents and $149 million and $145 million included in restricted cash, respectively.

(2) Includes OTC swaps and options.

(3) We offset fair value amounts recognized for derivative instruments executed with the same counterparty under a master netting arrangement for financial statement presentation; therefore, amounts recognized for the right to reclaim, or the obligation to return, cash collateral are presented net with the corresponding derivative instrument fair values. See Note 8 for further discussion of our derivative instruments subject to master netting arrangements.

(4) Cash collateral posted with (received from) counterparties allocated to level 1, level 2 and level 3 derivative instruments totaled $90 million, $55 million and $1 million, respectively, at June 30, 2019. Cash collateral posted with (received from) counterparties allocated to level 1, level 2 and level 3 derivative instruments totaled $(1) million, $48 million and nil, respectively, at December 31, 2018.

Fair Value Inputs, Assets, Quantitative Information

The following table presents quantitative information for the unobservable inputs used in our most significant level 3 fair value measurements at June 30, 2019 and December 31, 2018:

Quantitative Information about Level 3 Fair Value Measurements

	June 30, 2019			
	Fair Value, Net Asset (Liability)	**Valuation Technique**	**Significant Unobservable Input**	**Range**
	(in millions)			
Power Contracts(1)	$ 190	Discounted cash flow	Market price (per MWh)	$ 7.09 — $123.34 /MWh
Power Congestion Products	$ 18	Discounted cash flow	Market price (per MWh)	$ (8.63) — $11.48 /MWh
Natural Gas Contracts	$ 6	Discounted cash flow	Market price (per MMBtu)	$ 0.61 — $9.75 /MMBtu

December 31, 2018			
Fair Value, Net Asset (Liability)	**Valuation Technique**	**Significant Unobservable Input**	**Range**
(in millions)			

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Power Contracts[1]	$	36	Discounted cash flow	Market price (per MWh)	$ 2.12 — $227.98	/MWh
Power Congestion Products	$	26	Discounted cash flow	Market price (per MWh)	$(11.71) — $11.88	/MWh
Natural Gas Contracts	$	(73)	Discounted cash flow	Market price (per MMBtu)	$ 0.75 — $8.87	/MMBtu

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(1) Power contracts include power and heat rate instruments classified as level 3 in the fair value hierarchy.

Fair Value, Assets Measured on Recurring Basis, Unobservable Input Reconciliation [Table Text Block]

The following table sets forth a reconciliation of changes in the fair value of our net derivative assets (liabilities) classified as level 3 in the fair value hierarchy for the periods indicated (in millions):

	Three Months Ended June 30,		Six Months Ended June 30,	
	2019	2018	2019	2018
Balance, beginning of period	$ 105	$ 129	$ (8)	$ 197
Realized and mark-to-market gains (losses):				
Included in net income (loss):				
Included in operating revenues[1]	152	31	197	(28)
Included in fuel and purchased energy expense[2]	1	18	2	15
Change in collateral	(1)	1	1	(1)
Purchases, Issuances and settlements:				
Purchases	1	5	3	9
Issuances	(1)	—	(1)	—
Settlements	(35)	(42)	28	(53)
Transfers in and/or out of level 3[3]:				
Transfers into level 3[4]	6	(1)	7	(1)
Transfers out of level 3[5]	(1)	(10)	(2)	(7)
Balance, end of period	$ 227	$ 131	$ 227	$ 131
Change in unrealized gains (losses) relating to instruments still held at end of period	$ 153	$ 49	$ 199	$ (13)

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(1) For power contracts and other power-related products, included on our Consolidated Condensed Statements of Operations.

(2) For natural gas and power contracts, swaps and options, included on our Consolidated Condensed Statements of Operations.

(3) We transfer amounts among levels of the fair value hierarchy as of the end of each period. There were no transfers into or out of level 1 for each of the three and six months ended June 30, 2019 and 2018.

(4) We had $6 million in gains and $(1) million in losses transferred out of level 2 into level 3 for the three months ended June 30, 2019 and 2018, respectively, and $7 million in gains and $(1) million in losses transferred out of level 2 into level 3 for the six months ended

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June 30, 2019 and 2018, respectively, due to changes in market liquidity in various power markets.

(5) We had $1 million and $10 million in gains transferred out of level 3 into level 2 for the three months ended June 30, 2019 and 2018, respectively, and $2 million and $7 million in gains transferred out of level 3 into level 2 for the six months ended June 30, 2019 and 2018, respectively, due to changes in market liquidity in various power markets.

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Derivative Instruments (Tables)	6 Months Ended Jun. 30, 2019
Derivative Instruments and Hedging Activities Disclosure [Abstract]	
Schedule of Notional Amounts of Outstanding Derivative Positions	As of June 30, 2019 and December 31, 2018, the net forward notional buy (sell) position of our outstanding commodity derivative instruments that did not qualify or were not designated under the normal purchase normal sale exemption and our interest rate hedging instruments were as follows:

Derivative Instruments	Notional Amounts		Unit of Measure
	June 30, 2019	December 31, 2018	
Power	(181)	(161)	Million MWh
Natural gas	1,048	1,045	Million MMBtu
Environmental credits	13	13	Million Tonnes
Interest rate hedging instruments	$ 4.3	$ 4.5	Billion U.S. dollars

Derivative Instruments Subject to Master Netting Arrangements [Table Text Block]

The following tables present the fair values of our derivative instruments and our net exposure after offsetting amounts subject to a master netting arrangement with the same counterparty to our derivative instruments recorded on our Consolidated Condensed Balance Sheets by location and hedge type at June 30, 2019 and December 31, 2018 (in millions):

	June 30, 2019		
	Gross Amounts of Assets and (Liabilities)	Gross Amounts Offset on the Consolidated Condensed Balance Sheets	Net Amount Presented on the Consolidated Condensed Balance Sheets[(1)]
Derivative assets:			
Commodity exchange traded derivatives contracts	$ 861	$ (861)	$ —
Commodity forward contracts	388	(188)	200
Interest rate hedging instruments	5	(3)	2
Total current derivative assets[(2)]	$ 1,254	$ (1,052)	$ 202
Commodity exchange traded derivatives contracts	228	(228)	—
Commodity forward contracts	284	(71)	213
Interest rate hedging instruments	1	(1)	—
Total long-term derivative assets[(2)]	$ 513	$ (300)	$ 213
Total derivative assets	$ 1,767	$ (1,352)	$ 415
Derivative (liabilities):			
Commodity exchange traded derivatives contracts	$ (861)	$ 861	$ —

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Commodity forward contracts	(393)	234	(159)
Interest rate hedging instruments	(9)	3	(6)
Total current derivative (liabilities)(2)	$ (1,263)	$ 1,098	$ (165)
Commodity exchange traded derivatives contracts	(318)	318	—
Commodity forward contracts	(177)	81	(96)
Interest rate hedging instruments	(24)	1	(23)
Total long-term derivative (liabilities)(2)	$ (519)	$ 400	$ (119)
Total derivative liabilities	$ (1,782)	$ 1,498	$ (284)
Net derivative assets (liabilities)	$ (15)	$ 146	$ 131

	December 31, 2018		
	Gross Amounts of Assets and (Liabilities)	Gross Amounts Offset on the Consolidated Condensed Balance Sheets	Net Amount Presented on the Consolidated Condensed Balance Sheets(1)
Derivative assets:			
Commodity exchange traded derivatives contracts	$ 820	$ (820)	$ —
Commodity forward contracts	341	(229)	112
Interest rate hedging instruments	30	—	30
Total current derivative assets(3)	$ 1,191	$ (1,049)	$ 142
Commodity exchange traded derivatives contracts	113	(113)	—
Commodity forward contracts	209	(59)	150
Interest rate hedging instruments	10	—	10
Total long-term derivative assets(3)	$ 332	$ (172)	$ 160
Total derivative assets	$ 1,523	$ (1,221)	$ 302
Derivative (liabilities):			
Commodity exchange traded derivatives contracts	$ (764)	$ 764	$ —
Commodity forward contracts	(576)	277	(299)
Interest rate hedging instruments	(4)	—	(4)
Total current derivative (liabilities)(3)	$ (1,344)	$ 1,041	$ (303)
Commodity exchange traded derivatives contracts	(168)	168	—
Commodity forward contracts	(193)	59	(134)
Interest rate hedging instruments	(6)	—	(6)
Total long-term derivative (liabilities)(3)	$ (367)	$ 227	$ (140)
Total derivative liabilities	$ (1,711)	$ 1,268	$ (443)
Net derivative assets (liabilities)	$ (188)	$ 47	$ (141)

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(1) At June 30, 2019 and December 31, 2018, we had $142 million and $244 million, respectively, of collateral under master netting arrangements that were not offset against our derivative instruments on the Consolidated Condensed Balance Sheets primarily related to initial margin requirements.

(2) At June 30, 2019, current and long-term derivative assets are shown net of collateral of $(27) million and $(3) million, respectively, and current and long-term derivative liabilities are shown net of collateral of $72 million and $104 million, respectively.

(3) At December 31, 2018, current and long-term derivative assets are shown net of collateral of $(58) million and $(8) million, respectively, and current and long-term derivative liabilities are shown net of collateral of $49 million and $64 million, respectively.

Schedule of Derivative Instruments in Statement of Financial Position, Fair Value

	June 30, 2019		December 31, 2018	
	Fair Value of Derivative Assets	Fair Value of Derivative Liabilities	Fair Value of Derivative Assets	Fair Value of Derivative Liabilities
Derivatives designated as cash flow hedging instruments:				
Interest rate hedging instruments	$ 2	$ 27	$ 40	$ 10
Total derivatives designated as cash flow hedging instruments	$ 2	$ 27	$ 40	$ 10
Derivatives not designated as hedging instruments:				
Commodity instruments	$ 413	$ 255	$ 262	$ 433
Interest rate hedging instruments	—	2	—	—
Total derivatives not designated as hedging instruments	$ 413	$ 257	$ 262	$ 433
Total derivatives	$ 415	$ 284	$ 302	$ 443

Realized Unrealized Gain Loss by Instrument

The following tables detail the components of our total activity for both the net realized gain (loss) and the net mark-to-market gain (loss) recognized from our derivative instruments in earnings and where these components were recorded on our Consolidated Condensed Statements of Operations for the periods indicated (in millions):

	Three Months Ended June 30,		Six Months Ended June 30,	
	2019	2018	2019	2018
Realized gain (loss)[(1)(2)]				
Commodity derivative instruments	$ 58	$ 69	$ 169	$ 66
Total realized gain (loss)	$ 58	$ 69	$ 169	$ 66
Mark-to-market gain (loss)[(3)]				
Commodity derivative instruments	$ 187	$ 188	$ 233	$ (183)
Interest rate hedging instruments	(1)	1	(2)	3
Total mark-to-market gain (loss)	$ 186	$ 189	$ 231	$ (180)
Total activity, net	$ 244	$ 258	$ 400	$ (114)

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(1) Does not include the realized value associated with derivative instruments that settle through physical delivery.

(2) Includes amortization of acquisition date fair value of financial derivative activity related to the acquisition of Champion Energy and Calpine Solutions.

(3) In addition to changes in market value on derivatives not designated as hedges, changes in mark-to-market gain (loss) also includes adjustments to reflect changes in credit default risk exposure.

Schedule of Other Derivatives Not Designated as Hedging Instruments, Statements of Financial Performance and Financial Position, Location

	Three Months Ended June 30,		Six Months Ended June 30,	
	2019	2018	2019	2018
Realized and mark-to-market gain (loss)[(1)]				
Derivatives contracts included in operating revenues[(2)(3)]	$ 541	$ 183	$ 578	$ (176)
Derivatives contracts included in fuel and purchased energy expense[(2)(3)]	(296)	74	(176)	59
Interest rate hedging instruments included in interest expense	(1)	1	(2)	3
Total activity, net	$ 244	$ 258	$ 400	$ (114)

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(1) In addition to changes in market value on derivatives not designated as hedges, changes in mark-to-market gain (loss) also includes adjustments to reflect changes in credit default risk exposure.

(2) Does not include the realized value associated with derivative instruments that settle through physical delivery.

(3) Includes amortization of acquisition date fair value of financial derivative activity related to the acquisition of Champion Energy and Calpine Solutions.

Derivatives Designated as Hedges

The following table details the effect of our net derivative instruments that qualified for hedge accounting treatment and are included in OCI and AOCI for the periods indicated (in millions):

	Three Months Ended June 30,		Three Months Ended June 30,		
	Gain (Loss) Recognized in OCI		Gain (Loss) Reclassified from AOCI into Income[(3)(4)]		
	2019	2018	2019	2018	Affected Line Item on the Consolidated Condensed Statements of Operations
Interest rate hedging instruments[(1)(2)]	$ (32)	$ 15	$ 3	$ —	Interest expense
Total	$ (32)	$ 15	$ 3	$ —	

	Six Months Ended June 30,		Six Months Ended June 30,		
	Gain (Loss) Recognized in OCI		Gain (Loss) Reclassified from AOCI into Income[(3)(4)]		
	2019	2018	2019	2018	Affected Line Item on the Consolidated

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					Condensed Statements of Operations
Interest rate hedging instruments[1][2]	$ (57)	$ 69	$ 5	$ (6)	Interest expense
Interest rate hedging instruments[1][2]	—	1	—	(1)	Depreciation and amortization expense
Total	$ (57)	$ 70	$ 5	$ (7)	

(1) We recorded $1 million in gains on hedge ineffectiveness related to our interest rate hedging instruments designated as cash flow hedges during each of the three and six months ended June 30, 2018. Upon the adoption of Accounting Standards Update 2017-12 on January 1, 2019, hedge ineffectiveness is no longer separately measured and recorded in earnings.

(2) We recorded an income tax benefit of $1 million and $7 million for the three months ended June 30, 2019 and 2018, respectively, and income tax benefit of $1 million and income tax expense of $4 million for the six months ended June 30, 2019 and 2018, respectively, in AOCI related to our cash flow hedging activities.

(3) Cumulative cash flow hedge losses attributable to Calpine, net of tax, remaining in AOCI were $89 million and $34 million at June 30, 2019 and December 31, 2018, respectively. Cumulative cash flow hedge losses attributable to the noncontrolling interest, net of tax, remaining in AOCI were $4 million and $3 million at June 30, 2019 and December 31, 2018, respectively.

(4) Includes losses (gains) of nil that were reclassified from AOCI to interest expense for the three months ended June 30, 2019 and 2018, and losses of $1 million and nil that were reclassified from AOCI to interest expense for the six months ended June 30, 2019 and 2018, respectively, where the hedged transactions became probable of not occurring.

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Use of Collateral (Tables)	6 Months Ended Jun. 30, 2019
Use of Collateral [Abstract]	
Schedule of Collateral	The table below summarizes the balances outstanding under margin deposits, natural gas and power prepayments, and exposure under letters of credit and first priority liens for commodity procurement and risk management activities as of June 30, 2019 and December 31, 2018 (in millions):

	June 30, 2019	December 31, 2018
Margin deposits[1]	$ 373	$ 343
Natural gas and power prepayments	34	31
Total margin deposits and natural gas and power prepayments with our counterparties[2]	$ 407	$ 374
Letters of credit issued	$ 900	$ 1,166
First priority liens under power and natural gas agreements	42	92
First priority liens under interest rate hedging instruments	29	10
Total letters of credit and first priority liens with our counterparties	$ 971	$ 1,268
Margin deposits posted with us by our counterparties[1][3]	$ 85	$ 52
Letters of credit posted with us by our counterparties	31	27
Total margin deposits and letters of credit posted with us by our counterparties	$ 116	$ 79

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(1) We offset fair value amounts recognized for derivative instruments executed with the same counterparty under a master netting arrangement for financial statement presentation; therefore, amounts recognized for the right to reclaim, or the obligation to return, cash collateral are presented net with the corresponding derivative instrument fair values. See Note 8 for further discussion of our derivative instruments subject to master netting arrangements.

(2) At June 30, 2019 and December 31, 2018, $162 million and $79 million, respectively, were included in current and long-term derivative assets and liabilities, $237 million and $286 million, respectively, were included in margin deposits and other prepaid expense and $8 million and $9 million, respectively, were included in other assets on our Consolidated Condensed Balance Sheets.

(3) At June 30, 2019 and December 31, 2018, $16 million and $32 million, respectively, were included in current and long-term derivative assets and liabilities, $28 million and $20 million, respectively, were included in other current liabilities and $41 million and nil, respectively, were included in other long-term liabilities on our Consolidated Condensed Balance Sheets.

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Income Taxes Income Taxes (Tables)

6 Months Ended Jun. 30, 2019

Income Tax Disclosure [Abstract]

Schedule of Components of Income Tax Expense (Benefit)

The table below shows our consolidated income tax expense (benefit) and our effective tax rates for the periods indicated (in millions):

	Three Months Ended June 30,		Six Months Ended June 30,	
	2019	2018	2019	2018
Income tax expense (benefit)	$ 9	$ (158)	$ 19	$ (50)
Effective tax rate	3%	(81)%	4%	17%

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Segment Information (Tables)	6 Months Ended Jun. 30, 2019
Segment Reporting [Abstract]	
Schedule of Financial Data for Segments	The tables below show financial data for our segments (including a reconciliation of our Commodity Margin to income (loss) from operations by segment) for the periods indicated (in millions):

	Three Months Ended June 30, 2019					
	Wholesale				Consolidation	
	West	Texas	East	Retail	Elimination	Total
Total operating revenues[1]	$ 649	$ 899	$ 646	$ 1,082	$ (677)	$ 2,599
Commodity Margin	$ 251	$ 173	$ 235	$ 93	$ —	$ 752
Add: Mark-to-market commodity activity, net and other[2]	58	240	94	(182)	(10)	200
Less:						
Operating and maintenance expense	84	66	72	33	(10)	245
Depreciation and amortization expense	60	54	48	13	—	175
General and other administrative expense	5	15	10	4	—	34
Other operating expenses	7	1	11	—	—	19
Impairment losses	—	—	40	—	—	40
(Income) from unconsolidated subsidiaries	—	—	(6)	1	—	(5)
Income (loss) from operations	153	277	154	(140)	—	444
Interest expense						157
Gain on extinguishment of debt and other (income) expense, net						8
Income before income taxes						$ 279

	Three Months Ended June 30, 2018					
	Wholesale				Consolidation	
	West	Texas	East	Retail	Elimination	Total
Total operating revenues[1]	$ 355	$ 993	$ 341	$ 935	$ (365)	$ 2,259
Commodity Margin	$ 241	$ 151	$ 225	$ 77	$ —	$ 694
Add: Mark-to-market commodity activity, net and other[2]	(23)	301	(7)	(67)	(8)	196

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Less:						
Operating and maintenance expense	80	65	65	41	(9)	242
Depreciation and amortization expense	67	57	49	13	—	186
General and other administrative expense	5	13	8	5	—	31
Other operating expenses	8	3	8	—	—	19
(Income) from unconsolidated subsidiaries	—	—	(6)	1	—	(5)
Income (loss) from operations	58	314	94	(50)	1	417
Interest expense						157
Other (income) expense, net						62
Income before income taxes						$ 198

	Six Months Ended June 30, 2019					
	Wholesale				Consolidation	
	West	Texas	East	Retail	Elimination	Total
Total operating revenues(3)	$ 1,331	$ 1,642	$ 1,335	$ 2,080	$ (1,190)	$ 5,198
Commodity Margin	$ 515	$ 335	$ 500	$ 181	$ —	$ 1,531
Add: Mark-to-market commodity activity, net and other(4)	114	284	107	(235)	(18)	252
Less:						
Operating and maintenance expense	165	131	139	67	(18)	484
Depreciation and amortization expense	133	99	91	26	—	349
General and other administrative expense	12	27	19	8	—	66
Other operating expenses	16	3	19	—	—	38
Impairment losses	—	—	55	—	—	55
(Income) from unconsolidated subsidiaries	—	—	(12)	1	—	(11)
Income (loss) from operations	303	359	296	(156)	—	802
Interest expense						306
Gain on extinguishment of debt and other (income) expense, net						27
Income before income taxes						$ 469

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	Six Months Ended June 30, 2018					
	Wholesale				Consolidation	
	West	Texas	East	Retail	Elimination	Total
Total operating revenues[3]	$ 835	$ 1,133	$ 955	$ 1,873	$ (528)	$ 4,268
Commodity Margin	$ 426	$ 317	$ 409	$ 154	$ —	$ 1,306
Add: Mark-to-market commodity activity, net and other[4]	(10)	(246)	33	61	(15)	(177)
Less:						
Operating and maintenance expense	170	145	136	81	(15)	517
Depreciation and amortization expense	134	133	94	26	—	387
General and other administrative expense	21	38	23	9	—	91
Other operating expenses	22	19	15	—	—	56
(Income) from unconsolidated subsidiaries	—	—	(12)	1	—	(11)
Income (loss) from operations	69	(264)	186	98	—	89
Interest expense						308
Other (income) expense, net						69
Loss before income taxes						$ (288)

(1) Includes intersegment revenues of $100 million and $70 million in the West, $348 million and $276 million in Texas, $228 million and $18 million in the East and $1 million and $1 million in Retail for the three months ended June 30, 2019 and 2018, respectively.

(2) Includes $(19) million and $(19) million of lease levelization and $18 million and $25 million of amortization expense for the three months ended June 30, 2019 and 2018, respectively.

(3) Includes intersegment revenues of $262 million and $184 million in the West, $559 million and $209 million in Texas, $365 million and $133 million in the East and $4 million and $2 million in Retail for the six months ended June 30, 2019 and 2018, respectively.

(4) Includes $(35) million and $(35) million of lease levelization and $39 million and $53 million of amortization expense for the six months ended June 30, 2019 and 2018, respectively.

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Basis of Presentation and Summary of Significant Accounting Policies (Details) - USD ($) $ in Millions		3 Months Ended		6 Months Ended			
		Jun. 30, 2019	Jun. 30, 2018	Jun. 30, 2019	Jun. 30, 2018	Jan. 01, 2019	Dec. 31, 2018
Accounting Policies [Line Items]							
Gain on Business Interruption Insurance Recovery		$ 0	$ 14	$ 0	$ 14		
Operating Lease, Right-of-Use Asset	[1],[2]	184		184			
Interest costs capitalized		1	$ 7	8	$ 14		
Current		182		182			$ 167
Non-current		80		80			34
Total		262		262			201
Debt service							
Accounting Policies [Line Items]							
Current		51		51			13
Non-current		8		8			8
Total		59		59			21
Construction major maintenance							
Accounting Policies [Line Items]							
Current		9		9			23
Non-current		39		39			24
Total		48		48			47
Security project insurance							
Accounting Policies [Line Items]							
Current		112		112			120
Non-current		31		31			0
Total		143		143			120
Other							
Accounting Policies [Line Items]							
Current		10		10			11
Non-current		2		2			2
Total		$ 12		$ 12			$ 13
Accounting Standards Update 2016-02 [Member]							
Accounting Policies [Line Items]							
Operating Lease, Right-of-Use Asset						$ 191	

[1] Excludes a right-of-use asset and property, plant and equipment, net of $1 million and $17 million, respectively, related to Garrison Energy Center which are included in current assets held for sale on our Consolidated Condensed Balance Sheet. See Note 4 for further information related to the sale of the Garrison Energy Center.

[2] The right-of-use assets associated with our operating leases as of June 30, 2019 are included in other assets on our Consolidated Condensed Balance Sheet.

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Basis of Presentation and Summary of Significant Accounting Policies Property, Plant and Equipment, Net (Details) - USD ($) $ in Millions	6 Months Ended	
	Jun. 30, 2019	Dec. 31, 2018
Property, Plant and Equipment [Line Items]		
Buildings, machinery and equipment	$ 16,522	$ 16,400
Geothermal properties	1,509	1,501
Other	269	286
Property, plant and equipment, gross	18,300	18,187
Less: Accumulated depreciation	6,860	6,832
Property, plant and equipment, gross, less accumulated depreciation, depletion and amortization	11,440	11,355
Land	128	121
Construction in progress	483	966
Property, plant and equipment, net	$ 12,051	$ 12,442
Minimum [Member] | Building, Machinery and Equipment, Gross [Member]		
Property, Plant and Equipment [Line Items]		
Property, plant and equipment, estimated useful lives	1 year 6 months	
Minimum [Member] | Geothermal Properties, Gross [Member]		
Property, Plant and Equipment [Line Items]		
Property, plant and equipment, estimated useful lives	13 years	
Minimum [Member] | Property, Plant and Equipment, Other Types [Member]		
Property, Plant and Equipment [Line Items]		
Property, plant and equipment, estimated useful lives	3 years	
Maximum [Member] | Building, Machinery and Equipment, Gross [Member]		
Property, Plant and Equipment [Line Items]		
Property, plant and equipment, estimated useful lives	50 years	
Maximum [Member] | Geothermal Properties, Gross [Member]		
Property, Plant and Equipment [Line Items]		
Property, plant and equipment, estimated useful lives	58 years	
Maximum [Member] | Property, Plant and Equipment, Other Types [Member]		
Property, Plant and Equipment [Line Items]		
Property, plant and equipment, estimated useful lives	50 years	

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Revenue From Contracts with Customers Disaggregation of Revenues (Details) - USD ($) $ in Millions	3 Months Ended		6 Months Ended	
	Jun. 30, 2019	Jun. 30, 2018	Jun. 30, 2019	Jun. 30, 2018
Disaggregation of Revenue [Line Items]				
Commodity revenue	$ 2,128	$ 2,121	$ 4,666	$ 4,517
Revenues	2,599 [1]	2,259 [1]	5,198 [2]	4,268 [2]
West [Member]				
Disaggregation of Revenue [Line Items]				
Revenues	649 [1]	355 [1]	1,331 [2]	835 [2]
Texas [Member]				
Disaggregation of Revenue [Line Items]				
Revenues	899 [1]	993 [1]	1,642 [2]	1,133 [2]
East [Member]				
Disaggregation of Revenue [Line Items]				
Revenues	646 [1]	341 [1]	1,335 [2]	955 [2]
Retail [Member]				
Disaggregation of Revenue [Line Items]				
Revenues	1,082 [1]	935 [1]	2,080 [2]	1,873 [2]
Energy and Other Products [Member]				
Disaggregation of Revenue [Line Items]				
Commodity revenue	1,000	1,073	2,209	2,151
Energy and Other Products [Member] | West [Member]				
Disaggregation of Revenue [Line Items]				
Commodity revenue	145	176	437	375
Energy and Other Products [Member] | Texas [Member]				
Disaggregation of Revenue [Line Items]				
Commodity revenue	318	326	620	630
Energy and Other Products [Member] | East [Member]				
Disaggregation of Revenue [Line Items]				
Commodity revenue	124	120	327	252
Energy and Other Products [Member] | Retail [Member]				
Disaggregation of Revenue [Line Items]				
Commodity revenue	413	451	825	894
Energy and Other Products [Member] | Intersegment Eliminations [Member]				
Disaggregation of Revenue [Line Items]				
Commodity revenue	0	0	0	0
Capacity Revenue [Member]				
Disaggregation of Revenue [Line Items]				
Commodity revenue	223	198	467	392

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Capacity Revenue [Member] | West [Member]				
Disaggregation of Revenue [Line Items]				
Commodity revenue	36	35	71	54
Capacity Revenue [Member] | Texas [Member]				
Disaggregation of Revenue [Line Items]				
Commodity revenue	33	23	65	49
Capacity Revenue [Member] | East [Member]				
Disaggregation of Revenue [Line Items]				
Commodity revenue	154	140	331	289
Capacity Revenue [Member] | Retail [Member]				
Disaggregation of Revenue [Line Items]				
Commodity revenue	0	0	0	0
Capacity Revenue [Member] | Intersegment Eliminations [Member]				
Disaggregation of Revenue [Line Items]				
Commodity revenue	0	0	0	0
Revenues Relating to Physical or Executory Contracts - Third Party [Member]				
Disaggregation of Revenue [Line Items]				
Commodity revenue	1,223	1,271	2,676	2,543
Revenues Relating to Physical or Executory Contracts - Third Party [Member] | West [Member]				
Disaggregation of Revenue [Line Items]				
Commodity revenue	181	211	508	429
Revenues Relating to Physical or Executory Contracts - Third Party [Member] | Texas [Member]				
Disaggregation of Revenue [Line Items]				
Commodity revenue	351	349	685	679
Revenues Relating to Physical or Executory Contracts - Third Party [Member] | East [Member]				
Disaggregation of Revenue [Line Items]				
Commodity revenue	278	260	658	541
Revenues Relating to Physical or Executory Contracts - Third Party [Member] | Retail [Member]				
Disaggregation of Revenue [Line Items]				
Commodity revenue	413	451	825	894
Revenues Relating to Physical or Executory Contracts - Third Party [Member] | Intersegment Eliminations [Member]				
Disaggregation of Revenue [Line Items]				
Commodity revenue	0	0	0	0
Affiliate Revenue [Member]				
Disaggregation of Revenue [Line Items]				
Commodity revenue	[3] 0	0	0	0
Affiliate Revenue [Member] | West [Member]				
Disaggregation of Revenue [Line Items]				

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Commodity revenue	[3] 6	5	17	13
Affiliate Revenue [Member] | Texas [Member]				
Disaggregation of Revenue [Line Items]				
Commodity revenue	[3] 14	9	28	13
Affiliate Revenue [Member] | East [Member]				
Disaggregation of Revenue [Line Items]				
Commodity revenue	[3] 30	21	57	42
Affiliate Revenue [Member] | Retail [Member]				
Disaggregation of Revenue [Line Items]				
Commodity revenue	[3] 1	1	4	2
Affiliate Revenue [Member] | Intersegment Eliminations [Member]				
Disaggregation of Revenue [Line Items]				
Commodity revenue	[3] (51)	(36)	(106)	(70)
Revenues Relating to Leases and Derivative Instruments [Member]				
Disaggregation of Revenue [Line Items]				
Revenues	[4] $ 1,376	$ 988	$ 2,522	$ 1,725

[1] Includes intersegment revenues of $100 million and $70 million in the West, $348 million and $276 million in Texas, $228 million and $18 million in the East and $1 million and $1 million in Retail for the three months ended June 30, 2019 and 2018, respectively.

[2] Includes intersegment revenues of $262 million and $184 million in the West, $559 million and $209 million in Texas, $365 million and $133 million in the East and $4 million and $2 million in Retail for the six months ended June 30, 2019 and 2018, respectively.

[3] Affiliate energy, other and capacity revenues reflect revenues on transactions between wholesale and retail affiliates excluding affiliate activity related to leases and derivative instruments. All such activity supports retail supply needs from the wholesale business and/or allows for collateral margin netting efficiencies at Calpine.

[4] Revenues relating to contracts accounted for as leases and derivatives include energy and capacity revenues relating to PPAs that we are required to account for as operating leases and physical and financial commodity derivative contracts, primarily relating to power, natural gas and environmental products. Revenue related to derivative instruments includes revenue recorded in Commodity revenue and mark-to-market gain (loss) within our operating revenues on our Consolidated Condensed Statements of Operations.

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Revenue From Contracts with Customers Performance Obligations Not Yet Satisfied (Details) - Capacity Revenue [Member] $ in Millions	Jun. 30, 2019 USD ($)
Revenue, Remaining Performance Obligation, Expected Timing of Satisfaction, Start Date [Axis]: 2019-04-01	
Revenue, Remaining Performance Obligation, Expected Timing of Satisfaction [Line Items]	
Revenue, Remaining Performance Obligation, Expected Timing of Satisfaction, Period	6 months
Revenue, Remaining Performance Obligation, Expected Timing of Satisfaction, Start Date [Axis]: 2019-07-01	
Revenue, Remaining Performance Obligation, Expected Timing of Satisfaction [Line Items]	
Revenue, Remaining Performance Obligation, Amount	$ 258
Revenue, Remaining Performance Obligation, Expected Timing of Satisfaction, Start Date [Axis]: 2020-01-01	
Revenue, Remaining Performance Obligation, Expected Timing of Satisfaction [Line Items]	
Revenue, Remaining Performance Obligation, Amount	$ 517
Revenue, Remaining Performance Obligation, Expected Timing of Satisfaction, Period	1 year
Revenue, Remaining Performance Obligation, Expected Timing of Satisfaction, Start Date [Axis]: 2021-01-01	
Revenue, Remaining Performance Obligation, Expected Timing of Satisfaction [Line Items]	
Revenue, Remaining Performance Obligation, Amount	$ 468
Revenue, Remaining Performance Obligation, Expected Timing of Satisfaction, Period	1 year
Revenue, Remaining Performance Obligation, Expected Timing of Satisfaction, Start Date [Axis]: 2022-01-01	
Revenue, Remaining Performance Obligation, Expected Timing of Satisfaction [Line Items]	
Revenue, Remaining Performance Obligation, Amount	$ 249
Revenue, Remaining Performance Obligation, Expected Timing of Satisfaction, Period	1 year
Revenue, Remaining Performance Obligation, Expected Timing of Satisfaction, Start Date [Axis]: 2023-01-01	
Revenue, Remaining Performance Obligation, Expected Timing of Satisfaction [Line Items]	
Revenue, Remaining Performance Obligation, Amount	$ 50
Revenue, Remaining Performance Obligation, Expected Timing of Satisfaction, Period	1 year
Revenue, Remaining Performance Obligation, Expected Timing of Satisfaction, Start Date [Axis]: 2024-01-01	
Revenue, Remaining Performance Obligation, Expected Timing of Satisfaction [Line Items]	
Revenue, Remaining Performance Obligation, Amount	$ 72
Revenue, Remaining Performance Obligation, Expected Timing of Satisfaction, Period	

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Revenue From Contracts with Customers Performance Obligations and Contract Balances (Details) - Environmental Credits [Member] - USD ($) $ in Millions	3 Months Ended		6 Months Ended		
	Jun. 30, 2019	Jun. 30, 2018	Jun. 30, 2019	Jun. 30, 2018	Dec. 31, 2018
Disaggregation of Revenue [Line Items]					
Deferred Revenue, Current	$ 22		$ 22		$ 14
Deferred Revenue, Revenue Recognized	$ 2	$ 3	$ 3	$ 9	

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Leases (Details) - USD ($) $ in Millions		Jun. 30, 2019	Dec. 31, 2018
Operating Lease, Right-of-Use Asset	[1],[2]	$ 184	
Operating Lease, Liability	[3],[4]	210	
Capital Leased Assets, Gross			$ 715
Accumulated Depreciation, Depletion and Amortization, Property, Plant, and Equipment		6,860	6,832
Lesse Operating Lease, Lease Not yet Commenced		$ 1	
Lessee, Finance Lease, Term of Contract		30 years	
Finance Lease, Liability	[3],[5]	$ 78	
Assets Held under Capital Leases [Member]			
Accumulated Depreciation, Depletion and Amortization, Property, Plant, and Equipment			$ 353
Disposal Group, Held-for-sale, Not Discontinued Operations [Member]			
Operating Lease, Right-of-Use Asset	[1],[2]	1	
Operating Lease, Liability	[3],[4]	1	
Finance Lease, Liability	[3],[4]	18	
Finance Lease, Right-of-Use Asset	[1],[2]	$ 17	

[1] Excludes a right-of-use asset and property, plant and equipment, net of $1 million and $17 million, respectively, related to Garrison Energy Center which are included in current assets held for sale on our Consolidated Condensed Balance Sheet. See Note 4 for further information related to the sale of the Garrison Energy Center.

[2] The right-of-use assets associated with our operating leases as of June 30, 2019 are included in other assets on our Consolidated Condensed Balance Sheet.

[3] Excludes an operating lease obligation of $1 million and a finance lease obligation of $18 million related to Garrison Energy Center which are included in current liabilities held for sale on our Consolidated Condensed Balance Sheet. See Note 4 for further information related to the sale of the Garrison Energy Center.

[4] The lease liabilities associated with our operating leases as of June 30, 2019 are included in other current liabilities and other long-term liabilities on our Consolidated Condensed Balance Sheet.

[5] The lease liabilities associated with our finance leases as of June 30, 2019 are included in debt, current portion and debt, net of current portion on our Consolidated Condensed Balance Sheet.

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Leases Future Minimum Lease Payments (Details) $ in Millions	Jun. 30, 2019 USD ($) [1]	
Operating and Finance Leases [Abstract]		
Lessee, Operating Lease, Liability, Payments, Remainder of Fiscal Year	$ 39	[2]
Finance Lease, Liability, Payments, Remainder of Fiscal Year	8	[3]
Lessee, Operating Lease, Liability, Payments, Due Year Two	20	[2]
Finance Lease, Liability, Payments, Due Year Two	16	[3]
Lessee, Operating Lease, Liability, Payments, Due Year Three	21	[2]
Finance Lease, Liability, Payments, Due Year Three	16	[3]
Lessee, Operating Lease, Liability, Payments, Due Year Four	19	[2]
Finance Lease, Liability, Payments, Due Year Four	16	[3]
Lessee, Operating Lease, Liability, Payments, Due Year Five	18	[2]
Finance Lease, Liability, Payments, Due Year Five	19	[3]
Lessee, Operating Lease, Liability, Payments, Due after Year Five	201	[2]
Finance Lease, Liability, Payments, Due after Year Five	33	[3]
Lessee, Operating Lease, Liability, Undiscounted Excess Amount	108	[2]
Finance Lease, Liability, Undiscounted Excess Amount	30	[3]
Operating Lease, Liability	210	[2]
Finance Lease, Liability	78	[3]
Operating Lease, Liability, Current	39	[2]
Lessee, Operating Lease, Liability, Payments, Due	318	[2]
Finance Lease, Liability, Current	10	[3]
Finance Lease, Liability, Payment, Due	108	[3]
Operating Lease, Liability, Noncurrent	171	[2]
Finance Lease, Liability, Noncurrent	$ 68	[3]

[1] Excludes an operating lease obligation of $1 million and a finance lease obligation of $18 million related to Garrison Energy Center which are included in current liabilities held for sale on our Consolidated Condensed Balance Sheet. See Note 4 for further information related to the sale of the Garrison Energy Center.

[2] The lease liabilities associated with our operating leases as of June 30, 2019 are included in other current liabilities and other long-term liabilities on our Consolidated Condensed Balance Sheet.

[3] The lease liabilities associated with our finance leases as of June 30, 2019 are included in debt, current portion and debt, net of current portion on our Consolidated Condensed Balance Sheet.

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Leases Supplemental balance sheet information (Details) - USD ($) $ in Millions		Jun. 30, 2019	Dec. 31, 2018
Property, Plant and Equipment, Gross		$ 18,300	$ 18,187
Accumulated Depreciation		(6,860)	(6,832)
Property, plant and equipment, net		12,051	$ 12,442
Operating Lease, Right-of-Use Asset	[1],[2]	$ 184	
Operating Lease, Weighted Average Remaining Lease Term	[1]	15 years 9 months 18 days	
Finance Lease, Weighted Average Remaining Lease Term	[1]	7 years 4 months 24 days	
Operating Lease, Weighted Average Discount Rate, Percent	[1]	5.10%	
Finance Lease, Weighted Average Discount Rate, Percent	[1]	8.00%	
Property Subject to Finance Lease [Member]			
Property, Plant and Equipment, Gross	[1],[3]	$ 213	
Accumulated Depreciation	[1],[3]	(104)	
Property, plant and equipment, net	[1],[3]	$ 109	

[1] Excludes a right-of-use asset and property, plant and equipment, net of $1 million and $17 million, respectively, related to Garrison Energy Center which are included in current assets held for sale on our Consolidated Condensed Balance Sheet. See Note 4 for further information related to the sale of the Garrison Energy Center.

[2] The right-of-use assets associated with our operating leases as of June 30, 2019 are included in other assets on our Consolidated Condensed Balance Sheet.

[3] The right-of-use assets associated with our finance leases as of June 30, 2019 are included in property, plant and equipment, net on our Consolidated Condensed Balance Sheet.

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Leases Supplemental cash flow information (Details) $ in Millions	6 Months Ended Jun. 30, 2019 USD ($)
Supplemental Cash Flow Information [Abstract]	
Operating Lease, Payments	$ 13
Finance Lease, Interest Payment on Liability	4
Finance Lease, Principal Payments	6
Right-of-Use Asset Obtained in Exchange for Operating Lease Liability	9
Right-of-Use Asset Obtained in Exchange for Finance Lease Liability	$ 0

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Leases Power plants subject to tolling contracts (Details) - USD ($) $ in Millions		Jun. 30, 2019	Dec. 31, 2018
Property, Plant and Equipment, Gross		$ 18,300	$ 18,187
Accumulated Depreciation, Depletion and Amortization, Property, Plant, and Equipment		6,860	6,832
Property, plant and equipment, net		12,051	$ 12,442
Property Subject to Operating Lease [Member]			
Property, Plant and Equipment, Gross		3,076	
Accumulated Depreciation, Depletion and Amortization, Property, Plant, and Equipment		903	
Property, plant and equipment, net	[1]	$ 2,173	

[1] Our assets subject to contracts that are accounted for as operating leases primarily consist of our power plants subject to tolling contracts.

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Leases Schedule of Future Minimum Rental Payments for Operating Leases (Details) $ in Millions	Dec. 31, 2018 USD ($)
Schedule of Future Minimum Rental Payments for Operating Leases [Abstract]	
Operating Leases, Future Minimum Payments Receivable, Current	$ 342
Operating Leases, Future Minimum Payments Receivable, in Two Years	261
Operating Leases, Future Minimum Payments Receivable, in Three Years	257
Operating Leases, Future Minimum Payments Receivable, in Four Years	224
Operating Leases, Future Minimum Payments Receivable, in Five Years	141
Operating Leases, Future Minimum Payments Receivable, Thereafter	239
Operating Leases, Future Minimum Payments Receivable	$ 1,464

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Leases Maturity of Operating Lease Liabilities (Details) - USD ($) $ in Millions		Jun. 30, 2019	Dec. 31, 2018
Maturity of Operating Lease Liabilities [Abstract]			
Operating Leases, Future Minimum Payments Due, Next Twelve Months			$ 50
Capital Leases, Future Minimum Payments Due, Next Twelve Months	[1]		40
Lessee, Operating Lease, Liability, Payments, Remainder of Fiscal Year	[2],[3]	$ 39	
Finance Lease, Liability, Payments, Remainder of Fiscal Year	[2],[4]	8	
Lessee, Operating Lease, Liability, Payments, Due Year Two			19
Capital Leases, Future Minimum Payments Due in Two Years	[1]		40
Finance Lease, Liability, Payments, Due Year Two	[2],[4]	16	
Operating Leases, Future Minimum Payments, Due in Three Years			20
Capital Leases, Future Minimum Payments Due in Three Years	[1]		38
Lessee, Operating Lease, Liability, Payments, Due Year Three	[2],[3]	21	
Finance Lease, Liability, Payments, Due Year Three	[2],[4]	16	
Operating Leases, Future Minimum Payments, Due in Four Years			18
Capital Leases, Future Minimum Payments Due in Four Years	[1]		33
Lessee, Operating Lease, Liability, Payments, Due Year Four	[2],[3]	19	
Finance Lease, Liability, Payments, Due Year Four	[2],[4]	16	
Operating Leases, Future Minimum Payments, Due in Five Years			17
Capital Leases, Future Minimum Payments Due in Five Years	[1]		27
Lessee, Operating Lease, Liability, Payments, Due Year Five	[2],[3]	18	
Finance Lease, Liability, Payments, Due Year Five	[2],[4]	19	
Operating Leases, Future Minimum Payments, Due Thereafter			192
Capital Leases, Future Minimum Payments Due Thereafter	[1]		92
Lessee, Operating Lease, Liability, Payments, Due after Year Five	[2],[3]	201	
Finance Lease, Liability, Payments, Due after Year Five	[2],[4]	33	
Operating Leases, Future Minimum Payments Due			316
Lessee, Operating Lease, Liability, Payments, Due	[2],[3]	318	
Finance Lease, Liability, Payment, Due	[2],[4]	108	
Finance Lease, Liability, Undiscounted Excess Amount	[2],[4]	30	
Finance Lease, Liability	[2],[4]	$ 78	
Capital Leases, Future Minimum Payments Due	[1]		270
Capital Leases, Future Minimum Payments, Interest Included in Payments	[1]		89
Capital Leases, Future Minimum Payments, Present Value of Net Minimum Payments	[1]		$ 181

[1] Includes a failed sale-leaseback transaction related to our Pasadena Power Plant.

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[2] Excludes an operating lease obligation of $1 million and a finance lease obligation of $18 million related to Garrison Energy Center which are included in current liabilities held for sale on our Consolidated Condensed Balance Sheet. See Note 4 for further information related to the sale of the Garrison Energy Center.

[3] The lease liabilities associated with our operating leases as of June 30, 2019 are included in other current liabilities and other long-term liabilities on our Consolidated Condensed Balance Sheet.

[4] The lease liabilities associated with our finance leases as of June 30, 2019 are included in debt, current portion and debt, net of current portion on our Consolidated Condensed Balance Sheet.

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Leases Operating Leases, Future Minimum Payments Receivable (Details) - USD ($) $ in Millions	3 Months Ended	6 Months Ended	
	Jun. 30, 2019	Jun. 30, 2019	Dec. 31, 2018
Operating Leases, Future Minimum Payments Receivable [Abstract]			
Lessor, Operating Lease, Payments to be Received, Remainder of Fiscal Year	$ 204	$ 204	
Operating Lease, Lease Income	[1] 70	139	
Operating Leases, Future Minimum Payments Due, Future Minimum Sublease Rentals			$ 342
Lessor, Operating Lease, Payments to be Received, Two Years	287	287	
Lessor, Operating Lease, Payments to be Received, Three Years	261	261	
Lessor, Operating Lease, Payments to be Received, Four Years	227	227	
Lessor, Operating Lease, Payments to be Received, Five Years	144	144	
Lessor, Operating Lease, Payments to be Received, Thereafter	284	284	
Lessor, Operating Lease, Payments to be Received	$ 1,407	$ 1,407	

[1] Revenues associated with our operating leases are included in Commodity revenue and other revenue on our Consolidated Condensed Statement of Operations.

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Leases Components of operating and finance lease expense (Details) - USD ($) $ in Millions	3 Months Ended	6 Months Ended
	Jun. 30, 2019	Jun. 30, 2019
Components of our operating and finance lease expense [Abstract]		
Operating Lease, Cost	$ 12	$ 23
Finance Lease, Right-of-Use Asset, Amortization	1	4
Finance Lease, Interest Expense	2	4
Finance lease, expense, Total	3	8
Variable Lease, Cost	4	5
Lease, Cost	$ 19	$ 36

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Divestitures (Details) $ in Millions	3 Months Ended				6 Months Ended		
	Sep. 30, 2019 USD ($)	Jun. 30, 2019 USD ($)	Jun. 30, 2018 USD ($)	Mar. 31, 2018 USD ($)	Jun. 30, 2019 USD ($)	Jun. 30, 2018 USD ($)	Jul. 10, 2019 MW
Business Acquisition [Line Items]							
Dividends paid(2)				$ (20)	$ 0 [1]	$ (18) [1]	
Impairment losses		$ 40	$ 0		$ 55	$ 0	
Subsequent Event [Member]							
Business Acquisition [Line Items]							
Dividends paid(2)	$ 400						
Subsequent Event [Member] | Garrison Energy Center and RockGen Energy LLC [Member]							
Business Acquisition [Line Items]							
Ownership percentage of acquiree							100.00%
Proceeds from Sale of Productive Assets	$ 360						
Subsequent Event [Member] | Garrison Energy Center LLC [Member]							
Business Acquisition [Line Items]							
Power generation capacity | MW							309
Subsequent Event [Member] | RockGen Energy LLC [Member]							
Business Acquisition [Line Items]							
Power generation capacity | MW							503

[1] Subsequent to the consummation of the Merger on March 8, 2018, we paid certain Merger-related costs incurred by CPN Management, our direct parent.

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Variable Interest Entities and Unconsolidated Investments in Power Plants (Unconsolidated VIEs) (Details) - USD ($) $ in Millions		Jun. 30, 2019	Dec. 31, 2018
Schedule of Equity Method Investments [Line Items]			
Equity method investments		$ 71	$ 76
Equity method investment, ownership percentage		50.00%	
Greenfield [Member]			
Schedule of Equity Method Investments [Line Items]			
Equity method investments	[1]	$ 56	55
Equity method investment, ownership percentage		50.00%	
Whitby [Member]			
Schedule of Equity Method Investments [Line Items]			
Equity method investments		$ 10	15
Equity method investment, ownership percentage		50.00%	
Calpine Receivables [Member]			
Schedule of Equity Method Investments [Line Items]			
Equity method investments		$ 5	$ 6
Equity method investment, ownership percentage		100.00%	

[1] Includes our share of accumulated other comprehensive income/loss related to interest rate hedging instruments associated with our unconsolidated subsidiary Greenfield LP's debt.

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Variable Interest Entities and Unconsolidated Investments in Power Plants (Income from Unconsolidated Investments 10-Q) (Details) - USD ($) $ in Millions	3 Months Ended		6 Months Ended	
	Jun. 30, 2019	Jun. 30, 2018	Jun. 30, 2019	Jun. 30, 2018
(Income) from unconsolidated subsidiaries	$ (5)	$ (5)	$ (11)	$ (11)
Greenfield [Member]				
(Income) from unconsolidated subsidiaries	(4)	(2)	(6)	(4)
Whitby [Member]				
(Income) from unconsolidated subsidiaries	(2)	(4)	(6)	(8)
Calpine Receivables [Member]				
(Income) from unconsolidated subsidiaries	$ 1	$ 1	$ 1	$ 1

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Variable Interest Entities and Unconsolidated Investments in Power Plants (VIE Texuals) (Details) $ in Millions	3 Months Ended		6 Months Ended		
	Jun. 30, 2019 USD ($) yr MW	Jun. 30, 2018 USD ($)	Jun. 30, 2019 USD ($) yr MW	Jun. 30, 2018 USD ($)	Dec. 31, 2018 USD ($) MW
Variable Interest Entity [Line Items]					
Variable interest entity, financial or other support, amount	$ 0	$ 0	$ 0	$ 0	
Equity method investment, ownership percentage	50.00%		50.00%		
Equity method investment, summarized financial information, debt	$ 304		$ 304		$ 301
Prorata share of equity method investment, summarized financial information, debt	$ 152		152		$ 151
Return on investments from unconsolidated subsidiaries			$ 11	5	
Greenfield [Member]					
Variable Interest Entity [Line Items]					
Power generation capacity | MW	1,038		1,038		
Equity method investment, ownership percentage	50.00%		50.00%		
Return on investments from unconsolidated subsidiaries	$ 0	0	$ 0	0	
Whitby [Member]					
Variable Interest Entity [Line Items]					
Power generation capacity | MW	50		50		
Equity method investment, ownership percentage	50.00%		50.00%		
Return on investments from unconsolidated subsidiaries	$ 0	$ 2	$ 11	$ 5	
Calpine Receivables [Member]					
Variable Interest Entity [Line Items]					
Variable Interest Entity, Reporting Entity Involvement, Maximum Loss Exposure, Amount	$ 67		$ 67		
Equity method investment, ownership percentage	100.00%		100.00%		
Variable Interest Entity, Primary Beneficiary [Member]					
Variable Interest Entity [Line Items]					
Power generation capacity | MW	7,880		7,880		7,880
Put Option [Member]					
Variable Interest Entity [Line Items]					
Proceeds from sale of property, plant and equipment			$ 280		
Call Option [Member]					
Variable Interest Entity [Line Items]					
Proceeds from sale of property, plant and equipment			$ 377		
Inland Empire Energy Center [Member]					
Variable Interest Entity [Line Items]					
Power generation capacity | MW	775		775		
Put Option Exercise Period | yr	2,025		2,025		
Inland Empire Energy Center [Member] | Minimum [Member]					
Variable Interest Entity [Line Items]					

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Call Option Exercise Period | yr	2,017	2,017
Inland Empire Energy Center [Member] | Maximum [Member]		
Variable Interest Entity [Line Items]		
Call Option Exercise Period | yr	2,024	2,024
OMEC [Member]		
Variable Interest Entity [Line Items]		
Debt Instrument, Face Amount	$ 220	$ 220

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Debt (Debt) (Details) - USD ($) $ in Millions	Jun. 30, 2019	Dec. 31, 2018
Debt Instrument [Line Items]		
Debt and Lease Obligation	$ 10,724	$ 10,785
Debt, Current	263	637
Long-term Debt, Excluding Current Maturities	10,461	10,148
Unsecured Debt [Member]		
Debt Instrument [Line Items]		
Debt and Lease Obligation	2,990	3,036
Loans Payable [Member]		
Debt Instrument [Line Items]		
Debt and Lease Obligation	2,979	2,976
Corporate Debt Securities [Member]		
Debt Instrument [Line Items]		
Debt and Lease Obligation	2,402	2,400
Notes Payable, Other Payables [Member]		
Debt Instrument [Line Items]		
Debt and Lease Obligation	1,229	1,264
Secured Debt [Member]		
Debt Instrument [Line Items]		
Debt and Lease Obligation	971	974
Capital Lease Obligations [Member]		
Debt Instrument [Line Items]		
Debt and Lease Obligation	78	105
Revolving Credit Facility [Member]		
Debt Instrument [Line Items]		
Debt and Lease Obligation	$ 75	$ 30

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Debt Senior Unsecured Notes (Details) - USD ($) $ in Millions	3 Months Ended		6 Months Ended		
	Jun. 30, 2019	Jun. 30, 2018	Jun. 30, 2019	Jun. 30, 2018	Dec. 31, 2018
Debt Instrument [Line Items]					
Long-term Debt	$ 10,677		$ 10,677		$ 10,156
Gain (Loss) on Extinguishment of Debt	(3)	$ 0	1	$ 0	
Senior Unsecured Notes 2023 [Member]					
Debt Instrument [Line Items]					
Long-term Debt	1,228		1,228		1,227
Senior Unsecured Notes 2024 [Member]					
Debt Instrument [Line Items]					
Long-term Debt	589		589		599
Senior Unsecured Notes 2025 [Member]					
Debt Instrument [Line Items]					
Long-term Debt	1,173		1,173		1,210
Unsecured Debt [Member]					
Debt Instrument [Line Items]					
Debt Instrument, Repurchased Face Amount, Cumulative	438		438		
Debt Instrument, Repurchased Face Amount	48		48		
Long-term Debt	2,990		2,990		$ 3,036
Debt Instrument, Repurchase Amount	44		44		
Gain (Loss) on Extinguishment of Debt			4		
Debt Instrument, Repurchase Amount, Cumulative	$ 399		$ 399		

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Debt (First Lien Term Loans) (Details) - USD ($) $ in Millions	Jun. 30, 2019	Dec. 31, 2018
Debt Instrument [Line Items]		
Long-term Debt	$ 10,677	$ 10,156
New 2019 First Lien Term Loan [Member]		
Debt Instrument [Line Items]		
Long-term Debt	0	389
2023 First Lien Term Loan [Member]		
Debt Instrument [Line Items]		
Long-term Debt	535	1,059
2024 First Lien Term Loan [Member]		
Debt Instrument [Line Items]		
Long-term Debt	1,522	1,528
2026 First Lien Term Loan [Member]		
Debt Instrument [Line Items]		
Long-term Debt	922	0
First Lien Term Loans [Member]		
Debt Instrument [Line Items]		
Long-term Debt	$ 2,979	$ 2,976

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Debt (First Lien Notes) (Details) - USD ($) $ in Millions	Jun. 30, 2019	Dec. 31, 2018
Debt Instrument [Line Items]		
Long-term Debt	$ 10,677	$ 10,156
2022 First Lien Notes [Member]		
Debt Instrument [Line Items]		
Long-term Debt	744	743
2024 First Lien Notes [Member]		
Debt Instrument [Line Items]		
Long-term Debt	487	486
2026 First Lien Notes [Member]		
Debt Instrument [Line Items]		
Long-term Debt	1,171	1,171
Corporate Debt Securities [Member]		
Debt Instrument [Line Items]		
Long-term Debt	$ 2,402	$ 2,400

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Debt (Letter of Credit) (Details) - USD ($) $ in Millions		Jun. 30, 2019	Dec. 31, 2018
Line of Credit Facility [Line Items]			
Letters of Credit Outstanding, Amount		$ 1,135	$ 1,365
Revolving Credit Facility [Member]			
Line of Credit Facility [Line Items]			
Letters of Credit Outstanding, Amount	[1]	585	693
CDH [Member]			
Line of Credit Facility [Line Items]			
Letters of Credit Outstanding, Amount	[2]	30	251
Various Project Financing Facilities [Member]			
Line of Credit Facility [Line Items]			
Letters of Credit Outstanding, Amount		227	228
Other Corporate Facilities [Member]			
Line of Credit Facility [Line Items]			
Letters of Credit Outstanding, Amount	[3]	$ 293	$ 193

[1] The Corporate Revolving Facility represents our primary revolving facility. On April 5, 2019, we amended our Corporate Revolving Facility to increase the capacity by approximately $330 million from $1.69 billion to approximately $2.02 billion.

[2] Pursuant to the terms and conditions of the CDHI credit agreement, the capacity under the CDHI letter of credit facility was reduced to $125 million on June 28, 2019. The decrease in capacity did not have a material effect on our liquidity as alternative sources of liquidity are available.

[3] We have three unsecured letter of credit facilities with two third-party financial institutions totaling approximately $300 million at June 30, 2019.

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Debt (Fair Value of Debt) (Details) - USD ($) $ in Millions	Jun. 30, 2019	Dec. 31, 2018
Fair Value, Balance Sheet Grouping, Financial Statement Captions [Line Items]		
Long-term Debt	$ 10,677	$ 10,156
Unsecured Debt [Member]		
Fair Value, Balance Sheet Grouping, Financial Statement Captions [Line Items]		
Long-term Debt	2,990	3,036
Loans Payable [Member]		
Fair Value, Balance Sheet Grouping, Financial Statement Captions [Line Items]		
Long-term Debt	2,979	2,976
Corporate Debt Securities [Member]		
Fair Value, Balance Sheet Grouping, Financial Statement Captions [Line Items]		
Long-term Debt	2,402	2,400
Reported Value Measurement [Member]		
Fair Value, Balance Sheet Grouping, Financial Statement Captions [Line Items]		
Long-term Debt	10,570	10,604
Reported Value Measurement [Member] | Unsecured Debt [Member]		
Fair Value, Balance Sheet Grouping, Financial Statement Captions [Line Items]		
Long-term Debt	2,990	3,036
Reported Value Measurement [Member] | Loans Payable [Member]		
Fair Value, Balance Sheet Grouping, Financial Statement Captions [Line Items]		
Long-term Debt	2,979	2,976
Reported Value Measurement [Member] | Corporate Debt Securities [Member]		
Fair Value, Balance Sheet Grouping, Financial Statement Captions [Line Items]		
Long-term Debt	2,402	2,400
Reported Value Measurement [Member] | Notes Payable, Other Payable excluding Capital Leases [Member]		
Fair Value, Balance Sheet Grouping, Financial Statement Captions [Line Items]		
Long-term Debt	[1] 1,153	1,188
Reported Value Measurement [Member] | Secured Debt [Member]		
Fair Value, Balance Sheet Grouping, Financial Statement Captions [Line Items]		
Long-term Debt	971	974
Reported Value Measurement [Member] | Revolving Credit Facility [Member]		
Fair Value, Balance Sheet Grouping, Financial Statement Captions [Line Items]		
Long-term Debt	75	30
Fair Value, Inputs, Level 2 [Member] | Unsecured Debt [Member]		
Fair Value, Balance Sheet Grouping, Financial Statement Captions [Line Items]		
Long-term Debt	3,011	2,803
Fair Value, Inputs, Level 2 [Member] | Loans Payable [Member]		
Fair Value, Balance Sheet Grouping, Financial Statement Captions [Line Items]		
Long-term Debt	3,013	2,877
Fair Value, Inputs, Level 2 [Member] | Corporate Debt Securities [Member]		

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Fair Value, Balance Sheet Grouping, Financial Statement Captions [Line Items]		
Long-term Debt	2,462	2,299
Fair Value, Inputs, Level 2 [Member] | Secured Debt [Member]		
Fair Value, Balance Sheet Grouping, Financial Statement Captions [Line Items]		
Long-term Debt	980	938
Fair Value, Inputs, Level 2 [Member] | Revolving Credit Facility [Member]		
Fair Value, Balance Sheet Grouping, Financial Statement Captions [Line Items]		
Long-term Debt	75	30
Fair Value, Inputs, Level 3 [Member] | Notes Payable, Other Payable excluding Capital Leases [Member]		
Fair Value, Balance Sheet Grouping, Financial Statement Captions [Line Items]		
Long-term Debt	[1] $ 1,136	$ 1,209

[1] Excludes an agreement that is accounted for as a failed sale-leaseback transaction under U.S. GAAP.

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Debt (Debt Textuals) (Details) - USD ($) $ in Millions	3 Months Ended		6 Months Ended		
	Jun. 30, 2019	Jun. 30, 2018	Jun. 30, 2019	Jun. 30, 2018	Apr. 05, 2019
Line of Credit Facility [Line Items]					
Gain (Loss) on Extinguishment of Debt	$ (3)	$ 0	$ 1	$ 0	
Debt Instruments [Abstract]					
Debt Instrument, Interest Rate, Effective Percentage	5.90%	5.70%	5.90%	5.70%	
CDHI [Member]					
Line of Credit Facility [Line Items]					
Future Line of Credit Facility Maximum Borrowing Capacity	$ 125		$ 125		
Other Corporate Facilities [Member]					
Line of Credit Facility [Line Items]					
Line of Credit Facility, Maximum Borrowing Capacity	$ 300		300		
2026 First Lien Term Loan [Member]					
Line of Credit Facility [Line Items]					
Debt Instrument, Face Amount					$ 950
Percentage of principal amount of Term Loan to be paid quarterly	0.25%				
Debt Instrument Unamortized Discount Percent					1.00%
Debt Issuance Costs, Net					$ 7
Gain (Loss) on Extinguishment of Debt	$ (3)				
Russell City and Los Esteros Project Debt [Member]					
Line of Credit Facility [Line Items]					
Long-term Debt, Excluding Current Maturities	362		362		
Amendment No. 6 [Member] | Revolving Credit Facility [Member]					
Line of Credit Facility [Line Items]					
Line of Credit Facility, Increase (Decrease), Net	330				
Line of Credit Facility, Maximum Borrowing Capacity					$ 2,020
Amendment No. 8 [Member] | Revolving Credit Facility [Member]					
Line of Credit Facility [Line Items]					
Line of Credit Facility, Maximum Borrowing Capacity	$ 1,690		$ 1,690		
Federal Funds Effective Rate [Member] | 2026 First Lien Term Loan [Member]					
Line of Credit Facility [Line Items]					
Debt Instrument, Basis Spread on Variable Rate	0.50%				
Eurodollar Rate For A One-Month Interest Period [Member] | 2026 First Lien Term Loan [Member]					
Line of Credit Facility [Line Items]					
Debt Instrument, Basis Spread on Variable Rate	1.00%				
Prime Rate or The Eurodollar Rate For A One-Month Interest Period [Member] | 2026 First Lien Term Loan [Member]					
Line of Credit Facility [Line Items]					
Debt Instrument, Basis Spread on Variable Rate	1.75%				

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London Interbank Offered Rate (LIBOR) [Member] | 2026 First Lien Term Loan [Member]		
Line of Credit Facility [Line Items]		
Debt Instrument, Basis Spread on Variable Rate	2.75%	
Minimum [Member] | London Interbank Offered Rate (LIBOR) [Member] | 2026 First Lien Term Loan [Member]		
Line of Credit Facility [Line Items]		
Debt Instrument, Interest Rate, Stated Percentage		0.00%

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Assets and Liabilities with Recurring Fair Value Measurements Fair Value Hierarchy (Details) - USD ($) $ in Millions		Jun. 30, 2019	Dec. 31, 2018
Fair Value, Assets and Liabilities Measured on Recurring and Nonrecurring Basis [Line Items]			
Cash equivalents	[1]	$ 165	$ 168
Derivative Asset	[2]	415	302
Effect of Netting and Allocation of Collateral	[3],[4]	(1,352)	(1,221)
Total assets		580	470
Derivative Liability	[2]	284	443
Effect of Netting and Allocation of Collateral, Liability	[3],[4]	(1,498)	(1,268)
Total Liabilities		284	443
Fair Value, Inputs, Level 1 [Member]			
Fair Value, Assets and Liabilities Measured on Recurring and Nonrecurring Basis [Line Items]			
Cash equivalents	[1]	165	168
Effect of Netting and Allocation of Collateral	[3],[4]	(1,089)	(933)
Total assets		165	168
Effect of Netting and Allocation of Collateral, Liability	[3],[4]	(1,179)	(932)
Total Liabilities		0	0
Fair Value, Inputs, Level 2 [Member]			
Fair Value, Assets and Liabilities Measured on Recurring and Nonrecurring Basis [Line Items]			
Cash equivalents	[1]	0	0
Effect of Netting and Allocation of Collateral	[3],[4]	(243)	(262)
Total assets		113	116
Effect of Netting and Allocation of Collateral, Liability	[3],[4]	(298)	(310)
Total Liabilities		209	249
Fair Value, Inputs, Level 3 [Member]			
Fair Value, Assets and Liabilities Measured on Recurring and Nonrecurring Basis [Line Items]			
Cash equivalents	[1]	0	0
Effect of Netting and Allocation of Collateral	[3],[4]	(20)	(26)
Total assets		302	186
Effect of Netting and Allocation of Collateral, Liability	[3],[4]	(21)	(26)
Total Liabilities		75	194
Future [Member]			
Fair Value, Assets and Liabilities Measured on Recurring and Nonrecurring Basis [Line Items]			

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Derivative Asset		1,089	933
Derivative Liability		1,179	932
Future [Member] | Fair Value, Inputs, Level 1 [Member]			
Fair Value, Assets and Liabilities Measured on Recurring and Nonrecurring Basis [Line Items]			
Derivative Asset		1,089	933
Derivative Liability		1,179	932
Future [Member] | Fair Value, Inputs, Level 2 [Member]			
Fair Value, Assets and Liabilities Measured on Recurring and Nonrecurring Basis [Line Items]			
Derivative Asset		0	0
Derivative Liability		0	0
Future [Member] | Fair Value, Inputs, Level 3 [Member]			
Fair Value, Assets and Liabilities Measured on Recurring and Nonrecurring Basis [Line Items]			
Derivative Asset		0	0
Derivative Liability		0	0
Forward Contracts [Member]			
Fair Value, Assets and Liabilities Measured on Recurring and Nonrecurring Basis [Line Items]			
Derivative Asset	[5]	672	550
Derivative Liability	[5]	570	769
Forward Contracts [Member] | Fair Value, Inputs, Level 1 [Member]			
Fair Value, Assets and Liabilities Measured on Recurring and Nonrecurring Basis [Line Items]			
Derivative Asset	[5]	0	0
Derivative Liability	[5]	0	0
Forward Contracts [Member] | Fair Value, Inputs, Level 2 [Member]			
Fair Value, Assets and Liabilities Measured on Recurring and Nonrecurring Basis [Line Items]			
Derivative Asset	[5]	350	338
Derivative Liability	[5]	474	549
Forward Contracts [Member] | Fair Value, Inputs, Level 3 [Member]			
Fair Value, Assets and Liabilities Measured on Recurring and Nonrecurring Basis [Line Items]			
Derivative Asset	[5]	322	212
Derivative Liability	[5]	96	220
Interest Rate Hedging Instruments			
Fair Value, Assets and Liabilities Measured on Recurring and Nonrecurring Basis [Line Items]			
Derivative Asset		6	40
Derivative Liability		33	10
Interest Rate Hedging Instruments | Fair Value, Inputs, Level 1 [Member]			

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Fair Value, Assets and Liabilities Measured on Recurring and Nonrecurring Basis [Line Items]		
Derivative Asset	0	0
Derivative Liability	0	0
Interest Rate Hedging Instruments | Fair Value, Inputs, Level 2 [Member]		
Fair Value, Assets and Liabilities Measured on Recurring and Nonrecurring Basis [Line Items]		
Derivative Asset	6	40
Derivative Liability	33	10
Interest Rate Hedging Instruments | Fair Value, Inputs, Level 3 [Member]		
Fair Value, Assets and Liabilities Measured on Recurring and Nonrecurring Basis [Line Items]		
Derivative Asset	0	0
Derivative Liability	$ 0	$ 0

[1] At June 30, 2019 and December 31, 2018, we had cash equivalents of $16 million and $23 million included in cash and cash equivalents and $149 million and $145 million included in restricted cash, respectively.

[2] At June 30, 2019 and December 31, 2018, we had $142 million and $244 million, respectively, of collateral under master netting arrangements that were not offset against our derivative instruments on the Consolidated Condensed Balance Sheets primarily related to initial margin requirements.

[3] Cash collateral posted with (received from) counterparties allocated to level 1, level 2 and level 3 derivative instruments totaled $90 million, $55 million and $1 million, respectively, at June 30, 2019. Cash collateral posted with (received from) counterparties allocated to level 1, level 2 and level 3 derivative instruments totaled $(1) million, $48 million and nil, respectively, at December 31, 2018.

[4] We offset fair value amounts recognized for derivative instruments executed with the same counterparty under a master netting arrangement for financial statement presentation; therefore, amounts recognized for the right to reclaim, or the obligation to return, cash collateral are presented net with the corresponding derivative instrument fair values. See Note 8 for further discussion of our derivative instruments subject to master netting arrangements.

[5] Includes OTC swaps and options.

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Assets and Liabilities with Recurring Fair Value Measurements Quantitative Info on Level 3 (Details) - USD ($)		Jun. 30, 2019	Dec. 31, 2018
Fair Value Measurements Inputs and Valuation Techniques			
Derivative, Fair Value, Net	[1]	$ 131,000,000	$ (141,000,000)
Power Contracts [Member]			
Fair Value Measurements Inputs and Valuation Techniques			
Derivative, Fair Value, Net	[2]	190,000,000	36,000,000
Power Contracts [Member] | Minimum [Member]			
Fair Value Measurements Inputs and Valuation Techniques			
Fair Value Inputs Quantitative Information		7.09	2.12
Power Contracts [Member] | Maximum [Member]			
Fair Value Measurements Inputs and Valuation Techniques			
Fair Value Inputs Quantitative Information		123.34	227.98
Natural Gas [Member]			
Fair Value Measurements Inputs and Valuation Techniques			
Derivative, Fair Value, Net		6,000,000	(73,000,000)
Natural Gas [Member] | Minimum [Member]			
Fair Value Measurements Inputs and Valuation Techniques			
Fair Value Inputs Quantitative Information		0.61	0.75
Natural Gas [Member] | Maximum [Member]			
Fair Value Measurements Inputs and Valuation Techniques			
Fair Value Inputs Quantitative Information		9.75	8.87
Power Congestion Products [Member]			
Fair Value Measurements Inputs and Valuation Techniques			
Derivative, Fair Value, Net		18,000,000	26,000,000
Power Congestion Products [Member] | Minimum [Member]			
Fair Value Measurements Inputs and Valuation Techniques			
Fair Value Inputs Quantitative Information		(8.63)	(11.71)
Power Congestion Products [Member] | Maximum [Member]			
Fair Value Measurements Inputs and Valuation Techniques			
Fair Value Inputs Quantitative Information		$ 11.48	$ 11.88

[1] At June 30, 2019 and December 31, 2018, we had $142 million and $244 million, respectively, of collateral under master netting arrangements that were not offset against our derivative instruments on the Consolidated Condensed Balance Sheets primarily related to initial margin requirements.

[2] Power contracts include power and heat rate instruments classified as level 3 in the fair value hierarchy.

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Assets and Liabilities with Recurring Fair Value Measurements (Textuals) (Details) - USD ($) $ in Millions		3 Months Ended		6 Months Ended		
		Jun. 30, 2019	Jun. 30, 2018	Jun. 30, 2019	Jun. 30, 2018	Dec. 31, 2018
Fair Value Measurement [Domain]						
Fair Value Disclosures [Abstract]						
Cash and Cash Equivalents, at Carrying Value		$ 16		$ 16		$ 23
Restricted Cash and Cash Equivalents		149		149		145
Fair Value, Net Derivative Asset (Liability) Measured on Recurring Basis with Unobservable Inputs		105	$ 129	(8)	$ 197	
Included in operating revenues	[1]	152	31	197	(28)	
Fair Value, Assets Measured with Unobservable Inputs on Recurring Basis, Gain (Loss) Included In Fuel And Purchased Energy Expense	[2]	1	18	2	15	
Amount of Change in Collateral of Financial Instruments Classified as Derivative Asset (Liability)		(1)	1	1	(1)	
Fair Value, Net Derivative Asset (Liability) Measured on Recurring Basis, Unobservable Inputs Reconciliation, Purchases		1	5	3	9	
Fair Value, Net Derivative Asset (Liability) Measured on Recurring Basis, Unobservable Inputs Reconciliation, Issues		(1)	0	(1)	0	
Fair Value, Measurement with Unobservable Inputs Reconciliation, Recurring Basis, Asset, Settlements		(35)	(42)	28	(53)	
Fair Value, Liabilities, Level 1 to Level 2 Transfers, Amount		0	0	0	0	
Fair Value, Liabilities, Level 2 to Level 1 Transfers, Amount		0	0	0	0	
Transfers into level 3	[3],[4]	6	(1)	7	(1)	
Transfers out of Level 3	[4],[5]	(1)	(10)	(2)	(7)	
Fair Value, Net Derivative Asset (Liability) Measured on Recurring Basis with Unobservable Inputs		227	131	227	131	
Fair Value, Assets Measured on Recurring Basis, Change in Unrealized Gain (Loss)		153	$ 49	199	$ (13)	
Cash and Cash Equivalents, at Carrying Value		297		297		205
Restricted Cash and Cash Equivalents		262		262		201
Fair Value, Inputs, Level 1 [Member]						
Fair Value Disclosures [Abstract]						
Derivative, Collateral, Right to Reclaim Cash, Net		90		90		(1)
Fair Value, Inputs, Level 2 [Member]						
Fair Value Disclosures [Abstract]						
Derivative, Collateral, Right to Reclaim Cash, Net		55		55		48
Fair Value, Inputs, Level 3 [Member]						
Fair Value Disclosures [Abstract]						
Derivative, Collateral, Right to Reclaim Cash, Net		$ 1		$ 1		$ 0

[1] For power contracts and other power-related products, included on our Consolidated Condensed Statements of Operations.

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[2] For natural gas and power contracts, swaps and options, included on our Consolidated Condensed Statements of Operations.

[3] We had $6 million in gains and $(1) million in losses transferred out of level 2 into level 3 for the three months ended June 30, 2019 and 2018, respectively, and $7 million in gains and $(1) million in losses transferred out of level 2 into level 3 for the six months ended June 30, 2019 and 2018, respectively, due to changes in market liquidity in various power markets.

[4] We transfer amounts among levels of the fair value hierarchy as of the end of each period. There were no transfers into or out of level 1 for each of the three and six months ended June 30, 2019 and 2018.

[5] We had $1 million and $10 million in gains transferred out of level 3 into level 2 for the three months ended June 30, 2019 and 2018, respectively, and $2 million and $7 million in gains transferred out of level 3 into level 2 for the six months ended June 30, 2019 and 2018, respectively, due to changes in market liquidity in various power markets.

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Derivative Instruments (Details) $ in Billions	6 Months Ended Jun. 30, 2019 USD ($) MMBTU MWh t	12 Months Ended Dec. 31, 2018 USD ($) MMBTU MWh t
Power [Member]		
Derivative [Line Items]		
Derivative, Nonmonetary Notional Amount, Energy Measure | MWh	181	161
Natural Gas [Member]		
Derivative [Line Items]		
Derivative, Nonmonetary Notional Amount, Energy Measure | MMBTU	1,048	1,045
Environmental Credits [Member]		
Derivative [Line Items]		
Derivative, Nonmonetary Notional Amount, Mass | t	13	13
Interest Rate Hedging Instruments		
Derivative [Line Items]		
Derivative, Notional Amount | $	$ 4.3	$ 4.5

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Derivative Instruments (Details 2) (Details) - USD ($) $ in Millions	Jun. 30, 2019	Dec. 31, 2018
Derivatives, Fair Value [Line Items]		
Derivative Asset	[1] $ 415	$ 302
Derivative Liability	[1] 284	443
Designated as Hedging Instrument [Member]		
Derivatives, Fair Value [Line Items]		
Derivative Asset	2	40
Derivative Liability	27	10
Not Designated as Hedging Instrument [Member]		
Derivatives, Fair Value [Line Items]		
Derivative Asset	413	262
Derivative Liability	257	433
Interest Rate Hedging Instruments		
Derivatives, Fair Value [Line Items]		
Derivative Asset	6	40
Derivative Liability	33	10
Interest Rate Hedging Instruments | Designated as Hedging Instrument [Member]		
Derivatives, Fair Value [Line Items]		
Derivative Asset	2	40
Derivative Liability	27	10
Interest Rate Hedging Instruments | Not Designated as Hedging Instrument [Member]		
Derivatives, Fair Value [Line Items]		
Derivative Asset	0	0
Derivative Liability	2	0
Energy Related Derivative [Member] | Not Designated as Hedging Instrument [Member]		
Derivatives, Fair Value [Line Items]		
Derivative Asset	413	262
Derivative Liability	$ 255	$ 433

[1] At June 30, 2019 and December 31, 2018, we had $142 million and $244 million, respectively, of collateral under master netting arrangements that were not offset against our derivative instruments on the Consolidated Condensed Balance Sheets primarily related to initial margin requirements.

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Derivative Instruments (Detail 3) (Details) - USD ($) $ in Millions	Jun. 30, 2019		Dec. 31, 2018	
Derivative Instruments Subject to Master Netting Arrangement [Line Items]				
Derivative assets, current	[1]	$ 202	[2] $ 142	[3]
Derivative Asset, Noncurrent	[1]	213	[2] 160	[3]
Long-term derivative liabilities	[1]	(119)	[2] (140)	[3]
Derivative Liability, Fair Value, Gross Liability Including Not Subject to Master Netting Arrangement		(15)	188	
Derivative Liability, Collateral, Right to Reclaim Cash, Offset		146	47	
Derivative Liability, Current	[1]	(165)	[2] (303)	[3]
Derivative Liability	[1]	(284)	(443)	
Derivative, Collateral, Right to Reclaim Cash		142	244	
Derivative, Fair Value, Net	[1]	131	(141)	
Derivative Asset	[1]	415	302	
Derivative Financial Instruments, Assets [Member]				
Derivative Instruments Subject to Master Netting Arrangement [Line Items]				
Derivative Asset, Fair Value, Gross Asset Including Not Subject to Master Netting Arrangement		1,767	1,523	
Derivative Asset, Collateral, Obligation to Return Cash, Offset		(1,352)	(1,221)	
Future [Member]				
Derivative Instruments Subject to Master Netting Arrangement [Line Items]				
Derivative assets, current	[1]	0	0	
Derivative Asset, Noncurrent	[1]	0	0	
Long-term derivative liabilities	[1]	0	0	
Derivative Liability, Current	[1]	0	0	
Derivative Liability		(1,179)	(932)	
Derivative Asset		1,089	933	
Forward Contracts [Member]				
Derivative Instruments Subject to Master Netting Arrangement [Line Items]				
Derivative assets, current	[1]	200	112	
Derivative Asset, Noncurrent	[1]	213	150	
Long-term derivative liabilities	[1]	(96)	(134)	
Derivative Liability, Current	[1]	(159)	(299)	
Derivative Liability	[4]	(570)	(769)	
Derivative Asset	[4]	672	550	
Interest Rate Hedging Instruments				
Derivative Instruments Subject to Master Netting Arrangement [Line Items]				
Derivative assets, current	[1]	2	30	
Derivative Asset, Noncurrent	[1]	0	10	

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Long-term derivative liabilities	[1] (23)	(6)
Derivative Liability, Current	[1] (6)	(4)
Derivative Liability	(33)	(10)
Derivative Asset	6	40
Fair Value, Inputs, Level 3 [Member]		
Derivative Instruments Subject to Master Netting Arrangement [Line Items]		
Margin/Cash (Received) Posted Subject to Master Netting Arrangement	1	0
Fair Value, Inputs, Level 3 [Member] | Future [Member]		
Derivative Instruments Subject to Master Netting Arrangement [Line Items]		
Derivative Liability	0	0
Derivative Asset	0	0
Fair Value, Inputs, Level 3 [Member] | Forward Contracts [Member]		
Derivative Instruments Subject to Master Netting Arrangement [Line Items]		
Derivative Liability	[4] (96)	(220)
Derivative Asset	[4] 322	212
Fair Value, Inputs, Level 3 [Member] | Interest Rate Hedging Instruments		
Derivative Instruments Subject to Master Netting Arrangement [Line Items]		
Derivative Liability	0	0
Derivative Asset	0	0
Derivative Assets, Current [Member]		
Derivative Instruments Subject to Master Netting Arrangement [Line Items]		
Derivative Asset, Fair Value, Gross Asset Including Not Subject to Master Netting Arrangement	1,254 [2]	1,191 [3]
Derivative Asset, Collateral, Obligation to Return Cash, Offset	(1,052) [2]	(1,049) [3]
Derivative Assets, Current [Member] | Future [Member]		
Derivative Instruments Subject to Master Netting Arrangement [Line Items]		
Derivative Asset, Fair Value, Gross Asset Including Not Subject to Master Netting Arrangement	861	820
Derivative Asset, Collateral, Obligation to Return Cash, Offset	(861)	(820)
Derivative Assets, Current [Member] | Forward Contracts [Member]		
Derivative Instruments Subject to Master Netting Arrangement [Line Items]		
Derivative Asset, Fair Value, Gross Asset Including Not Subject to Master Netting Arrangement	388	341
Derivative Asset, Collateral, Obligation to Return Cash, Offset	(188)	(229)
Derivative Assets, Current [Member] | Interest Rate Hedging Instruments		
Derivative Instruments Subject to Master Netting Arrangement [Line Items]		
Derivative Asset, Fair Value, Gross Asset Including Not Subject to Master Netting Arrangement	5	30
Derivative Asset, Collateral, Obligation to Return Cash, Offset	(3)	0
Derivative Assets, Non-current [Member]		
Derivative Instruments Subject to Master Netting Arrangement [Line Items]		
Derivative Asset, Fair Value, Gross Asset Including Not Subject to Master Netting Arrangement	513 [2]	332 [3]

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Derivative Asset, Collateral, Obligation to Return Cash, Offset	(300)	[2]	(172)	[3]
Derivative Assets, Non-current [Member] | Future [Member]				
Derivative Instruments Subject to Master Netting Arrangement [Line Items]				
Derivative Asset, Fair Value, Gross Asset Including Not Subject to Master Netting Arrangement	228		113	
Derivative Asset, Collateral, Obligation to Return Cash, Offset	(228)		(113)	
Derivative Assets, Non-current [Member] | Forward Contracts [Member]				
Derivative Instruments Subject to Master Netting Arrangement [Line Items]				
Derivative Asset, Fair Value, Gross Asset Including Not Subject to Master Netting Arrangement	284		209	
Derivative Asset, Collateral, Obligation to Return Cash, Offset	(71)		(59)	
Derivative Assets, Non-current [Member] | Interest Rate Hedging Instruments				
Derivative Instruments Subject to Master Netting Arrangement [Line Items]				
Derivative Asset, Fair Value, Gross Asset Including Not Subject to Master Netting Arrangement	1		10	
Derivative Asset, Collateral, Obligation to Return Cash, Offset	(1)		0	
Derivative Liabilities, Current [Member]				
Derivative Instruments Subject to Master Netting Arrangement [Line Items]				
Derivative Liability, Fair Value, Gross Liability Including Not Subject to Master Netting Arrangement	(1,263)	[2]	(1,344)	[3]
Derivative Liability, Collateral, Right to Reclaim Cash, Offset	1,098	[2]	1,041	[3]
Derivative Liabilities, Current [Member] | Future [Member]				
Derivative Instruments Subject to Master Netting Arrangement [Line Items]				
Derivative Liability, Fair Value, Gross Liability Including Not Subject to Master Netting Arrangement	(861)		(764)	
Derivative Liability, Collateral, Right to Reclaim Cash, Offset	861		764	
Derivative Liabilities, Current [Member] | Forward Contracts [Member]				
Derivative Instruments Subject to Master Netting Arrangement [Line Items]				
Derivative Liability, Fair Value, Gross Liability Including Not Subject to Master Netting Arrangement	(393)		(576)	
Derivative Liability, Collateral, Right to Reclaim Cash, Offset	234		277	
Derivative Liabilities, Current [Member] | Interest Rate Hedging Instruments				
Derivative Instruments Subject to Master Netting Arrangement [Line Items]				
Derivative Liability, Fair Value, Gross Liability Including Not Subject to Master Netting Arrangement	(9)		(4)	
Derivative Liability, Collateral, Right to Reclaim Cash, Offset	3		0	
Derivative Liabilities, Non-current [Member]				
Derivative Instruments Subject to Master Netting Arrangement [Line Items]				
Derivative Liability, Fair Value, Gross Liability Including Not Subject to Master Netting Arrangement	(519)	[2]	(367)	[3]
Derivative Liability, Collateral, Right to Reclaim Cash, Offset	400	[2]	227	[3]
Derivative Liabilities, Non-current [Member] | Future [Member]				
Derivative Instruments Subject to Master Netting Arrangement [Line Items]				

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Derivative Liability, Fair Value, Gross Liability Including Not Subject to Master Netting Arrangement	(318)	(168)
Derivative Liability, Collateral, Right to Reclaim Cash, Offset	318	168
Derivative Liabilities, Non-current [Member] | Forward Contracts [Member]		
Derivative Instruments Subject to Master Netting Arrangement [Line Items]		
Derivative Liability, Fair Value, Gross Liability Including Not Subject to Master Netting Arrangement	(177)	(193)
Derivative Liability, Collateral, Right to Reclaim Cash, Offset	81	59
Derivative Liabilities, Non-current [Member] | Interest Rate Hedging Instruments		
Derivative Instruments Subject to Master Netting Arrangement [Line Items]		
Derivative Liability, Fair Value, Gross Liability Including Not Subject to Master Netting Arrangement	(24)	(6)
Derivative Liability, Collateral, Right to Reclaim Cash, Offset	1	0
Derivative Financial Instruments, Liabilities [Member]		
Derivative Instruments Subject to Master Netting Arrangement [Line Items]		
Derivative Liability, Fair Value, Gross Liability Including Not Subject to Master Netting Arrangement	(1,782)	(1,711)
Derivative Liability, Collateral, Right to Reclaim Cash, Offset	$ 1,498	$ 1,268

[1] At June 30, 2019 and December 31, 2018, we had $142 million and $244 million, respectively, of collateral under master netting arrangements that were not offset against our derivative instruments on the Consolidated Condensed Balance Sheets primarily related to initial margin requirements.

[2] At June 30, 2019, current and long-term derivative assets are shown net of collateral of $(27) million and $(3) million, respectively, and current and long-term derivative liabilities are shown net of collateral of $72 million and $104 million, respectively.

[3] At December 31, 2018, current and long-term derivative assets are shown net of collateral of $(58) million and $(8) million, respectively, and current and long-term derivative liabilities are shown net of collateral of $49 million and $64 million, respectively.

[4] Includes OTC swaps and options.

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Derivative Instruments (Details 4) (Details) - USD ($) $ in Millions		3 Months Ended		6 Months Ended	
		Jun. 30, 2019	Jun. 30, 2018	Jun. 30, 2019	Jun. 30, 2018
Summary of Derivative Instruments by Risk Exposure [Abstract]					
Gain (Loss) on Derivative Instruments, Net, Pretax	[1]	$ 244	$ 258	$ 400	$ (114)
Gain (Loss) on Sale of Derivatives	[2],[3]	58	69	169	66
Mark-to-market gain (loss)	[4]	186	189	231	(180)
Sales [Member]					
Summary of Derivative Instruments by Risk Exposure [Abstract]					
Gain (Loss) on Derivative Instruments, Net, Pretax	[1],[5],[6]	541	183	578	(176)
Cost of Sales [Member]					
Summary of Derivative Instruments by Risk Exposure [Abstract]					
Gain (Loss) on Derivative Instruments, Net, Pretax	[1],[5],[6]	(296)	74	(176)	59
Interest Expense [Member]					
Summary of Derivative Instruments by Risk Exposure [Abstract]					
Gain (Loss) on Derivative Instruments, Net, Pretax	[1]	(1)	1	(2)	3
Interest Rate Hedging Instruments					
Summary of Derivative Instruments by Risk Exposure [Abstract]					
Mark-to-market gain (loss)	[4]	(1)	1	(2)	3
Energy Related Derivative [Member]					
Summary of Derivative Instruments by Risk Exposure [Abstract]					
Gain (Loss) on Sale of Derivatives	[2],[3]	58	69	169	66
Mark-to-market gain (loss)	[4]	$ 187	$ 188	$ 233	$ (183)

[1] In addition to changes in market value on derivatives not designated as hedges, changes in mark-to-market gain (loss) also includes adjustments to reflect changes in credit default risk exposure.

[2] Does not include the realized value associated with derivative instruments that settle through physical delivery.

[3] Includes amortization of acquisition date fair value of financial derivative activity related to the acquisition of Champion Energy and Calpine Solutions.

[4] In addition to changes in market value on derivatives not designated as hedges, changes in mark-to-market gain (loss) also includes adjustments to reflect changes in credit default risk exposure.

[5] Does not include the realized value associated with derivative instruments that settle through physical delivery.

[6] Includes amortization of acquisition date fair value of financial derivative activity related to the acquisition of Champion Energy and Calpine Solutions.

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Derivative Instruments (Details 5) (Details) - USD ($) $ in Millions		3 Months Ended		6 Months Ended	
		Jun. 30, 2019	Jun. 30, 2018	Jun. 30, 2019	Jun. 30, 2018
Derivative Instruments, Gain (Loss) [Line Items]					
Other Comprehensive Income (Loss), Derivatives Qualifying as Hedges, before Tax		$ (32)	$ 15	$ (57)	$ 70
Reclassification adjustment for loss on cash flow hedges realized in net income (loss)	[1],[2]	3	0	5	(7)
Depreciation expense [Member]					
Derivative Instruments, Gain (Loss) [Line Items]					
Other Comprehensive Income (Loss), Derivatives Qualifying as Hedges, before Tax	[3],[4]			0	1
Reclassification adjustment for loss on cash flow hedges realized in net income (loss)	[1],[2],[3],[4]			0	(1)
Interest Rate Hedging Instruments					
Derivative Instruments, Gain (Loss) [Line Items]					
Other Comprehensive Income (Loss), Derivatives Qualifying as Hedges, before Tax	[3],[4]	(32)	15	(57)	69
Reclassification adjustment for loss on cash flow hedges realized in net income (loss)	[1],[2],[3],[4]	$ 3	$ 0	$ 5	$ (6)

[1] Cumulative cash flow hedge losses attributable to Calpine, net of tax, remaining in AOCI were $89 million and $34 million at June 30, 2019 and December 31, 2018, respectively. Cumulative cash flow hedge losses attributable to the noncontrolling interest, net of tax, remaining in AOCI were $4 million and $3 million at June 30, 2019 and December 31, 2018, respectively.

[2] Includes losses (gains) of nil that were reclassified from AOCI to interest expense for the three months ended June 30, 2019 and 2018, and losses of $1 million and nil that were reclassified from AOCI to interest expense for the six months ended June 30, 2019 and 2018, respectively, where the hedged transactions became probable of not occurring.

[3] We recorded $1 million in gains on hedge ineffectiveness related to our interest rate hedging instruments designated as cash flow hedges during each of the three and six months ended June 30, 2018. Upon the adoption of Accounting Standards Update 2017-12 on January 1, 2019, hedge ineffectiveness is no longer separately measured and recorded in earnings.

[4] We recorded an income tax benefit of $1 million and $7 million for the three months ended June 30, 2019 and 2018, respectively, and income tax benefit of $1 million and income tax expense of $4 million for the six months ended June 30, 2019 and 2018, respectively, in AOCI related to our cash flow hedging activities.

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Derivative Instruments (Textuals) (Details) - USD ($)	3 Months Ended		6 Months Ended		
	Jun. 30, 2019	Jun. 30, 2018	Jun. 30, 2019	Jun. 30, 2018	Dec. 31, 2018
Derivatives, Fair Value [Line Items]					
Derivative Instruments, Gain (Loss) Recognized in Income, Ineffective Portion and Amount Excluded from Effectiveness Testing, Net		$ 1,000,000		$ 1,000,000	
Current Derivatives Assets, net of Collateral	$ (27,000,000)		$ (27,000,000)		$ (58,000,000)
Long-Term Derivative Assets, net of Collateral	(3,000,000)		(3,000,000)		(8,000,000)
Current Derivative Liabilities, net of Collateral	72,000,000		72,000,000		49,000,000
Long-term Derivative Liabilities, net of Collateral	104,000,000		104,000,000		64,000,000
Derivative, Collateral, Right to Reclaim Cash	142,000,000		142,000,000		244,000,000
Other Comprehensive Income (Loss), Derivatives Qualifying as Hedges, Tax	1,000,000	(7,000,000)	$ (1,000,000)	(4,000,000)	
Summary of Derivative Instruments [Abstract]					
Maximum length of time hedging using interest rate derivative instruments			6 years		
Derivative, Net Liability Position, Aggregate Fair Value	230,000,000		$ 230,000,000		
Collateral Already Posted, Aggregate Fair Value	171,000,000		171,000,000		
Additional Collateral, Aggregate Fair Value	5,000,000		5,000,000		
Gain (Loss) on Discontinuation of Cash Flow Hedge Due to Forecasted Transaction Probable of Not Occurring, Net	0	$ 0	1,000,000	$ 0	
Cash Flow Hedge Gain (Loss) to be Reclassified within Twelve Months			20,000,000		
Parent [Member]					
Derivatives, Fair Value [Line Items]					
Accumulated Other Comprehensive Income (Loss), Cumulative Changes in Net Gain (Loss) from Cash Flow Hedges, Effect Net of Tax	89,000,000		89,000,000		34,000,000
Noncontrolling Interest [Member]					
Derivatives, Fair Value [Line Items]					
Accumulated Other Comprehensive Income (Loss), Cumulative Changes in Net Gain (Loss) from Cash Flow Hedges, Effect Net of Tax	$ 4,000,000		$ 4,000,000		$ 3,000,000

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Use of Collateral (Details) - USD ($) $ in Millions		Jun. 30, 2019	Dec. 31, 2018
Financial Instruments Owned and Pledged as Collateral [Line Items]			
Margin deposits	[1]	$ 373	$ 343
Natural gas and power prepayments		34	31
Total margin deposits and natural gas and power prepayments with our counterparties	[2]	407	374
Letters of credit issued		900	1,166
First priority liens under power and natural gas agreements		42	92
First priority liens under interest rate hedging instruments		29	10
Total letters of credit and first priority liens with our counterparties		971	1,268
Margin deposits held by us posted by our counterparties	[1],[3]	85	52
Letters of credit posted with us by our counterparties		31	27
Total margin deposits and letters of credit posted with us by our counterparties		116	79
Current and Non-current Derivative Assets and Liabilities [Member]			
Financial Instruments Owned and Pledged as Collateral [Line Items]			
Total margin deposits and natural gas and power prepayments with our counterparties	[2]	162	79
Margin deposits held by us posted by our counterparties		16	32
Other Current Liabilities [Member]			
Financial Instruments Owned and Pledged as Collateral [Line Items]			
Margin deposits held by us posted by our counterparties		28	20
Prepaid Expenses and Other Current Assets [Member]			
Financial Instruments Owned and Pledged as Collateral [Line Items]			
Total margin deposits and natural gas and power prepayments with our counterparties	[2]	237	286
Other Assets [Member]			
Financial Instruments Owned and Pledged as Collateral [Line Items]			
Total margin deposits and natural gas and power prepayments with our counterparties	[2]	8	9
Other Noncurrent Liabilities [Member]			
Financial Instruments Owned and Pledged as Collateral [Line Items]			
Margin deposits held by us posted by our counterparties		$ 41	$ 0

[1] We offset fair value amounts recognized for derivative instruments executed with the same counterparty under a master netting arrangement for financial statement presentation; therefore, amounts recognized for the right to reclaim, or the obligation to return, cash collateral are presented net with the corresponding derivative instrument fair values. See Note 8 for further discussion of our derivative instruments subject to master netting arrangements.

[2] At June 30, 2019 and December 31, 2018, $162 million and $79 million, respectively, were included in current and long-term derivative assets and liabilities, $237 million and $286 million, respectively, were included in margin deposits and other prepaid expense and $8 million and $9 million, respectively, were included in other assets on our Consolidated Condensed Balance Sheets.

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[3] At June 30, 2019 and December 31, 2018, $16 million and $32 million, respectively, were included in current and long-term derivative assets and liabilities, $28 million and $20 million, respectively, were included in other current liabilities and $41 million and nil, respectively, were included in other long-term liabilities on our Consolidated Condensed Balance Sheets.

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Income Taxes (Income Tax Expense (Benefit)) (Details) - USD ($) $ in Millions	3 Months Ended		6 Months Ended	
	Jun. 30, 2019	Jun. 30, 2018	Jun. 30, 2019	Jun. 30, 2018
Income Tax Contingency [Line Items]				
Income tax expense (benefit)	$ 9	$ (158)	$ 19	$ (50)
Effective Income Tax Rate, Continuing Operations	3.00%	(81.00%)	4.00%	17.00%
Income Tax Uncertainties [Abstract]				
Unrecognized Tax Benefits	$ 29		$ 29	
Unrecognized Tax Benefits that Would Impact Effective Tax Rate	17		17	
Unrecognized Tax Benefit Related to Deferred Tax Asset	12		12	
Unrecognized Tax Benefits, Income Tax Penalties and Interest Accrued	3		3	
Minimum [Member]				
Income Tax Contingency [Line Items]				
Decrease in Unrecognized Tax Benefits is Reasonably Possible	0		0	
Maximum [Member]				
Income Tax Contingency [Line Items]				
Decrease in Unrecognized Tax Benefits is Reasonably Possible	$ 8		$ 8	

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Commitments and Contingencies Commitments and Contingencies (Details) $ in Millions	Jun. 30, 2019 USD ($)
Other Commitments [Line Items]	
Guarantor Obligations, Current Carrying Value	$ 0

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Related Party Transactions (Details) - USD ($) $ in Millions	3 Months Ended		6 Months Ended		
	Jun. 30, 2019	Jun. 30, 2018	Jun. 30, 2019	Jun. 30, 2018	Dec. 31, 2018
Related Party Transactions [Abstract]					
Continuing Involvement with Derecognized Transferred Financial Assets, Amount Outstanding	$ 244		$ 244		$ 238
Notes Receivable, Related Parties, Current	57		57		$ 34
Trade Receivables Sold			1,100	$ 1,100	
Cash Flows Between Transferor and Transferee, Proceeds from New Transfers			1,100	1,100	
Revenue from Related Parties	17	$ 19	37	38	
Related Party Transaction, Purchases from Related Party	$ 4	$ 4	$ 7	$ 6	

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Segment Information (Details) - USD ($) $ in Millions	3 Months Ended				6 Months Ended			
	Jun. 30, 2019		Jun. 30, 2018		Jun. 30, 2019		Jun. 30, 2018	
Revenues from External Customers and Long-Lived Assets [Line Items]								
Total operating revenues(1)	$ 2,599	[1]	$ 2,259	[1]	$ 5,198	[2]	$ 4,268	[2]
Commodity Margin	752		694		1,531		1,306	
Add: Mark-to-market commodity activity, net and other(2)	200	[3]	196	[3]	252	[4]	(177)	[4]
Operating and maintenance expense	245		242		484		517	
Depreciation and amortization expense	175		186		349		387	
General and other administrative expense	34		31		66		91	
Other operating expenses	19		19		38		56	
Impairment losses	40		0		55		0	
(Income) loss from unconsolidated investments in power plants	(5)		(5)		(11)		(11)	
Income from operations	444		417		802		89	
Interest expense	157		157		306		308	
Debt Extinguishment Costs and Other (Income) Expense, Net	8		62		27		69	
Income (loss) before income taxes	279		198		469		(288)	
Lease levelization	(19)		(19)		(35)		(35)	
West [Member]								
Revenues from External Customers and Long-Lived Assets [Line Items]								
Total operating revenues(1)	649	[1]	355	[1]	1,331	[2]	835	[2]
Commodity Margin	251		241		515		426	
Add: Mark-to-market commodity activity, net and other(2)	58	[3]	(23)	[3]	114	[4]	(10)	[4]
Operating and maintenance expense	84		80		165		170	
Depreciation and amortization expense	60		67		133		134	
General and other administrative expense	5		5		12		21	
Other operating expenses	7		8		16		22	
Impairment losses	0				0			
(Income) loss from unconsolidated investments in power plants	0		0		0		0	
Income from operations	153		58		303		69	
Texas [Member]								
Revenues from External Customers and Long-Lived Assets [Line Items]								
Total operating revenues(1)	899	[1]	993	[1]	1,642	[2]	1,133	[2]
Commodity Margin	173		151		335		317	
Add: Mark-to-market commodity activity, net and other(2)	240	[3]	301	[3]	284	[4]	(246)	[4]
Operating and maintenance expense	66		65		131		145	
Depreciation and amortization expense	54		57		99		133	
General and other administrative expense	15		13		27		38	
Other operating expenses	1		3		3		19	

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Impairment losses	0				0			
(Income) loss from unconsolidated investments in power plants	0		0		0		0	
Income from operations	277		314		359		(264)	
East [Member]								
Revenues from External Customers and Long-Lived Assets [Line Items]								
Total operating revenues(1)	646	[1]	341	[1]	1,335	[2]	955	[2]
Commodity Margin	235		225		500		409	
Add: Mark-to-market commodity activity, net and other(2)	94	[3]	(7)	[3]	107	[4]	33	[4]
Operating and maintenance expense	72		65		139		136	
Depreciation and amortization expense	48		49		91		94	
General and other administrative expense	10		8		19		23	
Other operating expenses	11		8		19		15	
Impairment losses	40				55			
(Income) loss from unconsolidated investments in power plants	(6)		(6)		(12)		(12)	
Income from operations	154		94		296		186	
Retail [Member]								
Revenues from External Customers and Long-Lived Assets [Line Items]								
Total operating revenues(1)	1,082	[1]	935	[1]	2,080	[2]	1,873	[2]
Commodity Margin	93		77		181		154	
Add: Mark-to-market commodity activity, net and other(2)	(182)	[3]	(67)	[3]	(235)	[4]	61	[4]
Operating and maintenance expense	33		41		67		81	
Depreciation and amortization expense	13		13		26		26	
General and other administrative expense	4		5		8		9	
Other operating expenses	0		0		0		0	
Impairment losses	0				0			
(Income) loss from unconsolidated investments in power plants	1		1		1		1	
Income from operations	(140)		(50)		(156)		98	
Consolidation, Eliminations [Member]								
Revenues from External Customers and Long-Lived Assets [Line Items]								
Total operating revenues(1)	(677)	[1]	(365)	[1]	(1,190)	[2]	(528)	[2]
Commodity Margin	0		0		0		0	
Add: Mark-to-market commodity activity, net and other(2)	(10)	[3]	(8)	[3]	(18)	[4]	(15)	[4]
Operating and maintenance expense	(10)		(9)		(18)		(15)	
Depreciation and amortization expense	0		0		0		0	
General and other administrative expense	0		0		0		0	
Other operating expenses	0		0		0		0	
Impairment losses	0				0			
(Income) loss from unconsolidated investments in power plants	0		0		0		0	
Income from operations	0		1		0		0	
Intersegment Eliminations [Member] | West [Member]								

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Revenues from External Customers and Long-Lived Assets [Line Items]				
Total operating revenues(1)	100	70	262	184
Intersegment Eliminations [Member] | Texas [Member]				
Revenues from External Customers and Long-Lived Assets [Line Items]				
Total operating revenues(1)	348	276	559	209
Intersegment Eliminations [Member] | East [Member]				
Revenues from External Customers and Long-Lived Assets [Line Items]				
Total operating revenues(1)	228	18	365	133
Intersegment Eliminations [Member] | Retail [Member]				
Revenues from External Customers and Long-Lived Assets [Line Items]				
Total operating revenues(1)	1	1	4	2
Other Assets [Member]				
Revenues from External Customers and Long-Lived Assets [Line Items]				
Amortization of Intangible Assets	$ 18	$ 25	$ 39	$ 53

[1] Includes intersegment revenues of $100 million and $70 million in the West, $348 million and $276 million in Texas, $228 million and $18 million in the East and $1 million and $1 million in Retail for the three months ended June 30, 2019 and 2018, respectively.

[2] Includes intersegment revenues of $262 million and $184 million in the West, $559 million and $209 million in Texas, $365 million and $133 million in the East and $4 million and $2 million in Retail for the six months ended June 30, 2019 and 2018, respectively.

[3] Includes $(19) million and $(19) million of lease levelization and $18 million and $25 million of amortization expense for the three months ended June 30, 2019 and 2018, respectively.

[4] Includes $(35) million and $(35) million of lease levelization and $39 million and $53 million of amortization expense for the six months ended June 30, 2019 and 2018, respectively.

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