



**Talen Energy Supply
Debtors-In-Possession
Consolidated Financial Statements**

For the Year Ended December 31, 2022

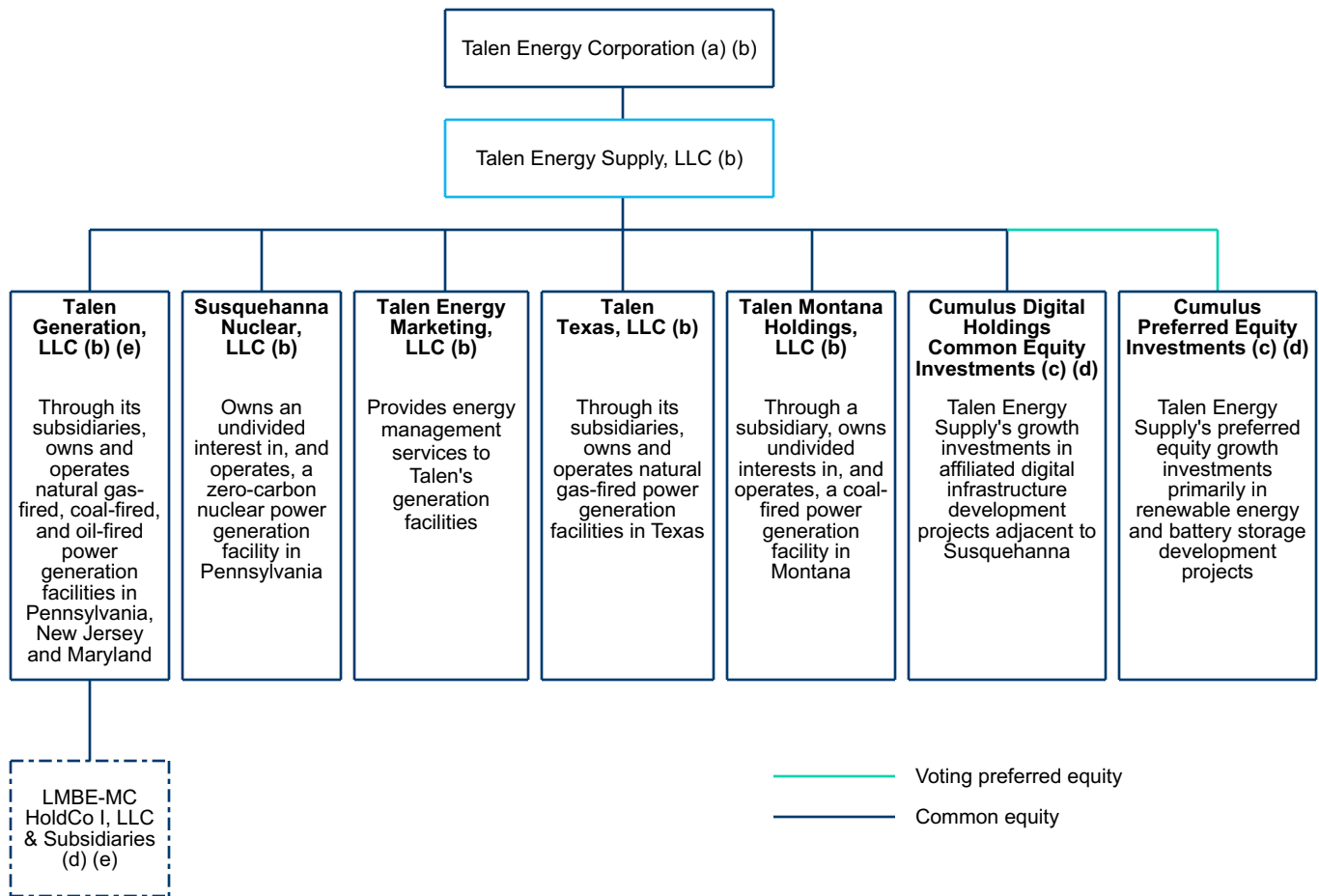


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TALEN ENERGY SUPPLY, LLC AND SUBSIDIARIES
DEBTORS-IN-POSSESSION
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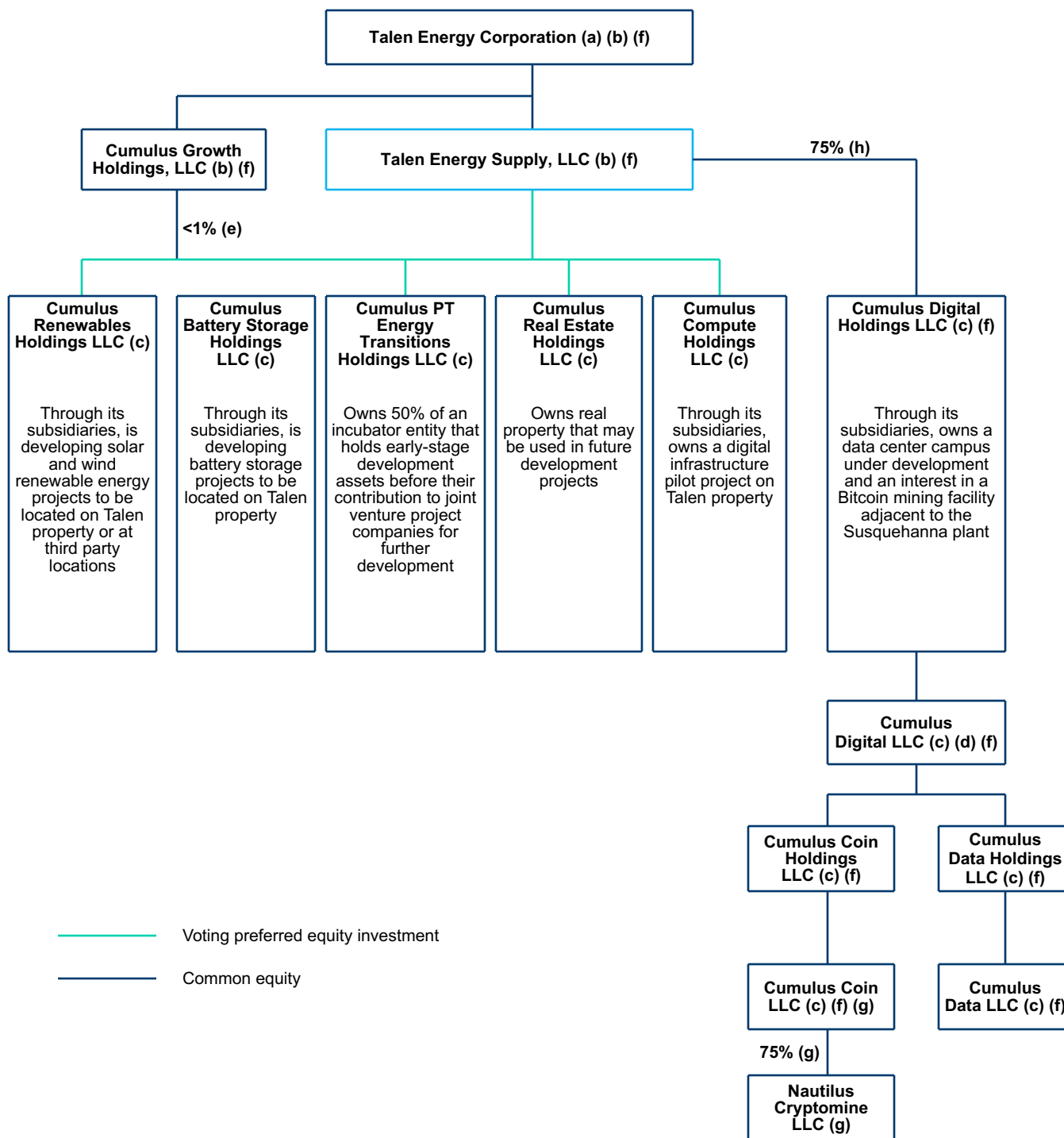
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**TALEN ENERGY SUPPLY, LLC AND SUBSIDIARIES
ORGANIZATIONAL STRUCTURE
DECEMBER 31, 2022 (UNAUDITED)**



(a) In December 2022, Talen Energy Corporation became an additional Debtor in the Talen Bankruptcy. Upon Talen's emergence from bankruptcy, Talen Energy Corporation will remain the parent company of Talen Energy Supply.
 (b) See Note 3 in Notes to the Consolidated Financial Statements for additional information on the Talen Bankruptcy.
 (c) See "Equity Interests Organizational Structure" on the next page and Note 12 in Notes to the Consolidated Financial Statements for additional information on these growth investments.
 (d) Such entities are not debtors in the Talen Bankruptcy.
 (e) LMBE-MC indebtedness is non-recourse to Talen Energy Supply.

**TALEN ENERGY SUPPLY, LLC AND SUBSIDIARIES
EQUITY INTERESTS ORGANIZATIONAL STRUCTURE
DECEMBER 31, 2022 (UNAUDITED)**



(a) In December 2022, Talen Energy Corporation became an additional Debtor in the Talen Bankruptcy.
 (b) See Note 3 in Notes to the Consolidated Financial Statements for additional information on the Talen Bankruptcy.
 (c) Such entities are not part of the Talen Bankruptcy. See Note 3 in Notes to the Consolidated Financial Statements for additional information.
 (d) Talen Energy Supply has posted a \$50 million LC in support of Cumulus Digital Indebtedness. See Note 12 in Notes to the Consolidated Financial Statements for additional information.
 (e) Cumulus Growth primarily holds less than 1% voting interest in its subsidiaries. See Note 12 in Notes to the Consolidated Financial Statements for additional information.
 (f) In September 2022, such entities became party to the Cumulus Term Sheet pursuant to which, among other things, convertible preferred equity interests in Cumulus Data Holdings and Cumulus Coin Holdings were converted into common equity interests in Cumulus Digital Holdings. See Note 12 in Notes to the Consolidated Financial Statements for additional information.
 (g) During 2022, Cumulus Coin increased its ownership percentage in Nautilus Cryptomine from 50% to approximately 75%. See Note 12 in Notes to the Consolidated Financial Statements for additional information.
 (h) Talen Energy Supply has provided services through December 31, 2022 for which common equity has not been issued as of the date of these financial statements, but is expected to be issued later in 2023. See Note 12 for more information on the corporate and operational service agreement.

TALEN ENERGY SUPPLY, LLC AND SUBSIDIARIES
GENERATION FLEET AT DECEMBER 31, 2022 (UNAUDITED)

Generation Facility	MW Capacity (a)	Percentage Ownership	MW Ownership	Fuel Type	State	Market	Organizational Structure
PJM							
Susquehanna (b)	2,494	90 %	2,245	Nuclear	PA	PJM	Susquehanna Nuclear
Martins Creek	1,719	100 %	1,719	Natural Gas/Oil	PA	PJM	Talen Generation
Montour (c)	1,508	100 %	1,508	Coal	PA	PJM	Talen Generation
Brunner Island (g)	1,424	100 %	1,424	Coal/Natural Gas	PA	PJM	Talen Generation
Brandon Shores (f)	1,295	100 %	1,295	Coal	MD	PJM	Talen Generation
H.A. Wagner (d)	827	100 %	827	Coal/Natural Gas/Oil	MD	PJM	Talen Generation
Lower Mt. Bethel	610	100 %	610	Natural Gas	PA	PJM	Talen Generation
Conemaugh (b)	1,756	22.22 %	390	Coal	PA	PJM	Talen Generation
Peaking units (e)	46	100 %	46	Oil/Natural Gas	PA	PJM	Talen Generation
Keystone (b)	1,735	12.34 %	214	Coal	PA	PJM	Talen Generation
Camden	145	100 %	145	Natural Gas	NJ	PJM	Talen Generation
Total	13,559		10,423				
ERCOT							
Barney Davis	897	100 %	897	Natural Gas	TX	ERCOT	Talen Texas
Nueces Bay	635	100 %	635	Natural Gas	TX	ERCOT	Talen Texas
Laredo	179	100 %	179	Natural Gas	TX	ERCOT	Talen Texas
Total	1,711		1,711				
Other Power Markets							
Colstrip Unit 3 (b)	740	30 %	222	Coal	MT	WECC	Talen Montana
Dartmouth	80	100 %	80	Natural Gas/Oil	MA	ISO-NE	Talen NE
Total	820		302				
Generation Fleet	16,090		12,436				

(a) Electric generation capacity (summer rating) is based on factors, among others, such as operating experience and physical conditions which may be subject to revision.

(b) See Note 14 in Notes to the Consolidated Financial Statements for additional information on jointly-owned facilities.

(c) Montour is transitioning its fuel type from coal to natural gas. The conversion is expected to be completed in 2023.

(d) H.A. Wagner is transitioning its coal-fired unit to fuel oil, which is expected to support electric grid stability as a capacity resource. The conversion is expected to be completed in 2023.

(e) LMBE-MC owns 33 MW of peaking unit capacity. LMBE-MC expects to deactivate these peaking units in June 2023.

(f) Brandon Shores is required to cease coal-fired generation by December 31, 2025. See Note 14 in Notes to the Consolidated Financial Statements for additional information.

(g) Generation facility fuel source was previously converted to include capability for natural gas. Coal-based generation will cease by December 31, 2028. The facility cannot burn coal during the EPA ozone season.

Report of Independent Auditors

To the Management of Talen Energy Supply, LLC

Opinion

We have audited the accompanying consolidated financial statements of Talen Energy Supply, LLC and its subsidiaries (the "Company"), which comprise the consolidated balance sheets as of December 31, 2022 and 2021, and the related consolidated statements of operations, of comprehensive income, of equity and of cash flows for each of the three years in the period ended December 31, 2022 including the related notes (collectively referred to as the "consolidated financial statements").

In our opinion, the accompanying consolidated financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2022 and 2021, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2022 in accordance with accounting principles generally accepted in the United States of America.

Basis for Opinion

We conducted our audit in accordance with auditing standards generally accepted in the United States of America (US GAAS). Our responsibilities under those standards are further described in the Auditors' Responsibilities for the Audit of the Consolidated Financial Statements section of our report. We are required to be independent of the Company and to meet our other ethical responsibilities, in accordance with the relevant ethical requirements relating to our audit. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Substantial Doubt about the Company's Ability to Continue as a Going Concern

The accompanying consolidated financial statements have been prepared assuming that the Company will continue as a going concern. As discussed in Note 1 to the consolidated financial statements, the Company presented significant liquidity concerns that resulted in the Company's bankruptcy filing, and management has stated that substantial doubt exists about the Company's ability to continue as a going concern. Management's evaluation of the events and conditions and management's plans regarding these matters are further described in Note 3. The consolidated financial statements do not include any adjustments that might result from the outcome of this uncertainty. Our opinion is not modified with respect to this matter.

Responsibilities of Management for the Consolidated Financial Statements

Management is responsible for the preparation and fair presentation of the consolidated financial statements in accordance with accounting principles generally accepted in the United States of America, and for the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of consolidated financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the consolidated financial statements, management is required to evaluate whether there are conditions or events, considered in the aggregate, that raise substantial doubt about the Company's ability to continue as a going concern for one year after the date the consolidated financial statements are available to be issued.

Auditors' Responsibilities for the Audit of the Consolidated Financial Statements

Our objectives are to obtain reasonable assurance about whether the consolidated financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditors' report that includes our opinion. Reasonable assurance is a high level of assurance but is not absolute assurance and therefore is not a guarantee that an audit conducted in accordance with US GAAS will always detect a material misstatement when it exists. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control. Misstatements are considered material if there is a substantial likelihood that, individually or in the aggregate, they would influence the judgment made by a reasonable user based on the consolidated financial statements.

In performing an audit in accordance with US GAAS, we:

- Exercise professional judgment and maintain professional skepticism throughout the audit.
- Identify and assess the risks of material misstatement of the consolidated financial statements, whether due to fraud or error, and design and perform audit procedures responsive to those risks. Such procedures include examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial statements.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control. Accordingly, no such opinion is expressed.
- Evaluate the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluate the overall presentation of the consolidated financial statements.
- Conclude whether, in our judgment, there are conditions or events, considered in the aggregate, that raise substantial doubt about the Company's ability to continue as a going concern for a reasonable period of time.

We are required to communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit, significant audit findings, and certain internal control-related matters that we identified during the audit.

/s/ PricewaterhouseCoopers LLP

Houston, Texas
April 3, 2023

TALEN ENERGY SUPPLY, LLC AND SUBSIDIARIES
DEBTORS-IN-POSSESSION
CONSOLIDATED STATEMENTS OF OPERATIONS FOR THE YEARS ENDED DECEMBER 31

(Millions of Dollars)

	2022	2021	2020
Capacity revenues	\$ 377	\$ 444	\$ 315
Energy and other revenues	2,035	1,331	1,480
Unrealized gain (loss) on derivative instruments	677	(847)	(69)
Operating Revenues	3,089	928	1,726
Energy Expenses			
Fuel and energy purchases	(938)	(856)	(649)
Nuclear fuel amortization	(94)	(96)	(106)
Unrealized gain (loss) on derivative instruments	(52)	135	36
Total Energy Expenses	(1,084)	(817)	(719)
Operating Expenses			
Operation, maintenance and development	(605)	(579)	(589)
General and administrative	(106)	(88)	(82)
Postretirement benefits service cost	(5)	(5)	(6)
Depreciation, amortization and accretion	(520)	(524)	(452)
Operational restructuring	(488)	—	—
Impairments	—	—	(681)
Other operating income (expense), net	(40)	(15)	87
Operating Income (Loss)	241	(1,100)	(716)
Interest expense and other finance charges	(359)	(325)	(363)
Nuclear decommissioning trust funds gain (loss), net	(184)	196	172
Postretirement benefits gain (loss), net	(7)	(31)	(25)
Debt restructuring gain (loss), net	(6)	(11)	(3)
Reorganization income (expense), net	(812)	—	—
Consolidation of subsidiary gain (loss)	(170)	—	—
Deconsolidation of subsidiary gain (loss), net	—	—	71
Other non-operating income (expense), net	(31)	(6)	19
Income (Loss) Before Income Taxes	(1,328)	(1,277)	(845)
Income tax benefit (expense)	35	300	181
Net Income (Loss)	(1,293)	(977)	(664)
Less: Net income (loss) attributable to noncontrolling interest	(4)	—	—
Net Income (Loss) Attributable to Members	\$ (1,289)	\$ (977)	\$ (664)

The accompanying Notes to the Consolidated Financial Statements are an integral part of the financial statements.

TALEN ENERGY SUPPLY, LLC AND SUBSIDIARIES
DEBTORS-IN-POSSESSION
CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME FOR THE YEARS ENDED DECEMBER 31

(Millions of Dollars)

	2022	2021	2020
Net Income (Loss)	\$ (1,293)	\$ (977)	\$ (664)
Other Comprehensive Income (Loss)			
Available-for-sale securities unrealized gain (loss), net	(69)	(13)	39
Postretirement benefit actuarial gain (loss), net	(15)	151	(48)
Income tax benefit (expense)	31	(35)	(4)
Gains (losses) arising during the period, net of tax	(53)	103	(13)
Available-for-sale securities unrealized (gain) loss, net	33	2	(36)
Qualifying derivatives unrealized (gain) loss, net	(2)	(2)	(12)
Postretirement benefit prior service (credits) costs, net	1	1	(1)
Postretirement benefit actuarial (gain) loss, net	27	52	38
Income tax (benefit) expense	(21)	(14)	9
Reclassifications from AOCI, net of tax	38	39	(2)
Total Other Comprehensive Income (Loss)	(15)	142	(15)
Comprehensive Income (Loss)	(1,308)	(835)	(679)
Less: Comprehensive income (loss) attributable to noncontrolling interest	(4)	—	—
Comprehensive Income (Loss) Attributable to Members	\$ (1,304)	\$ (835)	\$ (679)

The accompanying Notes to the Consolidated Financial Statements are an integral part of the financial statements.

TALEN ENERGY SUPPLY, LLC AND SUBSIDIARIES
DEBTORS-IN-POSSESSION
CONSOLIDATED BALANCE SHEETS AT DECEMBER 31

(Millions of Dollars)

	2022	2021
Assets		
Cash and cash equivalents	\$ 724	\$ 276
Restricted cash and cash equivalents	264	467
Accounts receivable, net	408	115
Inventory, net	457	403
Derivative instruments	2,165	1,338
Other current assets	247	200
Total current assets	4,265	2,799
Property, plant and equipment, net	4,705	4,735
Nuclear decommissioning trust funds	1,400	1,635
Derivative instruments	228	645
Other noncurrent assets	124	239
Total Assets	\$ 10,722	\$ 10,053
Liabilities and Equity		
Revolving credit facilities	\$ 848	\$ 848
Long-term debt, due within one year	1,010	159
Inventory repurchase obligations	—	165
Deferred capacity obligations	—	174
Accrued interest	278	67
Accounts payable and other accrued liabilities	454	280
Derivative instruments	1,927	1,742
Other current liabilities	346	71
Total current liabilities	4,863	3,506
Long-term debt	2,494	3,735
Liabilities subject to compromise	2,825	—
Derivative instruments	363	719
Postretirement benefit obligations	—	315
Asset retirement obligations and accrued environmental costs	567	767
Deferred income taxes	75	216
Other noncurrent liabilities	17	62
Total Liabilities	11,204	9,320
Commitments and Contingencies Note 16		
Equity		
Member's Equity	(573)	733
Noncontrolling interests	91	—
Total Equity	(482)	733
Total Liabilities and Equity	\$ 10,722	\$ 10,053

The accompanying Notes to the Consolidated Financial Statements are an integral part of the financial statements.

TALEN ENERGY SUPPLY, LLC AND SUBSIDIARIES
DEBTORS-IN-POSSESSION
CONSOLIDATED STATEMENTS OF CASH FLOWS FOR THE YEARS ENDED DECEMBER 31

(Millions of Dollars)

	2022	2021	2020
Operating Activities			
Net income (loss)	\$ (1,293)	\$ (977)	\$ (664)
Reconciliation adjustments:			
Impairments	—	—	681
(Gain) on sale of IEC	—	—	(144)
(Gain) loss on consolidation of Cumulus Digital Holdings and deconsolidation of NGG	170	—	(71)
Unrealized (gains) losses on derivative instruments	(647)	684	69
Nuclear fuel amortization	94	96	103
Depreciation, amortization and accretion	549	555	469
Nuclear decommissioning trust funds (gain) loss, net (excluding interest and fees)	227	(158)	(138)
Deferred income taxes	(48)	(324)	(203)
Organizational restructuring	488	—	—
Non-cash reorganization (income) expenses, net	99	—	—
Other	200	(150)	94
Change in assets and liabilities:			
Accounts receivable, net	(298)	24	(30)
Inventory, net	(55)	72	27
Other assets	(46)	(138)	(18)
Accounts payable and accrued liabilities	187	24	9
Accrued interest	250	3	—
Other liabilities	310	(5)	(82)
Net cash provided by (used in) operating activities	187	(294)	102
Investing Activities			
Property, plant and equipment expenditures	(232)	(142)	(106)
Nuclear fuel expenditures	(80)	(82)	(55)
Proceeds from the sale of IEC	—	—	153
Nuclear decommissioning trust funds investment purchases	(2,271)	(1,834)	(2,587)
Nuclear decommissioning trust funds investment sale proceeds	2,243	1,817	2,574
Investments in equity of affiliates and equity method investments	(162)	(65)	—
Increase (decrease) in cash and restricted cash due to consolidation of subsidiaries	123	—	—
Other investing activities	11	26	32
Net cash provided by (used in) investing activities	(368)	(280)	11
Financing Activities			
Talen Energy Supply long-term debt issuance proceeds	987	131	400
Talen Energy Supply long-term debt repayments	—	(114)	(206)
Talen Deferred Capacity Obligation issuance proceeds	—	370	—
Talen Deferred Capacity Obligation repayments	(176)	(209)	—
Talen Inventory Repurchase Obligations, net increase (decrease)	(165)	—	15
Talen RCF, net increase (decrease)	—	—	(105)
Talen Commodity Accordion RCF proceeds	62	827	—
Talen Commodity Accordion RCF repayments	(62)	—	—
LMBE-MC long-term debt repayments	(52)	(27)	(33)
Derivatives with financing elements	(104)	—	—
Deferred finance costs	(59)	(23)	(9)
Other	(5)	1	3
Net cash provided by (used in) financing activities	426	956	65
Net Increase (Decrease) in Cash and Cash Equivalents and Restricted Cash and Cash Equivalents	245	382	178
Beginning of period cash and cash equivalents and restricted cash and cash equivalents	743	361	183
End of period cash and cash equivalents and restricted cash and cash equivalents	\$ 988	\$ 743	\$ 361

See Note 23 in Notes to the Consolidated Financial Statements for supplemental cash flow information.

The accompanying Notes to the Consolidated Financial Statements are an integral part of the financial statements.

TALEN ENERGY SUPPLY, LLC AND SUBSIDIARIES
DEBTORS-IN-POSSESSION
CONSOLIDATED STATEMENTS OF EQUITY

(Millions of Dollars)

	Member's Equity	Noncontrolling Interest	Total Equity
December 31, 2019	\$ 2,236	\$ —	\$ 2,236
Net income (loss)	(664)	\$ —	(664)
Other comprehensive income (loss)	(15)	\$ —	(15)
December 31, 2020	\$ 1,557	\$ —	\$ 1,557
Net income (loss)	(977)	—	(977)
Other comprehensive income (loss)	142	—	142
Non-cash contribution from member (a)	11	—	11
December 31, 2021	\$ 733	\$ —	\$ 733
Net income (loss)	\$ (1,289)	\$ (4)	\$ (1,293)
Other comprehensive income (loss)	(15)	—	(15)
Non-cash consolidation of affiliate subsidiary (b)	—	71	71
Cash contribution	—	7	7
Non-cash contributions from member (c)	—	17	17
Non-cash distribution to member (d)	(2)	—	(2)
December 31, 2022	\$ (573)	\$ 91	\$ (482)

(a) An adjustment to Talen's preferred equity investments based on the "Hypothetical Liquidation Book Value" method

(b) In September 2022, Talen Energy Supply consolidated Cumulus Digital Holdings. See Note 12 in Notes to the Consolidated Financial Statements for additional information.

(c) Primarily relates to contributions of cryptocurrency mining machines by TeraWulf to Nautilus. See Note 12 in Notes to the Consolidated Financial Statements for additional information.

(d) Primarily relates to a tax indemnity agreement. See Note 12 in Notes to the Consolidated Financial Statements for additional information.

The accompanying Notes to the Consolidated Financial Statements are an integral part of the financial statements.

TALEN ENERGY SUPPLY, LLC AND SUBSIDIARIES

DEBTORS-IN-POSSESSION

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

Capitalized terms and abbreviations appearing in the Notes to the Consolidated Financial Statements are defined in the glossary. Dollars are in millions, unless otherwise noted. The terms "Talen," "Talen Energy Supply," "the Company," "we," "us" and "our" refer to Talen Energy Supply, LLC and its consolidated subsidiaries, unless the context clearly indicates otherwise. This presentation has been applied where identification of subsidiaries is not material to the matter being disclosed, and to conform narrative disclosures to the presentation of financial information on a consolidated basis. When identification of a subsidiary is considered important to understanding the matter being disclosed, the specific entity's name is used. Each disclosure referring to a subsidiary also applies to Talen Energy Supply insofar as such subsidiary's financial information is included in Talen Energy Supply's consolidated financial information. Talen Energy Supply and each of its subsidiaries and affiliates are separate legal entities and, except by operation of law, are not liable for the debts or obligations of one another absent an express contractual undertaking to the contrary.

1. Organization and Operations

Talen Energy Supply, through its principal subsidiaries, owns 12,436 MW (summer rating) of generation capacity at December 31, 2022. We produce and sell electricity, capacity and ancillary services into wholesale markets in the United States. Our generation fleet, which includes a zero-carbon generation facility, is principally located in the Mid-Atlantic region of the United States, Texas and Montana and has significant fuel diversity with certain facilities capable of utilizing multiple fuel sources. Consistent with our risk management initiatives, we may execute physical and financial commodity transactions involving power, natural gas, nuclear fuel, oil and coal to economically hedge and optimize our generation fleet.

The Company is also engaged in the decarbonization of approximately 3,238 MW of its existing coal assets, developing its pipeline of 1,450 MW of renewable energy and 865 MW of battery storage projects, and developing and operating digital infrastructure projects adjacent to its generation.

Most notably, adjacent to Susquehanna, Talen, through Cumulus Data, is developing a data center campus capable of supporting 950 MWs of digital capacity with the first 48 MW data center building expected to be available for tenants in the second half of 2023. The entire data center campus utilizes zero-carbon power produced by the Susquehanna nuclear generation facility. See Note 12 for additional information on these equity investments and the transactions in the third quarter 2022 that resulted in the consolidation of Cumulus Digital Holdings for financial reporting purposes.

Talen is headquartered in The Woodlands, Texas.

Going Concern and the Talen Bankruptcy

These financial statements have been prepared on a going concern basis, which contemplates the realization of assets and settlement of liabilities in the ordinary course of business. However, due to the circumstances described herein, such realization of assets and settlement of liabilities are currently subject to uncertainty.

In recent years, the competitive power industry in the markets in which the Company operates was challenged with depressed wholesale natural gas and power prices. However, during 2021, market conditions rapidly changed with sustained increases in commodity prices. While these market conditions provided for the opportunity to earn higher commodity margin associated with electric generation in future delivery months, they also resulted in increases of mark-to-market losses on hedges for the corresponding future delivery periods. As a result, Talen's commercial counterparties and commodity exchanges that were party to certain hedge transactions required elevated levels of collateral for mark-to-market losses. Generally, under the terms of these arrangements, Talen is required to collateralize hedges for future mark-to-market losses upon demand by a counterparty. However Talen does not receive settlements for its electric generation until delivery. Accordingly, these market conditions negatively impacted Talen's actual and forecasted cash flows and, by extension, liquidity to operate in the normal course of business.

The uncertainty related to these conditions raised substantial doubt about Talen Energy Supply's ability to continue as a going concern in the second half of 2021 and first half of 2022. As a result of these conditions and uncertainty, in May 2022, Talen Energy Supply and the majority of its direct and indirect wholly owned subsidiaries filed voluntary petitions under Chapter 11 of the Bankruptcy Code in the Southern District of Texas.

During the Talen Bankruptcy, the Talen Filing Parties are operating their business as debtors-in-possession while being subject to the jurisdiction of the Bankruptcy Court. While operating as debtors-in-possession, the Talen Filing Parties may enter into certain transactions or settle liabilities, subject to the approval of the Bankruptcy Court or as otherwise permitted in the ordinary course of business and subject to restrictions in the Talen DIP Credit Agreements and (or) other applicable orders of the Bankruptcy Court. Any such actions could materially impact the amounts and classifications of assets and liabilities reported in Talen Energy Supply's financial statements.

In December 2022: (i) Talen Energy Corporation joined the Talen Bankruptcy as a Debtor; and (ii) the Bankruptcy Court confirmed the Talen Filing Parties' Plan of Reorganization. While Talen expects to consummate the transactions contemplated by the Plan of Reorganization and exit bankruptcy in the first half of 2023, there can be no assurance that it will be successful in doing so. Accordingly, there remains uncertainty about Talen Energy Supply's ability to continue as a going concern. The financial statements do not include any adjustments that might be necessary should Talen Energy Supply be unable to continue as a going concern.

See Note 3 for additional information on the Talen Bankruptcy and Note 17 for information on the Talen DIP Credit Agreements.

2. Basis of Presentation and Summary of Significant Accounting Policies

Basis of Presentation and Principles of Consolidation

Our financial statements are prepared in accordance with GAAP and include the accounts of all controlled subsidiaries. Intercompany transactions are eliminated in consolidation.

Any undivided interests in jointly owned facilities are consolidated on a proportionate basis. See Note 14 for additional information.

Entities for which a controlling financial interest is not demonstrated through voting interests are evaluated based on accounting guidance for VIEs. Talen consolidates a VIE when it is determined that it has a controlling interest in the VIE, and Talen is the primary beneficiary of the entity. See "Variable Interest Entities" below for additional information.

As described further below, prior to September 2021, Cumulus Data and Cumulus Coin were consolidated by Talen Energy Supply; between September 2021 and September 2022, Cumulus Data and Cumulus Coin were accounted for as non-consolidated equity method investments by Talen Energy Supply, and since September 2022, both Cumulus Data and Cumulus Coin have been consolidated by Talen Energy Supply.

In September 2022, Talen Energy Supply and its Talen Growth subsidiary exchanged their preferred units in Cumulus Coin Holdings and Cumulus Data Holdings for common units in Cumulus Digital Holdings. Following the consummation of the exchange and other related transactions contemplated by the Cumulus Term Sheet, Talen Energy Supply became the primary beneficiary of Cumulus Digital Holdings, a VIE, due to its ability to control the activities that most significantly impact Cumulus Digital Holdings. Accordingly, Cumulus Digital Holdings was consolidated by Talen Energy Supply as of September 30, 2022. See Note 12 for additional information.

In September 2021, Talen Energy Supply deconsolidated Cumulus Coin Holdings and sold its common equity ownership interest in Cumulus Data to an affiliate. See Note 12 for additional information.

As of June 30, 2021, Talen Energy Supply, under the terms of the agreement then-governing the convertible preferred equity interests of Cumulus Coin Holdings, held a controlling financial interest in Cumulus Coin Holdings. Accordingly, Cumulus Coin Holdings was consolidated in Talen Energy Supply's financial statements as of June 30, 2021. In September 2021, the terms of these convertible preferred equity interests were amended in connection with the consummation of the Cumulus Digital 2027 TLF and Talen Energy Supply deconsolidated Cumulus Coin Holdings. See Note 12 for additional information.

In April 2020, Talen deconsolidated NorthEast Gas Gen and recognized an immaterial investment in NorthEast Gas Gen. Therefore, beginning in April 2020, the carrying value of NorthEast Gas Gen's assets and liabilities and its operating results were no longer consolidated in Talen's financial statements. See Note 19 for additional information.

Investments in entities in which Talen has the ability to exercise significant influence but does not have a controlling financial interest are accounted for under the equity method. Entities for which a controlling financial interest is not demonstrated through voting interests are evaluated based on accounting guidance for VIEs. Talen consolidates a VIE when it is determined that it has a controlling interest in the VIE, and Talen is the primary beneficiary of the entity. See Notes 11 and 12 for additional information on our equity method and preferred equity investments.

Summary of Significant Accounting Policies

Reclassifications. Certain amounts in the prior period financial statements were reclassified to conform to the current period's presentation. The reclassifications did not affect operating income, net income, total assets, total liabilities, net equity or cash flows.

Use of Estimates. The preparation of financial statements in conformity with GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities, the disclosure of contingent liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Actual results could differ from those estimates.

Bankruptcy Effects. The financial statements have been prepared on a going concern basis as if we are a going concern. Prepetition liabilities and obligations whose treatment and satisfaction are dependent on the outcome of the Talen Bankruptcy are presented as "Liabilities subject to compromise" on the Consolidated Balance Sheet. The carrying value of prepetition liabilities that are subject to compromise are presented at the best estimate of the claim amount permitted by the Bankruptcy Court. Such amounts presented as "Liabilities subject to compromise" on the Consolidated Balance Sheet may be subject to future adjustments depending on Bankruptcy Court actions, further developments with respect to disputed claims, determination of secured status of certain claims, the determination as to the value of any collateral securing claims, proof of claims and (or) other events. Additionally, any income, expenses, gains or losses that were incurred or realized as a direct result of the Talen Bankruptcy since the Petition Date are presented as "Reorganization income (expense), net" on the Consolidated Statement of Operations.

As of the Petition Date, the Talen Filing Parties ceased recognizing interest expense on certain outstanding unsecured or under-secured prepetition indebtedness. Contractual interest expense represents amounts due under the terms of outstanding prepetition indebtedness. See Note 18 for information on this contractual interest.

See Note 3 for additional information on the Talen Bankruptcy.

Fair Value of Financial Instruments and Derivatives. Talen carries a portion of its assets and liabilities at fair value that are measured at a reporting date using an exit price (i.e., the price that would be received to sell an asset or paid to transfer a liability). An exit price may be developed under a market approach utilizing market transactions, an income approach utilizing present value techniques, or a replacement cost approach. The exit prices are disclosed according to the quality of valuation inputs under a three-tiered hierarchy comprised of: (i) Level 1 inputs that are quoted prices (unadjusted) in active markets for identical assets or liabilities; (ii) Level 2 inputs that are other than quoted prices that are directly or indirectly observable; and (iii) Level 3 inputs that are unobservable inputs that are significant to the fair value of assets or liabilities.

The classification of an asset or liability is based on the lowest level of input significant to its fair value. Those that are initially classified as Level 3 are subsequently reported as Level 2 when the fair value derived from unobservable inputs is inconsequential to the overall fair value, or if corroborated market data becomes available. Assets and liabilities initially reported as Level 2 are subsequently reported as Level 3 if corroborated market data is no longer available. Transfers occur at the end of the reporting period.

See Notes 4, 14, 20 and 21 for fair value disclosures.

Concentrations of Credit Risk. Talen is subject to concentrations of credit risk primarily within its cash and cash equivalents, receivables and commodity derivative assets. Cash and cash equivalents are generally held in accounts where the amounts deposited exceed the maximum deposit insurance provided by the Federal Deposit Insurance Corporation. Cash and cash equivalents and restricted cash balances are primarily deposited in accounts with major financial institutions with investment grade credit ratings. In certain instances, funds are invested in highly liquid U.S. Treasury securities or other obligations with original maturities of less than 90 days that are issued by or guaranteed by the U.S. Government. Concentrations of credit risk for receivables are primarily attributable to entities that reimburse Talen for certain capital expenditures and operating costs associated with jointly owned facilities. Concentrations of credit risk for commodity derivative assets are primarily attributable to unaffiliated investment grade counterparties which engage in energy marketing activities with Talen Energy Marketing. See Note 4 for additional information on concentrations of credit risk.

Operating Revenues and Revenue Recognition. Operating revenues on the Consolidated Statements of Operations are primarily comprised of items presented as: (i) "Capacity revenues;" (ii) "Energy revenues;" and (iii) "Unrealized gain (loss) on derivative instruments" for certain electricity contracts.

Capacity revenues. Includes amounts earned from auctions in ISOs and RTOs and under bilateral contracts to provide available generation capacity that is needed to satisfy system reliability and integrity requirements. Capacity revenues are recognized ratably over the PJM Capacity Year by power generation facilities owned by Talen that participate in the auctions and stand ready to deliver generated power. Capacity revenues are based on invoiced amounts corresponding directly to the value provided over a specific time interval.

Energy revenues. Primarily includes: (i) amounts earned from ISOs and RTOs for electric generation and for ancillary services provided such as regulation and reserve services and other products that support transmission and grid operations; (ii) amounts earned for wholesale electricity sales to bilateral counterparties; (iii) amounts earned for retail electricity sales to commercial and industrial retail customers; and (iv) realized gains and losses on commodity derivative instruments.

Sales of electric generation and ancillary services to ISOs and RTOs represent performance obligations recognized over time based on volumes delivered or services performed at contractually agreed upon day-ahead or real-time market prices. Electric generation sales are presented net of energy purchases from RTOs and ISOs on an hourly basis. Where the effect of such netting results in a net purchase, the net hourly amounts are presented as "Fuel and energy purchases" on the Consolidated Statements of Operations.

Sales of wholesale electricity to bilateral counterparties represent performance obligations recognized over a contractually agreed period of time based on volumes delivered at the contractually agreed price.

Sales of electric generation, ancillary services, and wholesale electricity to bilateral counterparties are recognized based on invoiced amounts which corresponds directly with the value provided over a specific time interval.

Sales of retail electricity to commercial and industrial retail customers under executory bilateral contracts represent performance obligations recognized over a contractually agreed period of time based on volumes delivered to the customer at the contractually agreed price. Accrued and unbilled revenue of retail electricity to commercial and industrial customers is based on contractually agreed prices and the estimated volumes of customer usage since the last meter reading date provided by ISOs, RTOs, or electric distribution companies. The estimated revenues are adjusted when actual usage is known and billed to customers in the month following service delivery or the provision for service. Payments for customer invoices are generally due within a short time period based on the contractually agreed due date of the underlying agreements. As part of the Talen Bankruptcy, Talen filed an order to reject its retail contracts and will have no further obligations under these retail contracts upon its exit from bankruptcy. See Note 3 for additional information.

Certain contracts constitute bundled agreements to sell energy, capacity, ancillary services and (or) RECs. In such cases, all performance obligations are deemed to be delivered and (or) performed at the same time. Accordingly, as the timing of revenue recognition for all performance obligations is the same and occurs over a contractually agreed period of time, it is unnecessary to allocate transaction price to multiple performance obligations.

Realized gains and losses on commodity derivative instruments include settlements of financial and physical transactions for hedging and portfolio optimization related to electricity contracts that stabilize the financial performance of Talen's generation facilities. Realized settlements of financial and physical commodity derivative instruments are recognized and presented net within "Energy revenues" on the Consolidated Statements of Operations based on the delivery period of the underlying contract at contractually agreed prices. See "Energy Expenses" below for additional information on realized gains and losses of derivative instruments presented as "Fuel and energy purchases" on the Consolidated Statements of Operations.

Unrealized gain (loss) on derivative instruments. Includes unrealized gains and losses resulting from the changes in fair value of certain contracts related to electricity contracts that qualify as derivative instruments. See "Derivative Instruments" below for the recognition criteria of unrealized gains and losses on commodity derivative instruments. See "Energy Expenses" below for additional information on unrealized gains and losses of derivative instruments presented as "Energy expenses" on the Consolidated Statements of Operations.

See Note 5 for additional information on revenue.

Energy Expenses. Energy expenses on the Consolidated Statements of Operations are primarily comprised of items presented as (i) "Fuel and energy purchases;" (ii) "Nuclear fuel amortization;" and (iii) "Unrealized gain (loss) on derivative instruments" for purchase contracts.

Fuel and energy purchases. Primarily includes: (i) fuel costs; (ii) environmental product costs; (iii) energy purchases; (iv) gross receipts taxes; and (v) realized gain (loss) on commodity derivative instruments.

Fuel costs include the costs incurred by Talen-owned generation facilities for the conversion of coal, natural gas, and (or) oil products to electricity. Fuel for electric generation from coal and oil product inventories are recognized at the applicable weighted average inventory cost of volumes consumed. Fuel for electric generation from natural gas purchases are recognized at the agreed price for natural gas delivered to the applicable generation facility over a contractually agreed period of time.

Environmental product costs include RGGIs, RECs, and emission product compliance costs that are mandated by certain states. The estimated cost of compliance is accrued at the time an obligation under the applicable terms of each state's environmental compliance program arises.

Energy purchases include costs incurred for purchases of electricity from ISOs, RTOs and bilateral counterparties, which are used to fulfill wholesale physical contract requirements and commercial and industrial retail power sales requirements when such requirements are in excess of volumes generated by Talen-owned generation facilities. Physical electricity purchases are recognized upon delivery at contractually agreed day-ahead market prices, real-time market prices or bilateral contract prices. Energy purchases from ISOs and RTOs are presented net of electric generation sales on an hourly basis. Where the effect of such netting results in a net purchase, the net hourly amounts are presented as "Fuel and energy purchases" on the Consolidated Statements of Operations.

Gross receipt taxes include taxes levied on retail electricity sales to commercial and industrial customers, where applicable.

Realized gains and losses on commodity derivative instruments include settlements of financial and physical transactions for hedging and portfolio optimization related to fuel contracts and environmental product contracts that stabilize the financial performance of Talen's generation facilities. Realized settlements of financial and physical commodity derivative instruments are recognized and presented net based on the delivery period of the underlying contract at contractually agreed prices. See "Operating Revenues" above for additional information on realized gains and losses on derivative instruments presented as "Energy revenues" on the Consolidated Statements of Operations.

Nuclear fuel amortization. Nuclear fuel-related costs, including procurement of uranium, conversion, enrichment, fabrication and assemblies, are capitalized and presented as "Property, plant and equipment" on the Consolidated Balance Sheets and presented as a cash outflow within the investing activities section on the Consolidated Statements of Cash Flows. Such costs are amortized as the fuel is consumed using the units-of-production method and presented as "Nuclear fuel amortization" on the Consolidated Statements of Operations.

Unrealized gain (loss) on derivative instruments. Includes unrealized gains and losses resulting from the changes in fair value of certain fuel contracts and environmental product contracts that qualify as derivative instruments. See "Derivative Instruments" below for the recognition criteria of unrealized gains and losses on commodity derivative instruments. See "Operating Revenues" above for additional information on unrealized gains and losses of derivative instruments presented as "Operating Revenues" on the Consolidated Statements of Operations.

Derivative Instruments. The fair values of derivative instruments are presented as "Derivative instruments" within assets or liabilities on the Consolidated Balance Sheets. In most instances, master netting agreements govern derivative transactions between parties and contain certain provisions for setoff rights. However, the fair value of derivative instruments is presented on the Consolidated Balance Sheets gross of setoff rights and gross of any collateral deposits exchanged between parties that may be required when certain credit limits are exceeded.

The classification for the income effect of a derivative instrument, which is due to changes in such instrument's fair value over the term of the underlying contract, depends on the intent for holding the instrument.

Unrealized gains or losses, net of income tax, associated with a derivative instrument that: (i) is intended to hedge the cash flows of a separate transaction; and (ii) qualifies for specialized cash flow hedge accounting are presented as "Other Comprehensive Income (Loss)" on the Consolidated Statement of Comprehensive Income in the period when such gains or losses arise. The fair value of a derivative instrument is presented on the Consolidated Balance Sheets as AOCI. Such amounts are transferred from AOCI to the same financial statement line on the Consolidated Statements of Operations that is used to present the earnings effect of the separate hedged transaction in the same period when the income effect of the separate hedged transaction arises. At December 31, 2022 and 2021, there are no derivatives with hedge accounting designations.

If a hedging relationship between a derivative instrument and the separate hedged transaction that previously qualified for cash flow hedge accounting is discontinued and the separate hedged transaction is still probable of occurring, amounts previously recognized in AOCI are reclassified to the same financial statement line on the Consolidated Statements of Operations that is used to present the earnings effect of the separate hedged transaction in the same period when the income effect of the separate hedged transaction arises. From the date the hedging relationship is discontinued, any subsequent changes in the fair value of the derivative are recognized in the Consolidated Statements of Operations. See Note 4 for additional information on discontinued cash flow hedges.

Unrealized gains or losses associated with a derivative instrument that economically hedges certain risks but where qualified cash flow hedge accounting is not elected or not met are presented on the Consolidated Statements of Operations in the period when such gains or losses arise. Changes in fair value of commodity derivatives are presented as "Unrealized gain (loss) on derivative instruments," as a component of either "Operating Revenues" or "Energy Expenses" on the Consolidated Statements of Operations in a manner consistent with the presentation of net realized gains and losses. See "Operating Revenues" and "Energy Expenses" above for a discussion of net realized gains and losses on commodity derivatives. The cumulative net gains or losses for interest rate contracts are presented within "Interest expense and other finance charges" on the Consolidated Statements of Operations.

See Notes 4 and 20 for additional information on the presentation of derivative contracts and fair value measurements.

Operation, maintenance and development. The costs of removal, repairs, maintenance and other operating costs, including salaries and benefits for operations personnel that do not meet capitalization criteria are recognized as an expense when incurred. Materials and supplies inventories are recognized as an expense at the weighted average cost of materials consumed as they are used for repairs and maintenance. Such expenses are presented as "Operation, maintenance and development" on the Consolidated Statements of Operations.

Operation, maintenance and development also includes "development" expenses that are related to a pipeline of renewable energy and battery storage projects, developing a hyperscale data center and our Nautilus joint venture during their pre-commercial operation stage.

Income Taxes. Talen Energy Corporation and its subsidiaries file a consolidated U.S. federal income tax return, which includes Talen Energy Supply. The provision for income taxes is calculated as if Talen Energy Supply and its subsidiaries file a separate consolidated tax return. Income taxes are accounted for under the asset and liability method. Deferred tax assets and liabilities are recognized for the future tax consequences attributable to differences between the financial statement carrying values of existing assets and liabilities and their respective tax basis, tax credits and NOL carryforwards. Deferred tax assets and liabilities are measured using enacted tax rates expected to apply to taxable income in the years in which temporary differences are expected to be recovered or settled. The effect on deferred tax assets and liabilities due to a change in tax rates is recognized as income in the period that includes the enactment date. Valuation allowances are recognized to reduce deferred tax assets to the extent necessary to result in an amount that is more likely than not to be realized. Disproportionate income tax effects are removed from AOCI when the circumstance upon which they are premised ceases to exist.

The financial statement effect of a tax position is recognized when it is more-likely-than-not, based on the technical merits, that the position will be sustained upon examination. A tax position that meets the more-likely-than-not recognition threshold is measured as the largest amount of tax benefit that is greater than 50% likely of being realized upon ultimate settlement with a taxing authority. A previously recognized tax position is reversed in the first period in which it is no longer more-likely-than-not that the tax position would be sustained upon examination. Interest and penalties from tax uncertainties are presented as "Income tax benefit (expense)" on the Consolidated Statements of Operations.

Sales taxes that are collected from retail customers are presented as "Accounts receivable" and "Accounts payable and other accrued liabilities" on the Consolidated Balance Sheets. Accordingly, sales taxes are not presented on the Consolidated Statements of Operations.

See Note 6 for additional information on income taxes.

Cash and Cash Equivalents. Bank deposits, liquid investments, and other similar assets with original maturities of three months or less.

Restricted Cash and Cash Equivalents. Bank deposits, commodity exchange deposits, liquid investments, and other similar assets with original maturities of three months or less that are restricted by agreement are presented as "Restricted cash and cash equivalents" on the Consolidated Balance Sheets. See Note 23 for additional information.

Accounts Receivable. Receivables primarily consist of amounts due from customers, net of any collection allowances. Uncollected receivables greater than 30 days past due are assessed for collectability based on a variety of factors that include, but are not limited to, customer credit worthiness, duration receivables are outstanding, and (or) historical collection experience. Management continuously assesses and considers current economic trends that might impact the amount of future credit losses. Additionally, if it becomes known that a specific customer may have the inability to settle its obligation that is not yet past due, such receivables are assessed for collectability. If these assessments indicate a receivable collection is remote, its carrying value is reduced through an allowance for doubtful accounts measured at management's best estimate, and a charge is presented on the Consolidated Statements of Operations. If any portion of the original carrying value of the receivable is recovered, the allowance and the associated charge are reversed in the period of collection. See Note 7 for additional information on allowance for doubtful accounts.

Inventory. Inventory consists of fuel for generation (primarily coal and fuel oil), materials and supplies, and environmental products all of which are valued at the lower of weighted average cost or net realizable value. See Note 9 for additional information on inventory.

Leases. Talen's operating leases are primarily related to offices, land, and generation facility equipment. Several of these lease agreements contain extension options allowing Talen, at its discretion, to renew the lease term for additional periods. The decision to include these renewal periods in the lease term and in the minimum lease payments in the calculation of lease liabilities is dependent on whether it is reasonably certain that the extension option will be exercised. These leases do not contain any material restrictive covenants or residual value guarantees.

Talen has elected to not separate lease and non-lease components for each class of leased assets. Additionally, Talen has elected to not recognize the right of use assets and the lease liabilities arising from leases with a short-term duration. A short-term lease is less than 12 months and does not include a purchase option or an option to extend beyond 12 months that Talen is reasonably certain to exercise.

Right-of-use assets are presented as "Other current assets" and "Other noncurrent assets" on the Consolidated Balance Sheets and represent the right to use an underlying asset for the lease term, while lease liabilities are presented as "Other current liabilities" and "Other noncurrent liabilities" on the Consolidated Balance Sheets and represent the payment obligations related to these assets over the lease term. Right-of-use assets and lease liabilities are recognized on commencement of the lease based on the present value of lease payments over the lease term. The discount rate for a lease is the rate implicit in the lease unless that rate cannot be readily determined. In such a case, the discount rate utilized is Talen's incremental secured borrowing rate over a similar time period and economic environment as the lease, based on information available at the lease commencement date. See Note 10 for additional information on leases.

Variable Interest Entities. The primary beneficiary (a controlling financial interest) of a VIE is required to consolidate the VIE when it has both: (i) the power to direct the activities that most significantly impact the entity's economic performance; and (ii) the obligation to absorb losses or receive benefits from the entity that could potentially be significant to the VIE.

In the third quarter 2022, Talen Energy Supply became the primary beneficiary of Cumulus Digital Holdings and its subsidiaries. These entities were consolidated by Talen Energy Supply.

During 2021, Talen held interests in two material VIEs, Cumulus Coin Holdings and Cumulus Data Holdings, but was not the primary beneficiary of the VIEs. Our interests in entities that are considered VIEs for which Talen is not the primary beneficiary are accounted for under the equity method.

During 2021 and 2022, Talen Energy Supply utilized the hypothetical liquidation at book value method to recognize earnings associated with its investments in Cumulus Coin Holdings and Cumulus Data Holdings. Under the hypothetical liquidation at book value method, the amounts of income and loss attributable to the preferred equity investments held by Talen Energy Supply and its subsidiaries were computed as the amount the members would hypothetically receive at each balance sheet date under the respective liquidation provisions in the applicable limited liability company agreement. Such computation assumed the underlying net assets of these entities were liquidated at their carrying values after taking into account any capital transactions, such as contributions and distributions, between the entities and the members. As the members are under common control, any income allocated to the preferred equity investments under the hypothetical liquidation at book value method that recovers a basis difference between the book value of capital contribution. The liquidation preference value on such contributions is considered a reallocation of equity between the members under common control.

See Notes 11 and 12 for additional information on Talen Energy Supply equity and equity-method investments.

Investments in Debt and Equity Securities. The NDT holds investments in available-for-sale debt securities and equity securities, which are carried at fair value and presented as "Nuclear decommissioning trust funds" on the Consolidated Balance Sheets.

Unrealized gains and losses, net of income tax, on available-for-sale debt securities are presented as "Other Comprehensive Income (Loss)" on the Consolidated Statements of Comprehensive Income in the period when such gains and losses arise. Realized gains and losses on available-for-sale debt securities are transferred from AOCI to "Nuclear decommissioning trust funds gain (loss), net" on the Consolidated Statements of Operations in the period when the sale of the security occurs. The specific identification method is used to calculate realized gains and losses on debt and equity securities. If an available-for-sale debt security's fair value declines below cost and the decline is determined to be other-than-temporary, the unrealized loss is recognized on the Consolidated Statements of Comprehensive Income in the period when such determination arises.

Unrealized gains and losses and realized gains and losses on equity securities are presented as "Nuclear decommissioning trust funds gain (loss), net" on the Consolidated Statements of Operations in the period when such gains or losses arise.

See Notes 13 and 20 for additional information on investments in debt and equity securities.

Property, Plant and Equipment. Expenditures for land, the construction of generation, data center or Bitcoin facilities, the addition or refurbishment of major equipment, and commercially viable new development projects are capitalized at cost. Such capitalized amounts include interest costs, where appropriate. Generation, data center or Bitcoin facilities, land, and other equipment acquired in a business combination is recognized at fair value. In each case, such amounts are presented as "Property, plant, and equipment, net" on the Consolidated Balance Sheets. Reductions in the carrying value of property, plant and equipment are accumulated over the estimated useful life of each depreciable unit using straight-line or group depreciation methods, where appropriate. Such periodic reduction is presented as a charge to "Depreciation, amortization and accretion" on the Consolidated Statements of Operations. Generally, upon normal retirement of property, plant, and equipment under the group depreciation method, the costs of such assets are retired against accumulated depreciation in the period of the retirement and no gain or loss is recognized. Any remaining carrying value of property, plant and equipment at its retirement date that depreciated under the straight-line depreciation method is presented as a loss within "Other operating income (expense), net" on the Consolidated Statements of Operations. Any remaining carrying value of property, plant and equipment at its sale date and any proceeds from the disposition are presented as a gain or loss within "Other operating income (expense), net" on the Consolidated Statements of Operations.

Expenditures for intangible assets such as contractual rights, software and licenses are capitalized at cost. Intangible assets acquired in a business combination are recognized at fair value. In each case, such amounts are presented as "Property, plant and equipment" on the Consolidated Balance Sheets. Reductions in the carrying value of intangible assets with finite useful lives are accumulated over the estimated useful life of each intangible asset using an amortization pattern in which the economic benefits of each intangible asset is utilized. Such periodic reduction is presented as a charge to "Depreciation, amortization and accretion" on the Consolidated Statements of Operations. The carrying value of intangible assets with indefinite useful lives is not material.

See "Impairments" below for additional information regarding impairments on the carrying values of property, plant and equipment.

See Note 14 for additional information on property, plant and equipment.

Generation Facility Useful Life Revisions.

Effective December 31, 2022, the estimated useful life of Montour's coal-fired power generation related PP&E was amended from May 2025 to December 2023. The change in the estimated useful life will increase Montour's depreciation expense by approximately \$49 million for the period from January 2023 through December 2023. Previously, effective September 30, 2020, Montour's estimated useful life was changed from 2035 to 2025. After adjusting for the impact of Montour's non-cash impairment charge, the change in the estimated useful life will increase Montour's depreciation expense by approximately \$53 million annually through 2024 and \$22 million in 2025. See Note 14 for additional information on Montour's impairment.

Effective December 31, 2022, the estimated useful life of Camden was amended from June 2029 to June 2040. The change in the estimated useful life has an immaterial effect on the depreciation expense of the generation facility.

Effective September 1, 2021, the estimated useful lives of certain peaking units were respectively amended from June 2030 to April 2022 or June 2022 due to revisions in deactivation dates. The change in the estimated useful lives for the generation facilities increased aggregate depreciation expense by approximately \$11 million for the period from September 2021 through June 2022.

Effective June 1, 2021, the estimated useful lives of Newark Bay and Pedricktown were respectively amended from June 2033 and June 2032 to May 2022 due to revisions in deactivation dates. The change in the estimated useful lives for the generation facilities increased aggregate depreciation expense by approximately \$38 million for the period from June 2021 through May 2022.

As each of these changes is a change in estimate, the changes are accounted for prospectively. Additionally, actual depreciation expense for each useful life revision may vary from estimates based on a number of factors which include, but are not limited to, additions or retirements of property, plant and equipment carrying values subsequent to the effective date of each revision.

Impairments. Property, plant and equipment used in operations are assessed for impairment whenever changes in facts and circumstances indicate the carrying value of the asset group may not be recoverable. Indicators of impairment may include changes in the economic environment, negative financial trends, physical damage to assets or decisions of management regarding strategic initiatives. Where applicable, individual assets are grouped for impairment purposes at the lowest level for which there are identifiable cash flows that are largely independent of the cash flows of other assets and liabilities. If there is an indication the carrying value of an asset group may not be recovered, management reviews the expected future cash flows of the asset group. If the sum of the undiscounted pre-tax cash flows is less than the carrying value of the asset group, the asset group is written down to its estimated fair value. Impairment charges are presented as "Impairments" on the Consolidated Statements of Operations in the period in which the impairment condition arises. If facts and circumstances indicate that the carrying value of an asset under construction will have no future economic benefit, such amounts are presented as a charge to "Operation and maintenance" on the Consolidated Statements of Operations in the period in which such projects are abandoned, canceled, or management otherwise determines the costs to be unrecoverable.

Fair value may be determined by a variety of valuation methods including third-party appraisals, market prices of similar assets, and present value techniques. However, as there is generally a lack of quoted market prices for long-lived assets, the fair value of impaired assets is typically determined based on the present values of expected future cash flows using discount rates that are believed to be consistent with those used by principal market participants. The estimated cash flows and related fair value computations consider all available evidence at the date of the review, such as estimated future generation volumes, forward capacity and commodity prices, energy prices, operating costs, capital expenditures, and environmental costs.

See Note 14 for information on impairments.

Asset Retirement Obligations. A liability for an ARO or conditional ARO exists when a legal obligation arises from laws, regulations or other contractual requirements for the retirement of tangible long-lived assets. When an ARO liability is incurred, which is typically at asset construction or through assumption of the liability in connection with a business combination, it is initially recognized at fair value. Fair value measurements are estimated under a present value technique and are discounted using a credit-adjusted risk-free rate. Additionally, given the inherent uncertainty in estimating the amount of cash flows to settle an ARO liability or its settlement date, fair value estimates include a market risk premium and a range of possible cash flow outcomes, where applicable. At the initial recognition, the effects on the Consolidated Balance Sheets include: (i) an increase to "Asset retirement obligations and accrued environmental costs" for the portion of ARO to be settled after one year and (or) "Other current liabilities" for the portion of the ARO to be settled within one year; and (ii) an offsetting increase to "Property, plant, and equipment" for the asset retirement capitalized cost. Estimated future ARO cash expenditures and settlement dates are reviewed periodically to identify any required amendments to the carrying value of each ARO liability.

ARO liabilities increase over a period of time through the recognition of accretion expense to recognize changes in the obligation due to the passage of time. The asset retirement capitalized cost is depreciated at a rate consistent with the useful life of the associated long-lived asset. The depreciation of the asset retirement capitalized cost and the accretion of the ARO liability are each presented as "Depreciation, amortization and accretion" on the Consolidated Statements of Operations. An ARO liability amendment associated with a long-lived asset that is not fully impaired or depreciated is recognized through an adjustment to the ARO liability and the asset retirement capitalized cost. Any revision to the asset retirement capitalized cost is generally depreciated over the remaining life of the associated long-lived asset. An ARO liability amendment associated with a fully impaired or depreciated asset is presented as "Other operating income (expense), net" on the Consolidated Statements of Operations. At settlement, a gain or loss will arise if the cash expenditures to settle the ARO liabilities are different than the carrying values. Such gains or losses are presented as "Other operating income (expense), net" on the Consolidated Statements of Operations.

A conditional ARO refers to an entity's legal obligation to perform an asset retirement activity in which the timing or method of settlement is conditional on a future event that may or may not be within the entity's control. There may also be instances when there is no available information regarding the ultimate ARO settlement timing or the fair value of the obligation may not be reasonably estimable. If sufficient information becomes available to reasonably estimate the fair value of the liability for an ARO or a conditional ARO, a liability is recognized in the period in which it is determined.

See Note 15 for additional information on AROs.

Contingencies. Management continuously assesses potential loss contingencies for environmental remediation, litigation claims, regulatory penalties and other events. Potential losses are accrued when: (i) information is available that indicates it is probable (i.e., likely to occur) that a loss has been incurred, given the likelihood of the uncertain future events; and (ii) the amount of the loss can be reasonably estimated. Loss contingencies are recognized at management's best estimate, which may be discounted, where appropriate. Loss contingencies exclude estimates for any legal fees, which are recognized as incurred when the legal services are performed. See Note 16 for additional information on loss contingencies.

Business interruption insurance proceeds are considered gain contingencies and not recognized until realized.

Debt. Proceeds received on the issuance of new term loans, secured notes, unsecured notes, bonds, and similar indebtedness are presented as "Long-term debt" or "Long-term debt, due within one year" on the Consolidated Balance Sheets. Interest incurred as paid-in-kind, whether accrued or capitalized as additional principal are presented as "Long-term debt" with the associated outstanding amounts of indebtedness. Costs incurred to issue new indebtedness and any original issuance discounts or premiums are deferred at issuance on the Consolidated Balance Sheets and presented together with the associated outstanding principal amounts of indebtedness.

Interest accrues on outstanding principal amounts of indebtedness based on contractually determined rates during each period. Costs incurred for the issuance of indebtedness and any original issuance discounts or premiums are subsequently amortized through the expected maturity date of the associated indebtedness under the effective interest rate method and are presented as "Interest expense and other finance charges" on the Consolidated Statements of Operations.

Gains and losses on the: (i) early redemption of indebtedness, or (ii) early termination and (or) reduction of revolving credit facility committed capacity are presented as "Debt restructuring gain (loss), net" on the Consolidated Statements of Operations. Such amounts include the proportional derecognition of any deferred financing costs, fees, discounts, and (or) premiums associated with the indebtedness.

Direct cash borrowings under secured lines of credit, revolving credit facilities, and similar indebtedness are presented as "Revolving credit facilities" on the Consolidated Balance Sheets. Costs incurred to issue new arrangements are deferred and presented as "Other current assets" or "Other non-current assets" on the Consolidated Balance Sheets. Interest accrues on direct cash borrowings and LCs based on contractually determined rates during each period.

Costs incurred to issue new arrangements are subsequently amortized through the expected expiration of the associated arrangement under the straight-line method. Commitment fees on available but unused credit facility capacity are expensed as incurred. Such costs are presented as "Interest expense and other finance charges" on the Consolidated Statements of Operations.

Postretirement Benefit Obligations. Talen sponsors or participates in, as applicable, various qualified and non-qualified defined benefit pension plans and other postretirement benefit plans. Gains and losses, net of income tax, that arise and are not a component of net periodic defined benefit costs are presented as "Other Comprehensive Income (Loss)" on the Consolidated Statements of Comprehensive Income.

Talen uses an accelerated amortization method for the recognition of gains and losses for defined benefit pension plans. Under the accelerated method, actuarial gains and losses in excess of 30% of the plan's projected benefit obligation are amortized on a straight-line basis over one-half of the expected average remaining service of active plan participants. Actuarial gains and losses in excess of 10% of the greater of the plan's projected benefit obligation or the market-related value of plan assets and less than 30% of the plan's projected benefit obligation are amortized on a straight-line basis over the expected average remaining service period of active plan participants.

Talen is obligated to provide health care benefits under the Coal Act and pneumoconiosis (black lung) benefits under the Black Lung Act for retired miners and allowable beneficiaries. Benefits are funded from a VEBA trust and a trust maintained under certain federal and state black lung legislation. Shortfalls in funded status of the plans are assessed as contingent liabilities. As such, Talen recognizes funding shortfalls on its balance sheet, where applicable, if benefit obligations of either plan exceed the fair value of available trust assets.

See Note 21 for additional information about the plans and the accounting for defined benefits.

New Accounting Standards

Postretirement Benefits (Adopted). On January 1, 2021, Talen adopted the guidance in ASU 2018-14, which amends disclosure requirements around defined benefit plans. The adoption of this guidance did not have a material effect on Talen.

Reference Rate Reform (Pending). In March 2020, the FASB issued ASU 2020-04, which provides optional expedients and exceptions for applying GAAP to contract modifications and hedging relationships, subject to meeting certain criteria, that reference LIBOR or another rate that is expected to be discontinued. The optional expedients are available to be used upon issuance of this guidance and if elected, will permit entities to treat such modifications as the continuation of the original contract without any required accounting reassessments or remeasurements. Talen has not modified contracts that qualify for the expedient described above, therefore, the guidance has not been applied. While a material impact as a result of the adoption of this standard is not expected, the assessment to determine the ultimate impact on the financial statements is ongoing.

3. Talen Bankruptcy

Voluntary Reorganization Under Chapter 11 of the U.S. Bankruptcy Code

In May 2022, the Talen Filing Parties, or the Debtors, not including Talen Energy Corporation, filed voluntary petitions seeking relief under Chapter 11 of the Bankruptcy Code, subject to the Talen RSA. In December 2022: (i) Talen Energy Corporation filed a petition to become a Debtor in the Talen Bankruptcy in order to facilitate the implementation of certain restructuring transactions under the Plan of Reorganization; (ii) the Bankruptcy Court approved the joint administration of Talen Energy Corporation's bankruptcy case with the other Debtors, and directed that certain orders previously entered apply to Talen Energy Corporation to the extent applicable; and (iii) the Plan of Reorganization was confirmed by the Bankruptcy Court.

Subject to certain exceptions, under the Bankruptcy Code, the filing of the Talen Bankruptcy automatically enjoined, or stayed, the continuation of most judicial or administrative proceedings or filings of other actions against the Debtors or their property to recover, collect, or secure a claim arising prior to the Petition Date, including under our prepetition funded debt obligations

Since the commencement of the Talen Bankruptcy, the Debtors have continued to operate their business as debtors-in-possession under the jurisdiction of and in accordance with the applicable provisions of the Bankruptcy Code and orders of the Bankruptcy Court.

The Bankruptcy Court has approved, on a final basis, the first-day motions filed by the Debtors that were designed primarily to mitigate the impact of the Talen Bankruptcy on the Debtors' operations and employees. The Debtors are authorized, under orders approving the first-day motions, to conduct their business activities in the ordinary course, and pursuant to orders entered by the Bankruptcy Court, are authorized to, among other things and subject to the terms and conditions of such orders: (i) pay employee wages and related obligations; (ii) pay certain taxes; (iii) pay amounts owed to certain critical vendors for work performed prior to the Petition Date; (iv) continue Talen's hedging program under both prepetition agreements and new postpetition agreements; (v) maintain their insurance programs; and (vi) continue their cash management system (including funding of certain transactions with the Cumulus Affiliates and LMBE-MC).

Under the Bankruptcy Code, the Talen Filing Parties may assume, assign, or reject certain contracts, subject to the approval of the Bankruptcy Court and to certain other conditions. Other parties to the rejected contracts may assert claims in the Bankruptcy Court against the Debtors for damages related to these rejections. See "Liabilities subject to compromise and claims" below for additional information.

Talen Restructuring Support Agreement

Prior to the commencement of the Talen Bankruptcy, the Talen Filing Parties entered into the Talen RSA with the Consenting Noteholders and agreed to support the transactions set forth in the Talen RSA Term Sheet. The Talen RSA Term Sheet provides for an up to \$1.9 billion common equity rights offering that, when combined with Talen's projected available cash at the time of consummation, would provide for the payment of claims under the Talen DIP Credit Agreements, the Talen Commodity Accordion RCF, the Talen Senior Secured Term Loans, the Talen Senior Secured Notes and the Talen ISDAs. Certain of the Consenting Noteholders have agreed to backstop up to \$1.55 billion of the Rights Offering, as further described below.

The Talen RSA includes, among other things, certain consent rights for the Consenting Noteholders, certain commitments of the Consenting Noteholders and the other parties to the RSA to support the restructuring, termination rights for both the Consenting Noteholders and the Talen Filing Parties, and customary milestone dates by which certain events in the Talen Bankruptcy must occur.

In August 2022 and December 2022, the Talen Filing Parties and the Consenting Noteholders executed amendments to the Talen RSA incorporating the CAF Settlement, the Non-CAF Settlement, and the TEC Global Settlement. As a result of these settlements, the Consenting CAF Parties, Consenting Non-CAF Parties, and Talen Energy Corporation and the Riverstone Entities settled outstanding issues, and agreed to join the parties to the Talen RSA and to support the Plan of Reorganization. Each of these settlements is incorporated into the Plan of Reorganization.

Additionally, in connection with the TEC Global Settlement, Talen Energy Supply, Talen Energy Corporation, certain of the Cumulus Affiliates, the Riverstone Entities and Orion entered into the Cumulus Term Sheet, which, among other things, provided for additional funding for Cumulus Data and Cumulus Coin, conversion of Talen's preferred equity in Cumulus Data Holdings and Cumulus Coin Holdings into common equity of Cumulus Digital Holdings, and increased governance and consent rights for Talen Energy Supply with respect to Cumulus Digital Holdings and its subsidiaries. See Note 12 for additional information on the Cumulus Term Sheet.

The Plan of Reorganization has been confirmed by the Bankruptcy Court; however, there can be no assurance that it will be consummated as contemplated by the Talen RSA.

Backstop Commitment Letter

The Talen Filing Parties and the Backstop Parties have entered into the Backstop Commitment Letter, pursuant to which the Backstop Parties have agreed to purchase up to \$1.55 billion of the New Parent Equity offered in the Rights Offering in the event the Rights Offering is not fully subscribed.

The Backstop Commitment Letter provides the Backstop Parties with subscription rights to purchase 30% of the New Parent Equity issued on account of each Backstop Party's commitment. On April 3, 2023, Talen launched the Rights Offering sized at \$1.55 billion.

The Backstop Commitment Letter is terminable by the Requisite Backstop Commitment Parties, as defined in the Talen RSA, and (or) Talen, under certain conditions, including failure to achieve certain milestones or the termination of the Talen RSA.

In consideration of the Backstop Parties' commitments under the Backstop Commitment Letter, the Backstop Parties are entitled to: (i) the Backstop Premium; (ii) the Backstop Periodic Premium; (iii) a fee, in certain instances, equal of up to 50% of the Backstop Premium in the event that the Backstop Commitment Letter is terminated and certain specified events have not occurred; and (iv) payment and reimbursement of all "Transaction Expenses" as defined in the Talen RSA.

In August 2022, the Bankruptcy Court approved the entry of Talen Energy Supply into the Backstop Commitment Letter.

In the third quarter 2022, the Debtors recognized a \$310 million charge associated with the Backstop Commitment Letter and (or) its possible termination presented as "Reorganization income (loss), net" on the Consolidated Statement of Operations.

Plan of Reorganization

In September 2022, the Debtors filed the Plan of Reorganization and related disclosure statement with the Bankruptcy Court. In October 2022, the Bankruptcy Court approved the Disclosure Statement and the Debtors commenced solicitation of the Plan of Reorganization shortly thereafter.

Additionally, in November 2022, the Debtors and the RSA Parties reached an agreement in principle with the Creditors' Committee with respect to a Global Plan Settlement of all of the Creditors' Committee's outstanding issues in the Talen Bankruptcy, including those related to the Plan of Reorganization and the settlements thereunder. Pursuant to the Global Plan Settlement, the Creditors' Committee agreed to support the Plan of Reorganization, to not make or file any objection contrary to or against the relief sought by the Debtors in relation to the Plan of Reorganization, and to agree to a stay of the Standing Motions and prosecution of CAF Claim Objection (together with all deadlines related thereto).

In December 2022, the Bankruptcy Court confirmed the Plan of Reorganization. As confirmed, the Plan of Reorganization would implement, among other things, the transactions contemplated by the Talen RSA, the TEC Global Settlement, and the Global Plan Settlement. The Plan of Reorganization and Confirmation Order provide for, among other things, the following resolution of claims and interests against the Debtors:

- Holders of Other Secured Claims shall receive at the applicable Debtor's discretion: (i) payment in full in cash of the unpaid portion of such holder's Allowed Other Secured Claim; (ii) reinstatement of such holder's Allowed Other Secured Claim; (iii) the applicable Debtor's interest in the collateral securing such holder's Other Secured Claim; or (iv) such other treatment rendering such holder's Allowed Other Secured Claim unimpaired.
- Holders of Prepetition First Lien Non-CAF Claims shall receive payment in full in cash of such holder's pro rata share of the Settled First Lien Non-CAF Claim Amount.
- Holders of Prepetition CAF Claims shall receive payment in full in cash of such holder's pro rata share of the Settled CAF Claim Amount.
- Holders of Unsecured Notes Claims shall receive 99% of the New Parent Equity, less the New Parent Equity distributed on account of the Retail PPA Incentive Equity, and subject to dilution, certain subscription rights to purchase New Parent Equity or cash.
- Each holder of a General Unsecured Claim shall receive its pro rata share of interests in the \$26.05 million pool of cash set aside for general unsecured creditors. To the extent any proceeds are recovered by the Debtors pursuant to the PPL/Talen Montana Litigation, 10% of the net proceeds recovered will be contributed to the pool of cash, subject to a cap of \$11 million.
- Prepetition Intercompany Claims shall be cancelled, released, discharged, and extinguished.
- Intercompany Interests shall be reinstated so as to maintain the organizational structure of the Debtors as such structure exists on the Effective Date unless implementation of the restructuring requires otherwise.
- The Riverstone Entities will receive 1.00% of the New Parent Equity, after giving effect to the Rights Offering and the Backstop Put Premium; New Parent Equity (or cash, as applicable) equal to 25.00% of the net present value of projected savings and actual net savings under the amended retail energy agreements described in Note 12; and the New Warrants.
- All claims against Talen Energy Corporation will be paid in full in cash or reinstated and all equity interests in Talen Energy Corporation will be extinguished.

Payments Due on Certain Indebtedness

The Talen Bankruptcy resulted in immediate acceleration of the Accelerated Indebtedness. As a result, the principal amount of the Accelerated Indebtedness, together with accrued interest, immediately became due and payable. However, any efforts to enforce these payment obligations were automatically stayed as of the Petition Date and are subject to the applicable provisions of the Bankruptcy Code and orders of the Bankruptcy Court. The Accelerated Indebtedness primarily includes the prepetition Talen Commodity Accordion RCF and all of Talen Energy Supply's recourse long-term debt, except for the obligations relating to the Talen 2038 PEDFA Series 2009B bonds and the Talen 2037 PEDFA 2009 Series C bonds. See Notes 17 and 18 for details on revolving credit facilities and long-term debt.

The filing of the Talen Bankruptcy also provided the counterparties under certain commodity and derivative related agreements with the right to declare an event of default and to terminate and accelerate amounts owed under such agreements, subject to the applicable provisions of the Bankruptcy Code and orders of the Bankruptcy Court. In June 2022, the Bankruptcy Court entered a final order with respect to the Talen DIP Credit Agreements, which, among other things, permits, or in certain circumstances, requires, the Talen Filing Parties to pay interest on the prepetition secured debt, subject to, among other terms and conditions, minimum liquidity requirements.

Talen DIP Credit Agreements

In May 2022, the Talen Filing Parties entered into a superpriority secured DIP credit agreement and entered into several new or amended ISDAs with certain hedge counterparties to allow the Debtors to enter into postpetition hedging transactions. These agreements provided Talen with sufficient liquidity to recommence its hedging activities, which had been constrained prior to the filing of the Talen Bankruptcy. See Note 17 for additional information on the Talen DIP Credit Agreements and Talen Postpetition ISDAs.

In June 2022, the Talen DIP New Money Agreement was amended to, among other things, make certain technical adjustments to clarify that the Debtors are able to continue to enter into certain ordinary course operational hedges, enter into risk reducing trades and provide for other adjustments to the hedging restrictions and parameters contained in the Talen DIP New Money Agreement.

In September 2022, the Talen DIP New Money Agreement was amended to allow for Cumulus Digital Holdings and its subsidiaries to become unrestricted subsidiaries of Talen Energy Supply and otherwise accommodate the Cumulus Digital Equity Conversion.

In November 2022, the Talen DIP New Money Agreement was amended to, among other things, permit additional hedging and further revise certain of the hedging restrictions and parameters contained in the Talen DIP New Money Agreement.

In March 2023, the Talen DIP New Money Agreement was amended to permit the sales of mineral interests and gas transportation contracts described in Note 25.

Talen Energy Corporation is not a guarantor or otherwise party to the Talen DIP Credit Agreements and, for the avoidance of doubt, any reference to the Debtors or the Talen Filing Parties, in the context of the Talen DIP Credit Agreements, shall not include Talen Energy Corporation.

Liabilities Subject to Compromise and Claims

At December 31, 2022, "Liabilities subject to compromise" on the Consolidated Balance Sheet presents the expected allowed amount of the prepetition claims of the Debtors that are not fully secured and that have at least a possibility of not being repaid at the full claim amount. Management will continue to evaluate the amount and classification of its prepetition liabilities until Talen's Debtors emerge from bankruptcy. Any additional liabilities that are subject to compromise will be recognized accordingly, and the aggregate amount of liabilities subject to compromise may change.

	December 31, 2022
Debt (a)	\$ 1,558
Termination of retail and other contracts	447
Postretirement benefit obligations (a)	309
Asset retirement obligations and accrued environmental costs (a)	219
Other liabilities (a)	114
Deferred tax liabilities	83
Accounts payable and accrued liabilities	53
Accrued interest	41
Derivatives (a)	1
Liabilities Subject to Compromise	\$ 2,825

(a) Includes both current and noncurrent amounts.

In the preceding table:

- "Debt" represents principal values of long-term unsecured debt;
- "Derivatives" represent the fair value of prepetition derivative instruments with counterparties that, as of the filing date, have not executed new or amended ISDAs or consent agreements committing to any postpetition hedging arrangements under the Talen DIP Credit Agreements;
- "Postretirement benefit obligations" and "Asset retirement obligations and accrued environmental costs" are presented as "Liabilities subject to compromise" on the Consolidated Balance Sheet as they represent unsecured liabilities. However, under the terms of the Plan of Reorganization, these liabilities will be assumed by Talen upon emergence from bankruptcy; other than a non-material amount associated with Talen's legacy non-qualified supplemental pension plan.;
- "Asset retirement obligations and accrued environmental costs" represent all the Debtors' AROs except those related to Susquehanna Nuclear, which are secured by the NDT, and all the Debtors' accrued environmental costs; and
- "Postretirement benefit obligations" represent all of the Debtors' unfunded or underfunded postretirement obligations.

In May 2022, the Bankruptcy Court issued an order that allowed the Debtors to reject contracts for power supply related to the Talen Energy Marketing retail business. In the second quarter 2022, the Debtors recognized a charge of \$447 million on the Consolidated Statement of Operations in "Operational restructuring" and as "Liabilities subject to compromise" on the Consolidated Balance Sheet relating to the rejected retail supply contracts. In addition, the Bankruptcy Court issued an order that allowed the Debtors to reject contracts for certain service agreements, contracts for the supply of gypsum, and a land lease. In the fourth quarter 2022, the Debtors recognized an associated charge of \$41 million on the Consolidated Statement of Operations in "Operational restructuring" and as "Liabilities subject to compromise" on the Consolidated Balance Sheet. Both of these charges are management's estimates of damages for allowed claims for the counterparties to the rejected contracts. Payment of these claims is subject to and limited by the final Plan of Reorganization.

Claims Processing. The Debtors have filed with the Bankruptcy Court schedules and statements setting forth, among other things, the assets and liabilities of the Debtors, on the basis of certain assumptions filed in connection therewith. The schedules and statements may be subject to further amendment or modification after filing. Certain holders of prepetition claims were required to file proofs of claim by the Bar Date, the deadline for general claims. This date excludes claims that are governmental units. Governmental units were required to file proof of claims by November 7, 2022.

As of February 28, 2023, the Debtors have received 37,430 proofs of claim, primarily representing general unsecured claims, for an aggregate amount of approximately \$88.3 billion. These values represent total claims filed and may include duplicative amounts.

Differences in amounts presented as "Liabilities subject to compromise" on the Consolidated Balance Sheet and claims filed by creditors are investigated and resolved, including through the filing of objections with the Bankruptcy Court, where appropriate. The Debtors may ask the Bankruptcy Court to disallow claims that are duplicative, have been later amended or superseded, are without merit, are overstated or should be disallowed for other reasons. As a result of this process, the Debtors may identify additional recognizable liabilities. In light of the substantial number of claims filed, the claims resolution process may be lengthy and will continue after the Debtors emerge from bankruptcy.

See Note 2 for additional information on bankruptcy related policies.

Reorganization Income (Expense), net

Reorganization Income (Expense), net for the year ended December 31 consisted of:

	2022
Backstop Premiums	\$ (310)
Professional fees	(210)
Make-whole premiums and accrued interest on certain indebtedness	(183)
Professional fees incurred to obtain the Talen DIP Credit Agreements	(70)
Write-off of deferred financing cost and original issue discount	(30)
Gains (Losses) on contract terminations	(4)
Other	(5)
Reorganization Income (Expense), net	\$ (812)

In the preceding table:

- see "Backstop Commitment Letter" above for information on the Backstop Premiums; and
- "Make-whole premiums and accrued interest on certain indebtedness" in the table above primarily represents charges recognized by the Debtor's for estimates related to make-whole premiums and accrued interest, where applicable, on the Talen Commodity Accordion RCF and certain senior secured indebtedness. The charges are presented as "Reorganization income (expense), net" on the Consolidated Statement of Operations and included in "Accrued interest" on the Consolidated Balance Sheet.

Cash paid for reorganization expense, net, excluding cash outlays for DIP financing fees, was \$156 million for the year ended December 31, 2022. Cash outlays for the DIP financing fees are presented as "Financing Activities" on the Consolidated Statement of Cash Flows.

Condensed Combined Debtors-in-Possession Financial Information

This condensed combined financial information has been prepared on the same basis as Talen Energy Supply's financial statements. Intercompany transactions between Debtors have been eliminated in the amounts presented below. The following table presents summarized condensed combined financial information of debtors of Talen Energy Supply as of and for the year ended December 31:

	2022
Cash and cash equivalents	\$ 722
Restricted cash and cash equivalents	182
Accounts receivable, net	415
Inventory, net	445
Derivative instruments	2,195
Other current assets	228
Current assets	4,187
Property, plant and equipment, net	3,868
Nuclear decommissioning trust funds	1,400
Derivative instruments	228
Investments in affiliate subsidiaries	322
Other noncurrent assets	139
Total Assets	\$ 10,144
Revolving credit facilities	\$ 848
Long-term debt, due within one year	1,000
Accrued interest	277
Accounts payable and other accrued liabilities	422
Derivative instruments	1,927
Other current liabilities	322
Total current liabilities	4,796
Long-term debt	2,022
Liabilities subject to compromise	2,827
Derivative instruments	363
Asset retirement obligations and accrued environmental costs	564
Deferred income taxes	75
Other noncurrent liabilities	54
Total Liabilities	10,701
Member's Equity	(557)
Total Liabilities and Equity	\$ 10,144

"Accounts receivable, net" in the table above, includes \$9 million due for transactions between the debtors and non-debtors including: (i) LMBE-MC HC and its subsidiaries; (ii) Talen Receivables Funding LLC; (iii) the Cumulus Affiliates; and (iv) Talen Energy Corporation. The transactions primarily include: (i) amounts due under certain energy management agreements, support services or support cost reimbursement agreements; (ii) amounts due related to TRF's receivables sales agreement that was terminated in May 2022; and (iii) amounts due for Talen Energy Supply's payment of certain expenses and liabilities incurred by Talen Energy Corporation. See Notes 12 and 24 for additional information on amounts due from Cumulus-related entities and Talen Energy Corporation.

"Derivative instruments," in the table above within current assets, includes \$38 million related to an ISDA agreement between Debtor, Talen Energy Marketing, and non-Debtor, LMBE-MC HC, pursuant to which Talen Energy Marketing enters into commodity hedging transactions with respect to the sale of energy and capacity and the purchase of fuel by Talen Energy Marketing under energy management agreements with LMBE-MC HC's subsidiaries.

	2022
Capacity revenues	\$ 295
Energy revenues (a)	1,708
Unrealized gain (loss) on derivative instruments (a)	697
Operating Revenues	2,700
Energy Expenses	
Fuel and energy purchases (a)	(688)
Nuclear fuel amortization	(94)
Unrealized gain (loss) on derivative instruments (a)	(16)
Operating Expenses	
Operation and maintenance	(547)
General and administrative (b)	(115)
Postretirement benefits service cost	(5)
Depreciation, amortization and accretion	(483)
Operational restructuring	(488)
Other operating income (expense), net	(12)
Operating Income (Loss)	252
Interest expense and other finance charges	(349)
Nuclear decommissioning trust funds gain (loss), net	(184)
Consolidation of subsidiary gain (loss)	(170)
Postretirement benefits gain (loss), net	(7)
Debt restructuring gain (loss), net	(5)
Reorganization income (expense), net	(812)
Other non-operating income (expense), net	(36)
Income (Loss) Before Income Taxes	(1,311)
Income tax benefit (expense)	34
Net Income (Loss)	(1,277)
Less: Net income (loss) attributable to noncontrolling interest	(3)
Net Income (Loss) Attributable to Members	\$ (1,274)

(a) Includes a non-material amount of revenue for the twelve months ended period, net related to transactions with non-debtor subsidiaries.

(b) See Note 12 for information on related party activity with Cumulus-related entities.

Included in above, is a non-material amount of revenue, net related to an ISDA agreement between debtor, Talen Energy Marketing, and non-debtor, LMBE-MC HC, pursuant to which Talen Energy Marketing enters into commodity hedging transactions with respect to the sale of energy and capacity and the purchase of fuel by Talen Energy Marketing under energy management agreements with LMBE-MC HC's subsidiaries.

	2022
Cash provided by (used in) operating activities	\$ 118
Investing Activities	
Property, plant and equipment expenditures	(155)
Nuclear fuel expenditures	(80)
Nuclear decommissioning trust funds investment purchases	(2,271)
Nuclear decommissioning trust funds investment sale proceeds	2,243
Investments in preferred equity of affiliates and equity method investments	(157)
Other investing activities	11
Net cash provided by (used in) investing activities	(409)
Financing Activities	
Talen Energy Supply DIP long-term debt issuance proceeds, net	987
Talen Deferred Capacity Obligation repayments	(176)
Talen Inventory Repurchase Obligations, net increase (decrease)	(165)
Talen Commodity Accordion RCF proceeds	62
Talen Commodity Accordion RCF repayments	(62)
Derivatives with financing elements	(104)
Deferred finance costs	(59)
Other	(5)
Net cash provided by (used in) financing activities	\$ 478

4. Risk Management, Derivative Instruments and Hedging Activities

Risk Management Objectives

We are exposed to risks arising from our business, including but not limited to, market and commodity price risk, credit and liquidity risk, and interest rate risk. The hedging and optimization strategies deployed by our commercial organization to mitigate and (or) balance these risks within a structured risk management program in order to minimize near-term future cash flow volatility. The Company's Risk Management Committee, comprised of certain senior management members across the Talen organization and one independent member, oversees the management of these risks in accordance with our risk policy.

Management has established procedures to monitor, measure, and manage hedge and optimization in accordance with the risk policy.

Key risk control activities which are designed to ensure compliance with the risk policy include, among other activities, credit review and approval, validation of transactions and market prices, verification of risk and transaction limits, portfolio stress tests, analysis and monitoring of margin at risk analysis, and daily portfolio reporting.

Market and Commodity Price Risk. Volatility in the wholesale power generation markets provides uncertainty in the future performance and cash flows of the business. The price risk Talen is exposed to includes the price variability associated with future sales and purchases of power, natural gas, coal, uranium oil products, environmental products and other energy commodities in competitive wholesale markets. Several factors influence price volatility including: seasonal changes in demand; weather conditions; available regional load-serving supply; regional transportation and (or) transmission availability; market liquidity; and federal, regional, and state regulations.

Within the parameters of our risk policy, we generally utilize conventional exchange-traded and over-the-counter traded derivative instruments, and in certain instances, structured products, to economically hedge the commodity price risk of the forecasted future sales and purchases of commodities associated with our generation portfolio.

Open commodity purchase (sales) derivatives at December 31, 2022 range in maturity through 2025. The net notional volumes of open commodity derivatives were:

	December 31, 2022 (a)	December 31, 2021 (a)
Power (MWh)	(34,810,559)	(33,993,941)
Natural gas (MMBtu)	57,621,580	43,867,702
Emission allowances (tons)	5,000,000	4,700,000

(a) The volumes may be less than the contractual volumes as the probability that option contracts will be exercised is considered in the volumes displayed.

Interest Rate Risk. Talen is exposed to interest rate risk from the possibility that changes in interest rates will affect future cash flows associated with existing floating rate debt issuances. To reduce interest rate risk, derivative instruments are utilized to economically hedge the interest rates for a predetermined contractual notional amount which results in a cash settlement between counterparties. Certain interest rate derivative instruments were required through December 2021 under the LMBE-MC Credit and Guaranty Agreement; others are entered into at the discretion of Talen.

Open interest rate derivatives at December 31, 2022 range in maturity dates through 2023. The net notional volumes of open interest rate derivatives were:

	December 31, 2022	December 31, 2021
Interest rate (in millions) (a)	\$ 289	\$ 842

(a) Value at December 31, 2022 relates to LMBE-MC indebtedness.

Credit Risk. Credit risk, which is the risk of financial loss if a customer, counterparty, or financial institution is unable to perform or pay amounts due, is inherent within cash and cash equivalents, restricted cash and cash equivalents, derivative instruments, and accounts receivable. The maximum amount of credit exposure associated with financial assets is equal to the carrying value. Credit risk, which cannot be completely eliminated, is mitigated through a number of practices such as ongoing reviews of counterparty credit worthiness, prepayment, inclusion of termination rights in contracts which are triggered by certain events of default and executing master netting arrangements which permit amounts between parties to be offset. Additionally, credit enhancements such as cash deposits, letters of credit, and credit insurance may be employed to mitigate credit risk.

Cash and cash equivalents are placed in depository accounts or high-quality short-term investments with major international banks and financial institutions. Individual counterparty exposure from over-the-counter derivative instruments is managed within predetermined credit limits and includes the use of master netting arrangements and cash-call margins when appropriate, to reduce credit risk. Exchange traded commodity contracts, which are executed through futures commission merchants, have minimal credit risk because these are subject to mandatory margin requirements and are cleared with an exchange. However, Talen is exposed to the credit risk of the future commission merchants arising from daily variation margin cash calls. Restricted cash and cash equivalents deposited to meet initial margin requirements are held by futures commission merchants in segregated accounts for the benefit of Talen Energy Marketing.

Outstanding accounts receivable include those from sales of capacity, generated electricity and ancillary services through contracts directly with ISOs and RTOs, sales of physical electricity to commercial and industrial retail customers and realized settlements of physical and financial derivative instruments with commodity marketers. Additionally, Talen carries accounts receivable due from joint owners for their portion of operating and capital costs for certain jointly owned facilities which are operated by the Company. The majority of outstanding receivables, which are continually monitored, have customary payment terms. Allowances for doubtful accounts were \$6 million at December 31, 2022 and \$10 million at December 31, 2021. See "ERCOT 2021 Winter Market Conditions" below for additional information on the allowance for doubtful accounts recognized during the first quarter 2021.

Concentrations of Credit Risk. At December 31, 2022 Talen's aggregate credit exposure, which excludes the effects of netting arrangements, cash collateral, letters of credit and any allowances for doubtful collections, was \$2,808 million and its credit exposure net of such effects was \$201 million. Excluding ISO and RTO counterparties, whose accounts receivable settlements are subject to applicable market controls, the ten largest single net credit exposures account for approximately 85% of Talen's total net credit exposure, which are primarily with entities assigned investment grade credit ratings.

Credit Risk Contingent Features. Certain derivative instruments contain credit risk-related contingent features which may require us to provide cash collateral, letters of credit or guarantees from a creditworthy entity if the fair value of a liability eclipses a certain threshold or upon a decline in our credit rating. The fair value of derivative instruments in a net liability position, which contain credit risk-related contingent features, was \$2 million at December 31, 2022 and was \$13 million at December 31, 2021. There was \$2 million in collateral posted on those positions at December 31, 2022 and December 31, 2021. The additional potential collateral requirements, which primarily related to further adequate assurance features, were not material at December 31, 2022 and \$1 million at December 31, 2021.

Effect of Netting. Generally, the right of set off within master netting arrangements permits the fair value of derivative assets to be offset with derivative liabilities. As an election, derivative assets and derivative liabilities are presented as Consolidated Balance Sheets without the effect of such permitted netting.

The net amounts of "Derivative instruments" presented as assets and liabilities on the Consolidated Balance Sheets considering the effect of permitted netting and where cash collateral is pledged in accordance with the underlying agreement were:

	Gross Derivative Instruments	Eligible for Offset	Liabilities subject to compromise	Net Derivative Instruments	Collateral	Net Amounts
December 31, 2022						
Assets	\$ 2,393	\$ (2,194)	\$ —	\$ 199	\$ —	\$ 199
Liabilities (a)	2,291	(2,194)	1	96	(75)	21
December 31, 2021						
Assets	\$ 1,983	\$ (1,957)	\$ —	\$ 26	\$ —	\$ 26
Liabilities	2,461	(1,957)	—	504	(312)	192

(a) Includes amounts that are presented as "Liabilities subject to compromise" on the Consolidated Balance Sheets. See Note 3 for additional information.

Discontinued Cash Flow Hedges

The pre-tax gain (loss) of discontinued cash flow hedges, which were discontinued prior to the formation of Talen in 2015, reclassified from AOCI into the Consolidated Statements of Operations for the years ended December 31 were:

Location of Gain (Loss)	2022	2021	2020
Depreciation, amortization and accretion	\$ 2	\$ 2	\$ 3
Impairments	—	—	9
Total	\$ 2	\$ 2	\$ 12

In September 2020, a non-cash impairment charge on Montour's property, plant, and equipment carrying values resulted in the accelerated amortization of \$9 million in non-cash gains on discontinued cash flow hedges that were previously presented as AOCI. Such amount is presented as "Impairments" on the Consolidated Statement of Operations for the year ended December 31, 2020.

At December 31, 2022 and 2021, the carrying value, net of tax, of qualifying derivatives held within AOCI was \$9 million and \$11 million. During the next 12 months, \$2 million is expected to be reclassified into earnings with the remained expected to be reclassified through 2028.

In 2022, 2021, and 2020 there were no derivatives actively designated as cash flow hedges.

Derivative Instrument Presentation

The fair value of derivative instruments presented within assets and liabilities on the Consolidated Balance Sheets were:

	December 31, 2022 (a)		December 31, 2021	
	Assets	Liabilities	Assets	Liabilities
Commodity contracts	\$ 2,156	\$ 1,928	\$ 1,338	\$ 1,731
Interest rate contracts	9	—	—	11
Less: amounts presented as "Liabilities subject to compromise"	—	1	—	—
Total current derivative instruments	\$ 2,165	\$ 1,927	\$ 1,338	\$ 1,742
Commodity contracts	\$ 228	\$ 363	\$ 645	\$ 716
Interest rate contracts	—	—	—	3
Total non-current derivative instruments	\$ 228	\$ 363	\$ 645	\$ 719

(a) A portion of liability values have been presented as "Liabilities subject to compromise" on the Consolidated Balance Sheet. See Note 3 for additional information.

All commodity and interest rate derivatives are economic hedges where the changes in fair value are presented immediately in income. Changes in the fair value and realized settlements on commodity derivative instruments are presented as separate components of "Energy revenues" and "Fuel and energy purchases" on the Consolidated Statements of Operations. Changes in fair value and realized settlements of interest rate derivatives are presented as "Interest expense and other finance charges" on the Consolidated Statements of Operations. See Note 20 for additional information on fair value.

The location and pre-tax effect of derivative instruments presented on the Consolidated Statements of Operations for the years ended December 31 were:

	2022	2021	2020
Realized gain (loss) on commodity contracts			
Energy revenues (a)	\$ (613)	\$ (228)	\$ 464
Fuel and energy purchases (a)	127	230	(74)
Nuclear fuel amortization	—	—	(2)
Unrealized gain (loss) on commodity contracts			
Operating revenues (b)	\$ 677	\$ (847)	\$ (69)
Energy expenses (b)	(52)	135	36
Realized and unrealized gain (loss) on interest rate contracts			
Interest expense and other finance charges	\$ 30	\$ 12	\$ (45)

(a) Does not include those derivative instruments that settle through physical delivery.

(b) Presented as "Unrealized gain (loss) on derivative instruments" on the Consolidated Statements of Operations.

Contract Terminations

Commodity Hedge Terminations. In March and April 2022, Talen Energy Marketing and a commercial counterparty terminated certain outstanding economic hedges that were scheduled to be priced and delivered from April 2022 through December 2022. As a result, Talen Energy Marketing realized a \$124 million termination loss and agreed to settle the obligation on a monthly basis through January 2023. For year ended December 31, 2022, the realized termination loss is presented as "Energy revenues" on the Consolidated Statement of Operations and repayments are presented as "Derivatives with financing elements" on the Consolidated Statement of Cash Flows.

In May 2022, as a result of the Talen Bankruptcy, certain commodity counterparties terminated power and natural gas agreements with a carrying value and fair value of \$(33) million prior to the agreements' scheduled termination dates. Accordingly, for the year ended December 31, 2022 Talen Energy Marketing recognized a \$33 million net loss presented as either "Energy revenues" or "Fuel and energy purchases" on the Consolidated Statement of Operations. During 2022, Talen Energy Marketing received approximately \$16 million in settlements from counterparties and at December 31, 2022 carries an approximately \$40 million obligation to counterparties presented as "Accounts payable and accrued expenses" on the Consolidated Balance Sheet. Such amounts are expected to be settled upon Talen's emergence from bankruptcy.

Interest Rate Swap Terminations. In May 2022, as a result of the Talen Bankruptcy, certain financing counterparties terminated interest rate swap agreements with a carrying value and fair value of \$11 million prior to the agreements' scheduled termination dates. The total notional amount terminated was approximately \$500 million. As a result, Talen received \$13 million of cash for the terminated positions and a return of previously posted collateral related to such positions and recognized a realized gain of \$11 million to "Interest expense and other finance charges" on the Consolidated Statement of Operations during the year ended December 31, 2022.

ERCOT 2021 Winter Market Conditions

In mid-February 2021, Texas experienced an extreme winter weather event, Winter Storm Uri, that led to systemic energy market disruptions and price volatility throughout ERCOT. Winter Storm Uri precipitated a rapid increase in energy demand due to the storm's historically cold temperatures and a simultaneous decrease in energy supply caused by operational disruptions to the electric grid, natural gas production and distribution systems, water supplies, and other critical infrastructure throughout Texas. Talen incurred an estimated \$78 million pre-tax nonrecurring commercial loss associated with its ERCOT activities during Winter Storm Uri for the year ended December 31, 2021.

Additionally, due to defaults of other ERCOT market participants, ERCOT instituted "short payments." The short payment delays the remittance of cash for an uncertain period of time to non-defaulting market participants and will only be paid as ERCOT recovers money from the defaulting parties or through the collection of default uplift payments. Due to the uncertainty of when and how the short payments would ultimately be recovered from ERCOT, Talen recognized a charge of approximately \$9 million during the year ended December 31, 2021 to fully reserve the amounts due to Talen that are subject to short-payment reimbursements. The outstanding reserve was approximately \$4 million and \$9 million at December 31, 2022 and 2021.

No assurance can be provided that these losses will not vary based on the final market settlements or any legal and (or) regulatory actions. See Note 16 for additional information on ERCOT systemic risks including a settlement by ERCOT with one of co-ops that had short-paid.

5. Revenue

The disaggregation of our operating revenues for the years ended December 31 were:

	2022	2021	2020
Capacity revenues	\$ 377	\$ 444	\$ 315
Electricity sales and ancillary services, ISO/RTO	2,534	1,960	475
Physical electricity sales, bilateral contracts, other	298	572	508
Total revenue from contracts with customers	3,209	2,976	1,298
Realized and unrealized gain (loss) on derivative instruments	(120)	(2,048)	428
Operating revenues	\$ 3,089	\$ 928	\$ 1,726

Accounts Receivable

During the years ended December 31, 2022 and 2021, there were no significant changes in accounts receivable other than normal billing and collection transactions. See Note 4 for additional information on Talen's credit risk on the carrying value of its receivables. See Note 7 for information on an allowance for doubtful accounts reserve recognized during the year ended December 31, 2021 and Note 11 for additional information on a Talen Energy Marketing receivables sales arrangement that was terminated in May 2022.

Accounts receivable, net presented on the Consolidated Balance Sheets at December 31 were:

	2022	2021
Customer accounts receivable	\$ 350	\$ 56
Other accounts receivable	58	59
Accounts receivable, net	\$ 408	\$ 115

Future Performance Obligations

In the normal course of business, Talen subsidiaries have future performance obligations for capacity sales awarded through market-based capacity auctions and (or) for capacity sales under bilateral contractual arrangements.

At December 31, 2022, the expected future period capacity revenues subject to unsatisfied or partially unsatisfied performance obligations were:

	2023	2024	2025	2026	2027
Expected capacity revenues	\$ 231	\$ 72	\$ 2	\$ —	\$ —

The PJM capacity auctions for the 2025/2026 PJM Capacity Year and for any years thereafter have not yet been held. The 2023/2024 PJM Capacity Year auction was completed in June 2022 and the 2024/2025 PJM Capacity Year auction was completed in December 2022 but PJM delayed release of the results until February 2023. For the 2024/2025 PJM Capacity Year, Talen was awarded capacity revenue of \$95 million for 2024 and \$67 million for 2025. See Note 16 for additional information on the PJM Capacity Market and these auctions.

PJM Capacity Sale and Talen Deferred Capacity Obligation

In March 2021, Talen entered into an arrangement with an unaffiliated third party to sell future capacity revenues awarded by PJM and cleared by Talen in PJM's capacity auctions for the 2021/2022 PJM Capacity Year related to most of Talen's generation facilities located in Pennsylvania, Maryland and New Jersey, excluding the Lower Mt. Bethel and Martins Creek facilities. Under the terms of the arrangement, Talen transferred the rights of future cash flows for certain cleared capacity with aggregate volumes of 7,352 MW and aggregate revenues of approximately \$405 million. In exchange, Talen was advanced proceeds of \$385 million that were further reduced by a \$15 million purchaser discount. Talen received its remaining \$20 million payment in variable monthly installments that began in September 2021 and continued until the expiration of the arrangement in June 2022. During the term of the arrangement, Talen remained responsible for operating its generation facilities, retained the obligation to perform as a PJM generation capacity resource with respect to the capacity sold in the transaction, had retained its rights for any earned Capacity Performance bonus payments, and had retained the risks associated with performance deficiency penalties. The Talen Deferred Capacity Obligations were completed in June 2022 and were not renewed or extended.

As Talen continued to have future Capacity Performance obligations to PJM during the term of the arrangement, amounts advanced to Talen pursuant to the Talen Deferred Capacity Obligations were presented as "Deferred capacity obligations" on the Consolidated Balance Sheets. Capacity revenues were recognized over a period of time consistent with the fulfillment of Talen's obligations to PJM. The \$15 million purchaser discount paid by Talen to the unaffiliated third party represented an implied finance charge. Such amount was being amortized through expiry of the agreement and is presented as "Interest expense and other finance charges" on the Consolidated Statements of Operations, with amortization totaling a non-material amount in 2022 and \$13 million in 2021.

6. Income Taxes

The components of "Income tax benefit (expense)" for the years ended December 31 were:

	2022	2021	2020
Federal	\$ (9)	\$ (25)	\$ (21)
State	(4)	1	(1)
Current income taxes	(13)	(24)	(22)
Federal	68	263	171
State	(21)	60	30
Deferred income taxes	47	323	201
Investment tax credit	1	1	2
Income tax benefit (expense)	\$ 35	\$ 300	\$ 181
Income (loss) before income taxes	\$ (1,328)	\$ (1,277)	\$ (845)
Effective income tax rate	2.6 %	23.5 %	21.4 %

Effective Tax Rate Reconciliations

The reconciliations of the effective tax rate for the years ended December 31 were:

	2022	2021	2020
Income (loss) before income taxes	\$ (1,328)	\$ (1,277)	\$ (845)
Income tax benefit (expense)	35	300	181
Effective tax rate	2.6 %	23.5 %	21.4 %
Federal income tax statutory tax rate	21 %	21 %	21 %
Income tax benefit (expense) computed at the federal income tax statutory tax rate	\$ 279	\$ 269	\$ 177
Income tax increase (decrease) due to:			
State income taxes, net of federal benefit	19	59	34
Change in valuation allowance	(198)	—	—
Permanent differences	(94)	—	—
Nuclear decommissioning trust taxes	28	(28)	(27)
Other	1	—	(3)
Income tax benefit (expense)	\$ 35	\$ 300	\$ 181

The effective tax rate for the years ended December 31, 2022, 2021, and 2020 differed from the statutory rate primarily due to the change in valuation allowance, additional 20% trust tax on the NDT income, permanent differences, and state taxes.

Deferred Taxes

The components of deferred tax liabilities and deferred tax assets at December 31 were:

	2022	2021
Property, plant and equipment, net	\$ 436	\$ 534
Nuclear decommissioning trust	394	520
Unrealized gain on qualifying derivatives	25	—
Deferred tax liabilities	855	1,054
Less:		
Accrued pension costs	68	76
Unrealized loss on qualifying derivatives	—	124
Federal net operating loss carryforwards	258	304
State net operating loss carryforwards	34	57
Federal credits	8	7
Accrued liabilities	155	24
Interest limitation carryforward	242	195
Investment in Subsidiaries	33	—
Other	96	56
Deferred tax assets	894	843
Valuation allowance	(198)	(5)
Deferred tax liabilities	\$ 159	\$ 216

Net Operating Losses

The components of NOL carryforwards at December 31 were:

	2022	2021
Federal, expirations 2036 - 2037	\$ 58	\$ 285
Federal, indefinite expiration, limited to annual utilization of 80%	1,198	1,189
State, expirations 2023 - 2041	647	785

If substantial changes in our ownership occur, there could be an annual limitation on the amount of carryforwards that could be utilized.

Unrecognized Tax Benefits

	2022	2021
Balance, January 1	\$ 9	\$ 9
Additions for tax positions of prior years	—	—
Balance, December 31	\$ 9	\$ 9

Included in the balance of unrecognized tax benefits at both December 31, 2022 and 2021 are potential benefits of \$9 million, that, if recognized, would affect the effective tax rate. We do not expect the total amount of unrecognized tax benefit to change significantly within one year.

All tax returns filed for years ending December 31, 2019 and forward are open to examination by the relevant taxing authorities.

Valuation Allowance

As of December 31, 2022 Talen recognized a \$198 million federal and state valuation allowance expense for the portion of Talen's net deferred tax asset that is not more likely than not to be realized. Such an allowance resulted from a customary deferred tax asset valuation allowance assessment which is performed on net deferred tax asset positions that utilizes available positive and negative evidence to estimate whether sufficient future taxable income will be generated to permit use of the existing deferred tax assets. Talen's most significant deferred tax assets are its net operating losses and interest limitation carryforwards. A significant objective input of negative evidence considered in the assessment included the cumulative book losses incurred over a three-year period. The existence of objective evidence limits the availability to consider other subjective evidence, including (but not limited to) Talen's projections for future income which may allow for utilization of net operating losses and interest limitation carryforwards. At each period, including at the Effective Date of the Plan of Reorganization, management will continue to assess the available positive and negative evidence to determine the need for a valuation. Additionally, it is reasonably possible that sufficient positive evidence may become available that concludes a significant portion of the valuation allowance should be released. No assurance can be provided as to the timing or any amount associated with a valuation allowance release.

7. Other Operating Income (Expense)

The components of "Other operating income (expense), net" for the years ended December 31 were:

	2022	2021	2020
Legal settlements (a)	\$ (18)	\$ (1)	\$ (3)
Organization change initiatives	(9)	(10)	(13)
Accrued environmental costs liability revisions (b)	(13)	4	—
ARO revisions on fully depreciated property, plant and equipment (b)	(5)	3	6
ERCOT, allowance for doubtful accounts (c)	5	(9)	—
Gain (loss) on asset sales (d)	3	3	141
Fuel inventory net realizable value and obsolescence adjustments (e)	—	(2)	(31)
Lower Mt. Bethel casualty losses	—	—	(6)
Talen Montana closure expenses	—	—	(6)
Other	(3)	(3)	(1)
Other operating income (expense), net	\$ (40)	\$ (15)	\$ 87

(a) See Note 16 for additional information on the expenses incurred during 2022 related to the Kinder Morgan litigation.

(b) See Note 15 for additional information on accrued environmental costs and ARO revisions.

(c) See Note 4 for additional information on this allowance related to Winter Storm Uri.

(d) See Note 25 for additional information on the gain related to the sale of IEC in 2020.

(e) See Note 9 for additional information.

8. Other Non-Operating Income (Expense)

The components of "Other non-operating income (expense), net" for the years ended December 31 were:

	2022	2021	2020
Professional and legal expenses for primarily for liquidity management initiatives	\$ (49)	\$ (23)	\$ —
Earnings from equity investments (a)	7	—	—
Gain on transfer of assets from the PA Mines UMWA Plan VEBA (b)	—	15	22
Professional and legal expenses on certain litigation	—	(5)	(4)
Other	11	7	1
Other non-operating income (expense), net	\$ (31)	\$ (6)	\$ 19

(a) See Note 12 for additional information.

(b) See Note 21 for additional information.

9. Inventory

	December 31, 2022	December 31, 2021
Coal	\$ 189	\$ 134
Oil products	61	64
Fuel inventory for electric generation	250	198
Materials and supplies, net	195	187
Environmental products	12	18
Inventory, net	\$ 457	\$ 403

Net realizable value and obsolescence charges on coal and fuel oil inventories are presented as "Other operating income (expense), net" on the Consolidated Statements of Operations. Such non-cash charges were not material for the years ended December 31, 2022 and 2021, and \$31 million for the year ended December 31, 2020.

Net realizable value and obsolescence charges on materials and supplies inventories are presented as "Operation and maintenance" on the Consolidated Statements of Operations. Such non-cash charges were not material for the years ended December 31, 2022 and 2021, and \$17 million for the year ended December 31, 2020.

Talen Inventory Repurchase Obligations

Pursuant to the Talen Inventory Repurchase Obligations, which were terminated in May 2022, Talen from time to time sold and transferred title to certain fuel inventory quantities to an unaffiliated party and was advanced cash consideration. Talen was required to subsequently repurchase the quantities as needed for electric generation or at expiry of the arrangement. The sales and repurchases occurred at a preset formula partially tied to market prices and outstanding repurchase obligations were reported at market value of inventory subject to the arrangement, limited to \$165 million. The carrying value of inventory was reported at the lower of weighted average cost or net realizable value.

While the agreement was in place, Talen was required to subsequently repurchase the quantities transferred to the unaffiliated party. The inventories subject to the arrangement were not derecognized by Talen and any cash consideration advanced to Talen was presented as "Inventory repurchase obligations" on the Consolidated Balance Sheets. Advances were subject to change based on certain conditions in the arrangement, but were limited to \$165 million, at any time. Under the arrangement, outstanding advances accrued fees of LIBOR plus 8.0%, and such fees are presented as "Interest expense and other finance charges" on the Consolidated Statements of Operations.

In May 2022, Talen terminated the agreement by repurchasing the remaining inventory and repaying the \$165 million outstanding obligation, plus accrued interest and other fees.

The outstanding Talen Inventory Repurchase Obligations and the carrying value of inventories subject to the arrangement were:

	December 31, 2022	December 31, 2021
Talen Inventory Repurchase Obligations outstanding	\$ —	\$ 165
Carrying value of inventories subject to arrangement (a)	—	181

(a) Presented as "Inventory, net" on the Consolidated Balance Sheets

10. Leases

The carrying value of operating lease right-of-use assets, operating lease liabilities, and characteristics associated with operating leases presented on the Consolidated Balance Sheets at December 31 were:

	2022	2021
Other noncurrent assets (a)	\$ 4	\$ 7
Other current liabilities	\$ 1	\$ 2
Other noncurrent liabilities	3	5
Total operating lease liabilities (a)	\$ 4	\$ 7
Weighted-average remaining lease term (in years)	13	10
Weighted-average discount rate	6.5%	6.5%

(a) Excludes any amounts attributable to leases with a duration of less than 12 months.

Operating lease expense presented within the Consolidated Statement of Operations and operating lease cash expenditures and right-of-use assets obtained in exchange for new operating lease liabilities during the years ended December 31 were:

	2022		2021		2020
Lease expense (a)	\$ 2	\$	3	\$	3
Lease expenditures (a)	2		3		3

(a) Excludes any amounts attributable to leases with a duration of less than 12 months.

The total estimated future annual minimum lease payments at December 31 were:

	2022
2023	\$ 1
2024	1
2025	1
2026	—
2027	—
Thereafter	4
Total undiscounted payments	7
Less: present value adjustment	2
Total discounted lease payments	\$ 5

11. Equity-Method Investments

The carrying values of equity-method investments which are presented as "Other noncurrent assets" on the Consolidated Balance Sheets were:

	Formation	Ownership Interest (a)	December 31, 2022	December 31, 2021
Talen Receivables Funding, LLC (b)	2019	100.00 %	\$ —	\$ 8
Conemaugh Fuels, LLC	2002	22.22 %	15	7
Keystone Fuels, LLC	2000	12.34 %	8	3
Renewable joint ventures (c)	2019 - 2021	49% / 50%	6	3
Total			\$ 29	\$ 21

(a) Ownership at December 31, 2022.

(b) Investment derecognized in June 2022 upon termination. See "Receivables Company" below for additional information.

(c) The equity interests in these investments are owned through its Cumulus Affiliates.

Receivables Company

Under a receivables sales arrangement that was terminated in connection with the Talen Bankruptcy, Talen Energy Marketing sold qualifying retail receivables at fair value for cash and equity consideration to TRF. Talen Energy Marketing derecognized the carrying value of the receivables at the time of sale with the difference between cash proceeds and carrying value presented as "Other non-operating income (loss), net". TRF in-turn sold 100% of the receivables to an unaffiliated financial institution. Talen Energy Marketing serviced the receivables sold to TRF in exchange for a servicing fee. In May 2022, as a result of the Talen Bankruptcy, the unaffiliated buyer terminated its agreement with TRF, which in turn terminated further sales of receivables from Talen Energy Marketing to TRF. Talen Energy Marketing continued to act as servicer under the arrangement, and collections of receivables sold under the arrangement prior to termination continued to be remitted to the unaffiliated buyer until all amounts owed by TRF to the buyer in respect thereof were paid in June 2022. See Note 3 for additional information on the Talen Bankruptcy.

Prior to termination of the arrangement during 2022 and during 2021 and 2020, Talen was not the primary beneficiary of TRF because it did not have the power to direct the most significant activities that impact TRF's economic performance. These activities included the power to select receivables that were sold by TRF to the unaffiliated purchaser and to appoint the servicer to manage collection activities. Accordingly, TRF was not consolidated by Talen from the date of execution of the agreement through June 2022. Talen's risk of loss related to TRF was limited to its investment carrying value. See below for information on the consolidation of TRF beginning in June 2022.

The sales, contributions and return of capital activities associated with TRF for the years ended December 31 were:

	2022		2021		2020
Receivable sales by Talen to TRF	\$ 137	\$	492	\$	440
Receivable contributions by Talen to TRF (non-cash)	2		6		18
Return of capital to Talen by TRF	5		19		9

Any net income or net losses associated with the activities of TRF were recognized by Talen as equity earnings that are presented as "Other non-operating income (loss), net" on the Consolidated Statements of Operations. Additionally, gains and losses associated with the sale of Talen Energy Marketing receivables to TRF, servicing fee income earned by Talen Energy Marketing and equity earnings recognized by Talen were not material for the years ended December 31, 2022, 2021, and 2020.

In June 2022, in connection with the termination of the receivables sale arrangement and the settlement of final transactions, Talen Energy Marketing obtained a controlling financial interest in TRF, which was no longer determined to be a VIE. Accordingly, Talen Energy Marketing derecognized its \$5 million equity method investment in TRF and consolidated \$5 million of TRF assets and liabilities, net, which included \$7 million of cash. The receipt of cash is presented as "Investing Activities" on the Consolidated Statement of Cash Flows.

Fuels Companies

Talen holds equity interests in Conemaugh Fuels and Keystone Fuels equal to its respective undivided ownership interests in Conemaugh and Keystone. Conemaugh Fuels and Keystone Fuels were formed to purchase coal and sell it to Conemaugh and Keystone. Additionally, they may sell coal to any entity that manufactures or produces synthetic fuel from coal for resale to Conemaugh and Keystone. The aggregate affiliated fuel purchases by Talen from Conemaugh Fuels and Keystone Fuels is presented as "Fuel and energy purchases" on the Consolidated Statements of Operations.

Talen's aggregate fuel purchases for Conemaugh and Keystone Fuels for the years ended December 31 were:

	2022	2021	2020
Fuel purchases	\$ 63	\$ 52	\$ 39
Return of capital	5	2	4
(Capital contributions)	(17)	(4)	(2)

Renewable Development Joint Ventures

Talen, through its Cumulus Affiliates, is party to joint venture agreements with various third parties, including Pattern, an affiliate of Riverstone, and BQ Energy, for potential solar and wind projects to be located on or near Talen owned land adjacent to certain current and previously owned generation facilities. The joint ventures are pursuing an aggregate 280 MW of photovoltaic solar development projects and 600 MW of wind development projects. The joint venture project companies are currently each owned either 49% or 50% by Talen. Cash contributions by Talen Energy Supply to these joint ventures were \$5 million for the year ended December 31, 2022 and non-material for the years ended December 31, 2021 and 2020.

While Talen believes that these projects are commercially viable, no assurance can be provided that requisite capital resources to complete development will be obtained or that these projects will be successfully completed.

12. Talen Energy Supply Equity Investments

Equity Investments

At December 31, 2022, Talen Energy Supply held the following investments in its Cumulus Affiliates, which are consolidated by Talen Energy Supply for financial statement reporting purposes. As Talen Energy Supply consolidates the below companies, the equity carrying value is eliminated in consolidation. The Cumulus Affiliates are not Debtors in the Talen Bankruptcy.

Affiliate Company	Carrying Value	Voting Percentage
Cumulus Digital Holdings (a) (b) (c) (e) (f)	\$ 114	74.5 %
Cumulus Growth subsidiaries (d)		
Cumulus Real Estate Holdings	7	99.9 %
Cumulus Renewables Holdings	10	99.9 %
Cumulus Compute Holdings	4	99.9 %
Cumulus Battery Storage Holdings	1	99.9 %
Cumulus PT Energy Transitions Holdings	—	66.7 %

(a) See below for additional information on the Cumulus Digital Holdings investment.

(b) Includes subsidiaries Cumulus Coin Holdings, Cumulus Coin, Cumulus Data Holdings, Cumulus Data, and Nautilus Cryptomine.

(c) Nautilus commenced commercial operations in February 2023.

(d) Talen holds convertible voting preferred units.

(e) Excludes noncontrolling interest value.

(f) Talen Energy Supply has provided services through December 31, 2022 for which common equity has not been issued as of the date of these financial statements, but is expected to be issued later in 2023.

Cumulus Digital Holdings common equity units are held by Talen Energy Supply and Talen Growth. These common equity units were issued in September 2022, in exchange for then-existing preferred equity investments in Cumulus Coin Holdings and Cumulus Data Holdings pursuant to the Cumulus Digital Equity Conversion.

Cumulus Term Sheet and Cumulus Digital Equity Conversion

In August 2022, in connection with the TEC Global Settlement, Talen Energy Supply and Talen Growth entered into the Cumulus Term Sheet to resolve a variety of issues relating to Cumulus Digital and its subsidiaries. The Cumulus Term Sheet provided for, among other things: (i) incremental funding commitments into Cumulus Digital by Talen Energy Supply, Riverstone, and Orion; (ii) conversion of all of Talen's preferred units in Cumulus Coin Holdings and Cumulus Data Holdings into voting common units of Cumulus Digital Holdings, the indirect parent of Cumulus Coin Holdings and Cumulus Data Holdings (the Cumulus Digital Equity Conversion); (iii) increased Talen ownership of Cumulus Digital Holdings based on incremental funding by Talen; (iv) additional control over Cumulus Digital Holdings by Talen in the form of a new corporate governance structure and additional consent rights under the applicable LLC agreements; (v) a waiver by Orion of potential defaults and events of default under the Cumulus Digital Credit Agreement and amendments to the Cumulus Digital Credit Agreement to facilitate the Cumulus Term Sheet transactions; (vi) the affirmative right for Talen to refinance, repay, or purchase all amounts under such credit agreement; (vii) the release of certain claims related to the formation, governance, and operation of Cumulus Growth; (viii) assumption by the Talen Filing Parties of all material agreements with Cumulus Digital Holdings and its subsidiaries, and (ix) further deferral of certain preexisting and ongoing fees owed to Talen by Cumulus Digital.

In September 2022, following authorization by the Bankruptcy Court Talen Energy Supply consummated the transactions contemplated by the Cumulus Term Sheet. As contemplated by the Cumulus Term Sheet: (i) Talen and Riverstone have provided incremental funding of \$77 million and \$3 million, respectively, to Cumulus Digital Holdings; (ii) Orion funded the remaining \$89 million of its loan commitment under the Cumulus Digital Credit Agreement; and (iii) Riverstone sold \$2 million of its common equity in Cumulus Digital Holdings to one current and one former member of the Talen management team.

Until the Plan of Reorganization Effective Date, each of Talen and Riverstone has the right to designate two members of the board of managers of Cumulus Digital Holdings, and to jointly designate an independent member subject to the approval of the Consenting Noteholders. Upon the Plan of Reorganization Effective Date, Talen will have the right to designate four members of the board of managers of Cumulus Digital Holdings and Riverstone will have the right to designate one board member.

2022 Cumulus Coin Matters

In August 2022, Cumulus Coin and TeraWulf executed an amendment to the Nautilus limited liability company agreement, pursuant to which Cumulus Coin agreed, among other things, to provide increased funding to Nautilus in exchange for increasing Cumulus Coin's ownership percentage from 50% to approximately 67%. The agreement also included increased governance rights for Cumulus Coin, as well as provisions allowing each member to cover shortfalls by the other in exchange for increased ownership. As a result of the increased ownership and control by Cumulus Coin, it was determined that Cumulus Coin is the primary beneficiary of Nautilus, a VIE, and Nautilus was consolidated by Cumulus Coin for financial reporting purposes beginning in August 2022.

In September 2022, Cumulus Coin contributed an additional \$20 million to Nautilus, which included funding a \$5 million capital shortfall by TeraWulf. Accordingly, Cumulus Coin's ownership percentage in Nautilus was increased to approximately 71% following such contribution. In October 2022, both Cumulus Coin and TeraWulf contributed their share of a \$15 million planned contribution. In November 2022, Cumulus Coin contributed an additional \$19 million to Nautilus, which included funding a \$5 million shortfall by TeraWulf. Accordingly, Cumulus Coin's ownership percentage was increased to approximately 75% following such contribution.

2022 Cumulus Digital Holdings Consolidation

In September 2022, as described above, the Bankruptcy Court approved the Cumulus Term Sheet and associated transactions, which resulted in an increase of Talen Energy Supply's ownership in, and a change in the governance structure of, Cumulus Digital Holdings. While Talen and Riverstone, a related party, have equal representation on the board of managers of Cumulus Digital Holdings until the Plan of Reorganization Effective Date and can jointly direct the activities of Cumulus Digital Holdings that most significantly impact economic performance, Talen holds the controlling financial interest, provides its employees to support all activities of Cumulus Digital Holdings, and directs the day-to-day management of Cumulus Digital Holdings. Therefore, it was determined that Talen is the primary beneficiary of Cumulus Digital Holdings and Talen began consolidating Cumulus Digital Holdings and its subsidiaries for financial reporting purposes as of September 30, 2022. In addition, in August 2022, as a result of amendments to the Nautilus LLC agreement, Cumulus Digital Holdings' subsidiary, Cumulus Coin, consolidated Nautilus for financial reporting purposes. See "2022 Cumulus Coin Matters" above for additional information on Cumulus Coin's consolidation of Nautilus.

The September 30, 2022 Cumulus Digital Holdings consolidation into Talen Energy Supply and the August 30, 2022 Nautilus consolidation into Cumulus Coin were accounted for as business combinations. The identifiable tangible and intangible assets and liabilities of Cumulus Digital Holdings and Nautilus (and its noncontrolling interests) were adjusted to their estimated fair values on the consolidation date. The following table summarizes the third quarter 2022 allocation of the fair values of the major classes of assets and liabilities of Cumulus Digital Holdings (including Nautilus) to Talen Energy Supply's Consolidated Balance Sheet. The following allocations, other than "Restricted cash and cash equivalents, were primarily non-cash in nature:

Restricted cash and cash equivalents	\$	116
Other current assets		32
Property, plant and equipment (a)		234
Accounts payable and other accrued liabilities		(43)
Long-term debt (b)		(180)
Noncontrolling interest		(71)
Net assets acquired (c)	\$	88

(a) Primarily represents construction work-in-progress.

(b) See Note 18 for additional information on this debt.

(c) Other assets and liabilities were revalued at Cumulus Digital and its subsidiaries that eliminate in consolidation of Talen Energy Supply.

The estimated fair value of Cumulus Digital Holdings was determined: (i) for Cumulus Coin by a discounted cash flow technique; and (ii) for Cumulus Data, based on book value. The technique for Cumulus Coin utilized significant unobservable inputs including discount rates varying from 13.5% to 14.5%. The range of discount rates and other discounted cash flow assumptions that were utilized are believed to be consistent with those used by principal market participants. Such assumptions consider available evidence regarding the prospects of future cash flows for Cumulus Digital Holdings, including, but not limited to estimated available future expected operating revenues and useful lives, capacity prices, energy prices, Bitcoin pricing, operating costs and capital expenditures.

As a result of the consolidation of Cumulus Digital Holdings and its related valuation, which included Nautilus, Talen recognized a loss of \$170 million. The loss is primarily associated with the impairment of Cumulus Coin's investment in Nautilus based upon the discounted cash flow valuation. The loss is presented on the Consolidated Statement of Operations as "Consolidation of subsidiary gain (loss), net."

In addition, the September 2022 consolidation of Cumulus Digital Holdings, resulted in other non-cash changes to the Talen Energy Supply's Consolidated Balance Sheet as shown below.

Other noncurrent assets - accounts receivable with affiliate	\$	(15)
Other noncurrent assets - equity investments		(243)

Prior to the September 2022 consolidation of Cumulus Digital Holdings, Talen Energy Supply had an affiliate accounts receivable asset with an aggregate carrying value of \$15 million presented as "Noncurrent assets" on the Consolidated Balance Sheet, which is now eliminated in consolidation.

Prior to the September 2022 consolidation of Cumulus Digital Holdings, Talen Energy Supply owned preferred equity investments in Cumulus Coin Holdings and Cumulus Data Holdings with an aggregate carrying value of \$243 million presented as "Noncurrent assets" on the Consolidated Balance Sheet that was converted to common equity and replaced with the consolidated assets and liabilities of Cumulus Digital Holdings and its subsidiaries.

Cumulus Digital Letters of Credit and Other Assurances

See Note 18 for information on letters of credit and other assurances issued by related parties for the Cumulus Digital 2027 TLF.

In the first quarter 2022, Talen Energy Supply issued a surety bond in the amount of \$10 million, on behalf of Cumulus Data, for support of its development and construction activities.

Affiliate Related Party Agreements

Talen Energy Supply and (or) its subsidiaries have executed certain related party agreements in connection with the activities of the Cumulus Affiliates, in addition to the investments described above in "Equity Investments."

Energy Supply Agreements. Cumulus Data is party to two separate agreements with Talen Generation for energy supply from Susquehanna Nuclear: an agreement for up to 300 MW to provide submetered power for Cumulus Coin-related activities and a separate agreement for up to 650 MW for data center-related activities. As of April 3, 2023, Cumulus Data has elected to receive 150 MW under the first agreement and none for the second agreement.

In the second quarter 2021, Talen Generation entered into a five-year agreement to supply Cumulus Data with up to 100 MW of retail power at a market-based fixed rate for the initial term of the agreement. The agreement supports Cumulus Data's obligation to provide submetered power under a Ground Lease Agreement with Nautilus. Delivery of power under the agreement, together with the five-year initial term of the agreement, commenced in February 2023. Under the terms of the retail agreement, Cumulus Data may elect to increase the 100 MW capacity to up to 300 MW as Cumulus Coin and associated activities expand operations. The rate for power on the additional capacity would be fixed at the time of election based on a combination of the then-forward locational marginal price of power and auction-clearing capacity pricing at Susquehanna during the remainder of the initial term. In March 2023, Cumulus Data elected to increase the capacity under the retail energy agreement by an additional 50 MW. Cumulus Coin has no plans to expand operations beyond 150 MW at this time. The agreement has two three-year renewal options at the election of Cumulus Data. Upon the exercise of a renewal option, the rate for power during the renewal term would be fixed at the time of election based on a combination of the then-forward locational marginal price of power and auction-clearing capacity pricing at Susquehanna during the renewal term. Talen Generation's obligation to supply power to Cumulus Data under the retail agreement is backstopped by a wholesale energy supply agreement with Susquehanna Nuclear on substantially the same terms as the retail agreement.

Pursuant to the Cumulus Term Sheet, the retail and wholesale agreements were amended in September 2022 to provide for an adjustment to the price thereunder upon the occurrence of both: (i) commercial operation of the Nautilus facility; and (ii) refinancing of the indebtedness under the Cumulus Digital 2027 TLF or the principal amount thereunder having been reduced to \$100 million or less. At such time, the price will be adjusted to a then-current market price as determined by an independent third party, plus the statutory rate for renewable energy production tax credits on energy delivered thereunder to the extent Susquehanna is disqualified from being able to claim such credits due to Cumulus Data being an affiliate.

In the third quarter 2021, Talen Generation and Susquehanna Nuclear entered into an agreement that provides Cumulus Data the option to purchase up to 650 MW of retail power for seven years at a market-based fixed rate for its data center. Cumulus Data has five years from the date of the execution of the agreement to exercise the option. The agreement has two three-year renewal options. It is expected that Cumulus Data will provide submetered power to its tenants in the Cumulus Data Center Campus. The option agreement will backstop Cumulus Data's obligation to provide submetered power pursuant to the leases with its tenants. The cost of this power would be fixed at the time of exercise of the option based upon a combination of the then forward locational marginal price of power and auction-clearing capacity pricing at Susquehanna plus the statutory rate for renewable energy production tax credits described above, if any, subject to a floor at all times and prior to the date that the Cumulus Digital 2027 TLF has been refinanced or has been repaid to a principal balance of less than \$100 million, a cap. As of December 31, 2022, Cumulus Data had not exercised any option to acquire power from Talen under this agreement.

Under the terms of the Plan of Reorganization and the TEC Global Settlement, Riverstone will receive New Parent Equity (or cash, as applicable) equal to 25.00% of the net present value of projected savings under both of the aforementioned 300 MW and 650 MW agreements, as further described in the Plan of Reorganization. See Note 3 for additional information on the Plan of Reorganization and the TEC Global Settlement.

No revenue has been recognized under either power supply agreement during the year ended December 31, 2022. As a result of the September 2022 consolidation by Talen Energy Supply of Cumulus Digital Holdings, which includes Cumulus Data and Cumulus Coin's investment in Nautilus, any revenue or expense recognized by Talen Generation or Cumulus Data will eliminate in consolidation at Talen Energy Supply and have no impact Talen's consolidated results of operations.

These agreements were assumed by Talen upon the Bankruptcy Court's approval of the transactions contemplated by the Cumulus Term Sheet.

Nautilus Ground Lease Agreement. The Nautilus facility is located on land at the Cumulus Data Center Campus leased by Nautilus pursuant to a Ground Lease Agreement with Cumulus Data executed in 2021. The initial term of the lease expires on June 15, 2027. The lease may be extended for terms of three years, six months, and three years, respectively, at the election of Nautilus.

The Ground Lease Agreement provides for submetering of electricity to Nautilus. The lease initially provided for 100 MW submetered, which was increased to 150 MW at Nautilus's election in March 2023.

Corporate and Operational Services Agreement. Cumulus Digital and its subsidiaries have no employees. As a result, Cumulus Digital has contracted with Talen for services.

In September 2021, Talen Energy Supply agreed to provide corporate, administrative and operational services to Cumulus Digital and its subsidiaries under the Cumulus Digital COSA, including support of Cumulus Digital's obligation to Nautilus under the Nautilus CSA.

In exchange for providing these services, Talen Energy Supply is entitled to an annual management fee of \$750 thousand plus overhead charges approximating the cost of service at rates specified in the agreement, as well as the reimbursement of certain costs incurred in support of Cumulus Digital and its subsidiaries. Under the terms of the agreement, after giving effect to amendments in September 2022 in connection with the Cumulus Term Sheet, cash payment of fees is deferred until the earlier of: (i) two years from the commercial operations date of the Nautilus facility and (ii) the date Cumulus Data and Cumulus Coin meet a minimum interest coverage threshold under the Cumulus Digital 2027 TLF. Talen Energy Supply may elect to receive additional common units in Cumulus Digital Holdings in lieu of cash payments. Cash payment for the deferred fees, if any, will be payable ratably over the next succeeding 24 months following the deferral period. Fees and expenses payable under the agreement, combined with fees under the LC reimbursement agreement described in Note 18, and the amount of common units of Cumulus Digital Holdings Talen Energy Supply may elect to receive as compensation instead of cash payments, are subject to certain caps. The agreement terminates in September 2027, subject to earlier termination by Cumulus Digital upon 60 days prior notice or by Talen Energy Supply upon 180 days prior notice. Talen Energy Supply has recognized \$13 million for the year ended December 31, 2022 on the Consolidated Statements of Operations as a reduction to general and administrative expenses for the management fees, reimbursable costs and expenses under the ASA (described below). As a result of the September 2022 consolidation by Talen Energy Supply of Cumulus Digital Holdings, for activity going forward, any revenue or expense recognized by Talen Energy Supply or Cumulus Digital will eliminate in consolidation at Talen Energy Supply and have no impact on Talen's results of operations.

In connection with the Cumulus Term Sheet, in September 2022, the Cumulus Digital COSA was combined with the Cumulus Digital ASA described below and, as amended, was assumed by Talen Energy Supply upon the Bankruptcy Court's approval of the transactions contemplated by the Cumulus Term Sheet.

Preferred Unit Purchase Agreements for Support Services. In May 2022, Talen Energy Supply entered into several preferred unit purchase agreements with certain of the Cumulus Affiliates to compensate Talen Energy Supply for support costs incurred that were not covered by the Cumulus Digital COSA or not previously addressed for the other Cumulus Affiliates. These agreements relate to costs incurred from October 2021 through March 2022.

Talen Energy Supply determined that from October 2021 through March 2022, \$2 million of excess support costs had been incurred for Cumulus Coin Holdings and Cumulus Data Holdings, of which \$1 million related to the period January 2022 through March 2022. Because Cumulus Coin Holdings and Cumulus Data Holdings were not then consolidated with Talen Energy Supply for financial reporting purposes, Talen Energy Supply reduced general and administrative expenses by \$2 million for the year ended December 31, 2022 on the Consolidated Statements of Operations and recognized an affiliate accounts receivable. As of the third quarter 2022, Cumulus Coin Holdings and Cumulus Data Holdings are now consolidated as part of Talen Energy Supply, therefore the affiliate accounts receivable eliminates in consolidation. The amounts related to the 2021 periods were recognized in 2021. In May 2022, Cumulus Coin Holdings and Cumulus Data Holdings issued approximately 2 million voting-convertible preferred units in the aggregate to Talen Energy Supply pursuant to the preferred unit purchase agreements in recognition of the excess support costs incurred from October 2021 through March 2022, which included 1 million units in respect of the \$1 million incurred from October to December 2021 discussed above.

Talen Energy Supply determined that from October 2021 through March 2022, \$1 million of support costs had been incurred related to Cumulus Renewables Holdings, Cumulus Battery Storage Holdings, Cumulus Compute Holdings, and Cumulus Real Estate Holdings. No adjustment to income and expenses was required, however, because these entities were at all applicable times controlled by Talen Energy Supply and accordingly are consolidated with Talen Energy Supply for financial reporting purposes during the periods covered. In May 2022, the Cumulus Affiliates issued approximately 2 million voting, convertible preferred units in the aggregate to Talen Energy Supply pursuant to the preferred unit purchase agreements in recognition of the support costs incurred from October 2021 through March 2022, which included 1 million units in respect of the \$1 million incurred from October to December 2021 discussed above.

Affiliate Services Agreements. In May 2022, Talen Energy Supply entered into affiliate service agreements to provide corporate, administrative and operational services to each of Cumulus Real Estate Holdings, Cumulus Battery Storage Holdings, Cumulus Renewables Holdings and Cumulus Compute Holdings. At the same time, Talen Energy Supply entered into the Cumulus Digital ASA with Cumulus Digital and certain of its subsidiaries designed to compensate Talen Energy Supply for costs incurred in support of Cumulus Digital and its subsidiaries that were not contemplated by, or that were in excess of, amounts then-payable under the Cumulus Digital COSA. The agreements are terminable by either party upon 60 days prior notice or other events.

In connection with the Cumulus Term Sheet, in September 2022, the Cumulus Digital ASA was combined with the Cumulus Digital COSA described above, and the combined agreement assumed by Talen Energy Supply upon the Bankruptcy Court's approval of the transactions contemplated by the Cumulus Term Sheet.

Amounts owed under the remaining ASAs are paid, at the option of the Cumulus counterparty, in cash or in additional convertible preferred units, provided that the form of payment becomes at Talen Energy Supply's option at November 9, 2023 or upon Talen Energy Supply ceasing to own at least 50% of the outstanding equity of the Cumulus counterparty on an as-converted basis.

Talen Energy Supply determined that \$4 million of support costs had been incurred related to the Cumulus Affiliates (excluding Cumulus Digital and its subsidiaries activity which is presented as Corporate and Operational Services Agreement above) during the year ended December 31, 2022. No adjustment to income and expenses was required, however, because these entities were all at applicable times controlled by Talen Energy Supply and accordingly are consolidated with Talen Energy Supply for financial reporting purposes during the periods covered.

At December 31, 2021, Talen Energy Supply had a \$4 million balance on the Consolidated Balance Sheet (within Accounts receivable, net and Other noncurrent assets) for amounts due from Cumulus Digital and its subsidiaries, Cumulus Coin Holdings and Cumulus Data Holdings, related to the Cumulus Digital COSA, preferred unit purchase agreements, ASAs and other cost reimbursements, including LC fee reimbursements. As a result of the September 2022 consolidation by Talen Energy Supply of Cumulus Digital Holdings, the affiliate accounts receivable or payable recognized by Talen Energy Supply or Cumulus Digital will eliminate in consolidation at Talen Energy Supply and have no impact on Talen's financial condition. See Note 18 for information on the LC reimbursement agreement.

Nautilus Facility Operations Agreement. In December 2022, Nautilus and Talen Energy Supply executed a Facilities Operations Agreement (FOA) whereby Talen Energy Supply agreed to provide, or arrange for Nautilus, certain infrastructure, construction, operations and maintenance and administrative services necessary to build out and operate the Nautilus facility and support Nautilus' ongoing business at the Nautilus facility. The services were previously provided to Nautilus under the Beowulf FOA with Beowulf E&D, which was terminated upon execution of the FOA with Talen Energy Supply. Talen Energy Supply is entitled to reimbursement of its costs (including direct personnel costs) incurred in performing the services on a monthly basis, but is not otherwise entitled to a management fee. The FOA expires in December 2025.

Payment Netting Agreement. In December 2022, Nautilus, Cumulus Coin, Cumulus Digital, TeraWulf and Beowulf E&D entered into a Payment Netting Agreement pursuant to which the parties agreed to offset and (or) assume various amounts owed (i) by Nautilus to Cumulus Digital under the Nautilus CSA, (ii) by Nautilus to Beowulf E&D under the Beowulf FSA, and (iii) by Cumulus Coin and TeraWulf to Nautilus under the Nautilus limited liability company agreement. Among other things, Cumulus Coin agreed to assume approximately \$2 million of Nautilus' payment obligation to Cumulus Digital under the Nautilus CSA and approximately \$400 thousand of TeraWulf's deferred rent obligations under the amendment to the Ground Lease Agreement discussed above. Pursuant to the Payment Netting Agreement, Cumulus Coin made a cash payment of approximately \$2 million to Beowulf E&D.

Other. See Note 18 for information on LCs provided by Talen Energy Supply in support of the Cumulus Digital 2027 TLF and associated reimbursement agreement.

Tax Indemnity Agreement. In September 2022, upon the Bankruptcy Court's approval of the transactions contemplated by the Cumulus Term Sheet, Riverstone agreed to indemnify Talen Energy Corporation (or, at Talen Energy Corporation's option, Talen Energy Supply) for:

- certain federal and state income taxes that may be owed as a result of certain of the transactions contemplated by the Cumulus Term Sheet; and
- the tax-effected value of federal income tax attributes of Talen Energy Supply in excess of \$33 million, if any, utilized to reduce income tax obligations of Talen Energy Corporation which, absent such tax attributes, would have otherwise been payable in connection with such transactions.

In December 2022, prior to confirmation of the Plan of Reorganization, the agreement was amended to provide that Riverstone's indemnity obligation will terminate upon commencement of the wind-up or dissolution of the Riverstone affiliates party to the agreement, except to the extent an audit or redetermination has occurred or is pending at such time.

During the year ended December 31, 2022, Talen Energy Supply recognized a \$2 million non-cash distribution presented as "Non-cash distribution to member" on the Consolidated Statement of Equity as the estimated impact of the agreement.

13. Nuclear Decommissioning Trust Funds

	December 31, 2022				December 31, 2021			
	Amortized Cost	Unrealized Gains	Unrealized Losses	Fair Value	Amortized Cost	Unrealized Gains	Unrealized Losses	Fair Value
Cash equivalents	\$ 6	\$ —	\$ —	\$ 6	\$ 5	\$ —	\$ —	\$ 5
Equity securities	521	485	69	937	531	664	17	1,178
Debt securities	507	1	31	477	444	8	2	450
Receivables (payables), net	(20)	—	—	(20)	2	—	—	2
Nuclear decommissioning trust funds	\$ 1,014	\$ 486	\$ 100	\$ 1,400	\$ 982	\$ 672	\$ 19	\$ 1,635

See Note 20 for additional information on the fair value of the Nuclear decommissioning trust funds. There were no available-for-sale debt securities with credit losses at December 31, 2022 or December 31, 2021.

As of December 31, 2022, there was no intent to sell available-for-sale debt securities with unrealized losses, and it is not more likely than not that each of these investments will be required to be sold before the recovery of its amortized cost. The aggregate related fair value of available-for-sale debt securities with unrealized losses at December 31, 2022 were:

	Fair Value	Unrealized Losses
Corporate debt securities	\$ 107	\$ 21
Municipal debt securities	62	2
U.S. Government debt securities	206	8
Total debt securities in unrealized loss position (a)	\$ 375	\$ 31

(a) Unrealized losses primarily attributed to widening credit spreads.

There were securities in an unrealized loss position for a duration of one year or longer. The aggregate fair value of these securities and unrealized losses at December 31, 2022 were:

	Fair Value	Unrealized Losses
Corporate debt securities	\$ 28	\$ 7
Municipal debt securities	4	1
Total debt securities in unrealized loss position	\$ 32	\$ 8

The contractual maturities for available-for-sale debt securities presented on the Consolidated Balance Sheets were:

	December 31, 2022	December 31, 2021
Maturities within one year	\$ 32	\$ 27
Maturities within two to five years	173	159
Maturities thereafter	272	264
Debt securities, fair value	\$ 477	\$ 450

The sales proceeds, gains, and losses for available-for-sale debt securities for the years ended December 31 were:

	2022	2021	2020
Sales proceeds of nuclear decommissioning trust funds investments (a)	\$ 2,081	\$ 1,571	\$ 2,382
Gross realized gains	10	13	47
Gross realized (losses)	(43)	(15)	(11)

(a) Sales proceeds are used to pay income taxes and trust management fees. Remaining proceeds are reinvested in the trust.

14. Property, Plant and Equipment

	December 31, 2022			December 31, 2021		
	Cost	Accumulated Provision	Carrying Value	Cost	Accumulated Provision	Carrying Value
Electric generation	\$ 10,596	\$ (6,797)	\$ 3,799	\$ 10,664	\$ (6,423)	\$ 4,241
Nuclear fuel	491	(316)	175	510	(326)	184
Other property and equipment	157	(82)	75	147	(76)	71
Intangible assets	137	(64)	73	136	(56)	80
Capitalized software	102	(95)	7	98	(90)	8
Construction work in progress	576	—	576	151	—	151
Property, plant and equipment, net	\$ 12,059	\$ (7,354)	\$ 4,705	\$ 11,706	\$ (6,971)	\$ 4,735

In 2022, Susquehanna Nuclear adjusted its ARO, which had an impact on PP&E. See Note 15 for additional information.

Brandon Shores. Brandon Shores is required by contract and permit to stop combusting coal by December 31, 2025. The plan to convert the facility to oil combustion is being reevaluated in light of increasing costs and declining PJM capacity revenues. Preliminary evaluations indicate that it has become probable that the facility will not operate after December 31, 2025. Accordingly, the Brandon Shores asset grouping, which has an aggregate carrying value of approximately \$457 million as of December 31, 2022, will be assessed for recoverability in first quarter 2023.

The components of "Depreciation, amortization, and accretion" presented on the Consolidated Statements of Operations for the years ended December 31 were:

	2022	2021	2020
Depreciation expense (a)	\$ 432	\$ 436	\$ 370
Amortization expense (b)	12	19	23
Accretion expense (c)	78	71	62
Qualifying derivative (gain) loss, net (d)	(2)	(2)	(3)
Depreciation, amortization, and accretion	\$ 520	\$ 524	\$ 452

(a) Electric generation and other property and equipment.

(b) Intangible assets and capitalized software.

(c) ARO and accrued environmental cost accretion. See Note 15 for additional information.

(d) Reclassified from AOCI.

The cost of nuclear fuel is charged to "Nuclear fuel amortization" on the Consolidated Statements of Operations.

In September 2022, as a result of the Cumulus Digital Equity Conversion, Talen Energy Supply began consolidating Cumulus Digital Holdings for financial reporting purposes. Accordingly, the above table includes property, plant and equipment of Cumulus Data Holdings. See Note 12 for additional information.

Interest on indebtedness capitalized to property, plant, and equipment under construction for the years ended December 31 were:

	2022	2021	2020
Capitalized interest expense	\$ 12	\$ 4	\$ 4

Estimated capitalized software and intangible asset amortization expense for each of the next five years is:

	2023	2024	2025	2026	2027
Estimated amortization expense	\$ 10	\$ 9	\$ 7	\$ 5	\$ 5

Canceled Projects. During the year ended December 31, 2020, based on information confirmed in an inspection during the spring 2020 refueling outage, Talen confirmed that a capital project at Susquehanna Nuclear Unit 1 was no longer required. Accordingly, the project was canceled and its \$21 million of accumulated "construction work in progress" carrying value was charged to "Operation and maintenance" presented on the Consolidated Statement of Operations.

Jointly Owned Facilities

Certain of Talen's subsidiaries own undivided interests in jointly owned electric generation facilities and related assets. These generation facilities and other assets are maintained and operated pursuant to their joint ownership participation and operating agreements. Under such arrangements, each participant is responsible for funding its proportional share of construction costs and operating costs and is entitled to its proportionate share of electric generation and (or) other attributes of the relevant jointly owned facilities. Talen's proportional share of gross margin and other operating costs for its undivided interests is presented within the Consolidated Statements of Operations.

Talen Montana owns 30% of Colstrip Unit 3 and does not own any portion of Colstrip Unit 4. However, it is a participant in a joint-owner sharing agreement which governs each party's responsibilities and rights whereby Talen Montana is responsible for 15% of the total operating costs and expenditures of Colstrip Unit 3 and 15% of Colstrip Unit 4. Accordingly, it is entitled of 15% of the available generation from each of these units. In January 2020, Talen Montana and the other co-owner of Colstrip Units 1 and 2 permanently retired the units. Talen Montana is responsible for 50% of the decommissioning and other related costs of Colstrip Units 1 and 2. See Note 25 for information on a pending acquisition by Talen Montana of an additional interest in Colstrip Units 3 and 4.

The Colstrip Units have no carrying value at December 31, 2022 and 2021, and therefore are not displayed in the table below.

The proportionate shares of property, plant and equipment presented on the Consolidated Balance Sheets at December 31 were:

	Susquehanna	Conemaugh	Keystone	Merrill Creek Reservoir
Ownership interest	90%	22.22%	12.34%	8.37%
December 31, 2022				
Electric generation	\$ 4,843	\$ 24	\$ 14	\$ 1
Nuclear fuel	491	—	—	—
Other property and equipment	59	—	—	21
Capitalized software	19	—	—	—
Intangible assets	76	—	—	—
Construction work in progress	83	1	—	—
Proportionate property, plant and equipment, cost	5,571	25	14	22
Less: accumulated depreciation and amortization	4,248	7	4	18
Proportionate property, plant and equipment, net	\$ 1,323	\$ 18	\$ 10	\$ 4
December 31, 2021				
Electric generation	\$ 4,901	\$ 24	\$ 14	\$ 1
Nuclear fuel	510	—	—	—
Other property and equipment	57	—	—	21
Capitalized software	17	—	—	—
Intangible assets	75	—	—	—
Construction work in progress	87	1	—	—
Proportionate property, plant and equipment, cost	5,647	25	14	22
Less: accumulated depreciation and amortization	4,200	4	3	18
Proportionate property, plant and equipment, net	\$ 1,447	\$ 21	\$ 11	\$ 4

2020 Impairments

The components of "Impairments" presented on the Consolidated Statements of Operations for the years ended December 31 were:

	2020
Electric generation impairments	\$ 671
Other property and equipment impairments	10
Impairments	\$ 681

Montour. Montour had determined in 2020 that it will cease coal-fired generation operations by the end of 2025 and provided notification of such date to the EPA in November 2020. It is expected that by ceasing coal-fired generation operations, Montour will: (i) be allowed by the EPA's CCR Rule to continue to place ash in its Ash Basin 1, which is required to be capped by no later than October 2028; and (ii) be permitted to forgo the incurrence of certain expenditures that would otherwise be required under the CCR Rule and ELG Rule for ongoing operations. See Note 2 for information on a revision in 2022 of the useful life of Montour's coal assets from 2025 to 2023.

The decision to cease coal-fired generation operations triggered both: (i) a reassessment of Montour's inclusion as part of its existing asset group in the application of recoverability tests; and (ii) a recoverability assessment on the carrying value of Montour's property, plant and equipment given the downward revision in the Montour's expected useful life by approximately 10 years.

In connection with ceasing coal-fired generation operations at Montour, we expect changes in the manner in which certain economic and operational decisions regarding the activities of the generation facility are made. Accordingly, management determined the lowest level of identifiable cash flows for Montour is at the generation facility level and it should be tested for recoverability on a standalone basis.

The Montour recoverability analysis indicated the generation facility's carrying value exceeded its future estimated undiscounted cash flows requiring an impairment charge to amend the generation facility's carrying value of its property, plant and equipment to its estimated fair value. The estimated fair value of Montour was determined by a discounted cash flow technique that utilized significant unobservable inputs including discount rates varying from 8.5% to 13.5%. The range of discount rates and other discounted cash flow assumptions that were utilized are believed to be consistent with those used by principal market participants. Such assumptions consider available evidence regarding the prospects of future cash flows for Montour, including, but not limited to estimated available future generation volumes and useful lives, capacity prices, energy prices, operating costs, capital expenditures, and environmental costs. Accordingly, Talen recognized a \$514 million non-cash pre-tax impairment charge on its undepreciated property, plant and equipment as of December 31, 2020. Additionally, as an impairment charge was recognized on Montour, a \$9 million non-cash gain presented within AOCI related to certain discontinued hedge contracts that was previously amortized into earnings over Montour's useful life was immediately reclassified into earnings and presented as "Impairments" on the Consolidated Statements of Operations.

Keystone and Conemaugh. Talen proportionally consolidates its 22.22% undivided interest in Conemaugh and its 12.34% undivided interest in Keystone on its Consolidated Balance Sheets. Together, these generation facilities are an asset group in the application of recoverability tests. In July 2020, a Talen subsidiary executed an agreement to purchase an additional 5.97% undivided interest in Conemaugh, which at June 30, 2020 was 16.25%, from another co-owner. The purchase was completed in September 2020. As the purchase price was below the carrying value of Talen's interests in the generation facilities, a recoverability analysis was performed in the second quarter 2020 on the asset group utilizing assumptions that are believed to be consistent with principal market participants. Such assumptions consider available evidence regarding the prospects of future cash flows for Keystone and Conemaugh, including, but not limited to estimated available future generation volumes and useful lives, capacity prices, energy prices, operating costs, capital expenditures, and environmental costs. As the Keystone and Conemaugh aggregate property, plant and equipment net carrying value at June 30, 2020 exceeded the future estimated undiscounted cash flows, Talen recognized a \$162 million non-cash pre-tax impairment charge on the undepreciated property, plant and equipment during the year ended December 31, 2020. Given the recent sale transactions of Keystone and Conemaugh, the fair value estimates were based on quoted market prices for the assets.

Other Property and Equipment. In the second quarter 2020, Talen performed a recoverability analysis on certain other property and equipment and determined the carrying value of such assets exceeded the future estimated undiscounted cash flows. The discounted cash flow assumptions used to determine the estimated fair value contained unobservable inputs such as forecasted revenues, operating costs, and a discount rate that is believed to be consistent with market participants. Accordingly, Talen recognized a \$10 million non-cash pre-tax impairment charge on the undepreciated property, plant and equipment. Subsequent to the impairment, the carrying value of the property, plant, and equipment was not material.

15. Asset Retirement Obligations and Accrued Environmental Costs

	December 31, 2022	December 31, 2021
Asset retirement obligations (a)	\$ 751	\$ 760
Accrued environmental costs (a)	35	23
Total asset retirement obligations and accrued environmental costs (a)	786	783
Less: asset retirement obligations and accrued environmental costs due within one year (a) (b) (c)	—	16
Less: amounts presented as "Liabilities subject to compromise" (a) (c)	219	—
Asset retirement obligations and accrued environmental costs due after one year	\$ 567	\$ 767

(a) At December 31, 2022 a portion of these amounts are presented as "Liabilities subject to compromise" on the Consolidated Balance Sheet. See Note 3 for additional information.

(b) Presented as "Other current liabilities" or "Liabilities subject to compromise" on the Consolidated Balance Sheets.

(c) "Liabilities subject to compromise" includes \$24 million of asset retirement obligations and accrued environmental costs due within one year.

Asset Retirement Obligations

Certain subsidiaries of the Company have legal retirement obligations for the decommissioning and environmental remediation costs associated with our generation fleet, which include activities such as structure removal and remediation of coal piles, wastewater basins, and ash impoundments. Most of these obligations, except remediation of some ash impoundments, are not expected to be paid until several years, or decades, in the future. The most significant obligations are associated with the decommissioning of Susquehanna (for which Susquehanna Nuclear has an NDT to assist in funding the ARO) and coal ash disposal units associated with legacy coal-fired generation facilities (for which the Company has posted surety bonds, letters of credit and cash for certain facilities). The carrying value of these obligations include assumptions of estimated future ARO cash expenditures, cost escalation rates, probabilistic cash flow models and discount rates. The ARO carrying value may be impacted by current or future CCR rulemakings, as described in section 16 of the CCR rule.

Additionally, certain subsidiaries of the Company have legal retirement obligations associated with the removal, disposal, and (or) monitoring of asbestos-containing material at certain generation facilities. Given that the ultimate volume of asbestos-containing material is not yet known, the fair value of these obligations cannot be reasonably estimated. These obligations will be recognized upon a change in economic events or other circumstances which enables the fair value to be estimable.

The changes of the ARO carrying value during the years ended December 31 were:

	2022	2021
Carrying value, January 1	\$ 760	\$ 708
Obligations settled	(13)	(14)
Changes in estimates and (or) settlement dates	(80)	(7)
Obligations incurred	8	4
Accretion expense	76	69
Carrying value, December 31	\$ 751	\$ 760

Additional Breakdown

Nuclear (a)	\$ 564	\$ 599
Non-Nuclear (b)	187	161
Carrying value, December 31	\$ 751	\$ 760

(a) Collateralized by the Susquehanna Nuclear NDT.

(b) Certain liabilities are collateralized by surety bonds, letters of credit and cash.

Susquehanna Nuclear. Susquehanna Nuclear and the other joint owner of Susquehanna are each obligated to fund their proportional share of Susquehanna's ARO. Susquehanna Nuclear's proportionate share of decommissioning activities will be funded from its NDT when decommissioning commences at the expiration of its licenses. The licenses for Susquehanna Unit 1 and Unit 2 expire in 2042 and 2044 and can be extended subject to NRC approval. The NRC has jurisdiction over the decommissioning of nuclear power generation facilities and requires minimum decommissioning funding based upon a formula. Under the most recent calculation in 2022, Susquehanna Nuclear's NDT funds exceed the NRC's minimum funding requirements. To the extent that Susquehanna Nuclear's actual proportional costs for decommissioning exceed the amounts in the NDT, Susquehanna Nuclear is obligated to fund its remaining proportionate share of the ARO. Susquehanna Nuclear believes its NDT will be adequate to fund its estimated cost of decommissioning.

In the fourth quarter of 2022 a comprehensive site-specific study was completed for Susquehanna Nuclear decommissioning to estimate the required remediation and (or) removal of generation facility structure and materials. Based on a variety of factors including, changes in assumptions regarding inflation, market risk premiums, the present value discount rate, and the timing of spent fuel remediation, the overall asset retirement obligation decreased by \$83 million.

See Notes 13 and 20 for additional information on the NDT.

Talen Montana. Talen Montana has significant decommissioning and environmental remediation liabilities primarily consisting of its proportionate share of remediation, closure and decommissioning costs for coal ash impoundments at the Colstrip Units. Actual cash expenditures associated with these obligations are expected to materially increase over the next five years, due to the expected timing and scope of anticipated remediation activities, and will continue at a reduced spending level for several decades. Talen Montana, along with the other co-owners of the Colstrip Units, are working with the MDEQ to define the scope of required remediation, the scope of closure and decommissioning activities, and an estimate of the costs, including the amount of necessary financial assurance necessary to backstop these obligations. Talen Montana's decommissioning and environmental remediation is expected to be paid by funds available to Talen Montana at the time of decommissioning.

Talen Montana's estimate of its proportionate share of the AROs, discounted using a credit adjusted risk-free rate, was \$89 million at December 31, 2022 and \$79 million at December 31, 2021.

Future adjustments may be required to the Talen Montana ARO estimates due to the ongoing remediation requirements under MDEQ obligations and the EPA's coal combustion residuals rule. If the assumptions underlying Talen Montana's estimates do not materialize as expected, actual cash expenditures and costs could be materially different than currently estimated. Moreover, regulatory changes and changes due to ongoing discussions with the MDEQ could affect these obligations.

See "Montana Financial Assurance" in Note 16 for additional information on Talen Montana's requirement to provide financial assurance related to certain environmental decommissioning and remediation liabilities related to the Colstrip Units.

Brunner Island. In 2021, the carrying value of the Brunner Island ash impoundments ARO decreased by approximately \$12 million due to a decline of expected remediation costs that resulted from management cost control initiatives.

Accrued Environmental Costs

Under the Pennsylvania Clean Streams Law, a subsidiary of Talen Generation is obligated to remediate acid mine drainage at a former mine site and may be required to take additional steps to prevent acid mine drainage at this site. In June 2022, work scope and estimate updates resulted in a \$13 million charge presented as "Other operating income (expense), net" on the Consolidated Statements of Operations for the year ended December 31, 2022. At December 31, 2022 and December 31, 2021, liabilities of \$34 million and \$21 million, which were discounted based on a credit adjusted risk-free rate, were accrued to cover the costs of groundwater pumping and treating groundwater at the site for approximately 50 years. This liability is discounted based on a credit adjusted risk-free rate that was in existence at the time of liability recognition of 8.41%. At December 31, 2022 the expected undiscounted payments are estimated to be:

	2023	2024	2025	2026	2027	Thereafter	Total
Payments	\$ 3	\$ 4	\$ 4	\$ 10	\$ 1	\$ 115	\$ 137

At December 31, 2022, all accrued environmental costs, including the ones described above, are presented as "Liabilities subject to compromise" on the Consolidated Balance Sheet.

16. Commitments and Contingencies

Litigation

Talen (or its affiliates) is involved in certain legal proceedings, claims and litigation. While Talen believes that we have meritorious defenses or claims, as applicable, and will continue to defend our positions vigorously in these matters, we may not be successful in our efforts. If an unfavorable outcome is probable and can be reasonably estimated, a liability is recognized. In the event of an unfavorable outcome, the liability may be in excess of amounts currently accrued. See "Talen Bankruptcy" below.

No estimate of the possible loss or range of loss in excess of amounts accrued, if any, can be made at this time regarding the matters specifically described below because the inherently unpredictable nature of legal proceedings may be exacerbated by various factors such as ongoing discovery, significant facts that are in dispute, the stage of the proceeding and the wide range of potential outcomes for any such matter. As a result, additional losses actually incurred in excess of amounts accrued could be substantial.

Talen Bankruptcy. Upon the commencement of the Talen Bankruptcy, the Bankruptcy Code automatically stayed third-party actions to collect prepetition debts owed by the Debtors and all litigation pending against the Debtors, subject to certain exceptions provided under the Bankruptcy Code. Absent an order of the Bankruptcy Court providing otherwise, substantially all prepetition liabilities will be administered pursuant to a chapter 11 plan of reorganization approved by the Bankruptcy Court and through a chapter 11 claims resolution process. To the extent the automatic stay does not apply to an action or proceeding, we will continue to defend our positions vigorously in these matters. See Note 3 for additional information on the Talen Bankruptcy.

Montana Hydroelectric Litigation. Talen Montana is a defendant in litigation currently pending in the U.S. District Court for the District of Montana relating to Talen Montana's past ownership and operation of hydroelectric generation facilities in Montana, which were sold to NorthWestern in November 2014. In connection with the sale, Talen Montana agreed to retain liability with respect to this litigation, if any, attributable to time periods prior to closing of the sale.

The lawsuit was originally filed in 2003 and alleges that the streambeds underlying the facilities are owned by the State of Montana (the State), and that Talen Montana owes the State compensation for the use of the streambeds. In 2012, the U.S. Supreme Court unanimously overturned judgments of the Montana state courts that had held in favor of the State of Montana and remanded the case to the Montana state courts for further proceedings. In April 2016, following an extended period of inactivity, the State filed an updated complaint against both Talen Montana and NorthWestern, making allegations substantially similar to those in the original suit. The case was subsequently removed to the U.S. District Court for the District of Montana (the Montana District Court). In August 2018, the Montana District Court granted Talen Montana's motion to dismiss claims related to several facilities near Great Falls, Montana. These facilities represented approximately 50% of the damages awarded in the prior judgments that were overturned by the U.S. Supreme Court. In February 2019, the Montana District Court joined the United States and certain federal government entities as co-defendants based on the federal ownership interests in certain of the applicable streambeds. In October 2019, the State filed an amended complaint, adding claims against the United States under the Federal Quiet Title Act. A bench trial on the issue of defendants' liability was held in January 2022. The court has not yet issued a decision. If any of the defendants are found liable, a second trial on the issue of damages will be scheduled. The Bankruptcy Court has entered an order that allows the Montana District Court to issue a decision on defendants' liability and allows the parties to file notices of appeal of such decision to preserve their appeal rights, provided that briefing on any appeals is stayed through June 30, 2023. The case is otherwise stayed through the date the Debtors' Plan of Reorganization becomes effective. At this time, Talen cannot predict the outcome of this matter or its effect on Talen Montana; however, a material adverse judgment could have an adverse effect on Talen Montana's results of operations and liquidity.

ERCOT Weather Event Lawsuits. Beginning in March 2021, Talen subsidiaries that own the Barney Davis, Nueces Bay and Laredo generation facilities along with many other market participants in ERCOT were sued in multiple Texas state courts. In these suits, the plaintiffs allege, among other things, that they suffered loss of life, personal injury and (or) property damage due to the defendants' failure to properly prepare their facilities to withstand extreme winter weather and due to defendants' other operational failures during Winter Storm Uri. Approximately 130 insurance companies filed a similar suit against the same Talen subsidiaries and certain other defendants seeking to recover payments to policyholders for damage to residential and commercial properties caused by Winter Storm Uri. The plaintiffs seek unspecified compensatory, punitive and other damages. The State of Texas multi-district litigation panel ordered all of these cases transferred to the multi-district litigation pretrial court, designated a district court and assigned a judge for purposes of pretrial matters. In January 2023, the district court issued an order denying a motion to dismiss filed by defendants owning generation facilities. These defendants will seek appellate review of the order. As a result of the Talen defendants' bankruptcy cases, certain plaintiffs have agreed to voluntarily dismiss their claims against the Talen defendants. The Talen subsidiaries named as defendants in these lawsuits are Talen Filing Parties. These remaining lawsuits have been stayed under the

Bankruptcy Code and plaintiffs are limited to recovering any damages from the Talen defendants' insurers under the plan of reorganization confirmed by the Bankruptcy Court in the Talen defendants' bankruptcy cases.

In June 2021, Talen intervened in five cases in which, among other things, certain market participants are challenging the validity of the PUCT's order setting the price cap at \$9,000/MWh during Winter Storm Uri. One case is pending in the Texas Court of Appeals, Third District, and three of these cases are pending in the State of Texas District Court in Travis County. One district court case has been abated pending resolution of the appellate cases and no briefing schedule has been entered in the remaining two district court cases. In March 2023, the Third District issued an opinion in one of the cases that, in part, reversed the PUCT's order setting the price cap at \$9,000/MWh during Winter Storm Uri because such order exceeded the PUCT's authority and remanded the case to the PUCT to take actions consistent with its opinion. The PUCT (along with Talen and others) has requested leave to appeal the Third Circuit's ruling to the Texas Supreme Court. Talen is coordinating its efforts in these suits with certain of the other parties in the suits, including the PUCT. Talen cannot predict the timing or outcome of these cases or their ultimate effect on the PUCT's orders during Winter Storm Uri; however, changes in one or more of the PUCT's orders could have a material adverse effect on Talen's results of operations and liquidity.

Kinder Morgan Litigation. In June 2021, an affiliate of Kinder Morgan filed a suit in the State of Texas District Court in Harris County against Talen Energy Marketing, Nueces Bay and affiliates of Texas Eastern and NextEra. In the suit, the Kinder Morgan affiliate alleges, among other things, that affiliates of Talen agreed to purchase natural gas from it during Winter Storm Uri at the then prevailing market rate. Talen disputes that it purchased gas from the Kinder Morgan affiliate. The case has been removed to the Bankruptcy Court. In September 2022, NextEra was dismissed from the case, and in December 2022, Texas Eastern was dismissed from the case. Discovery in the case is on-going. As a result of ongoing settlement negotiations, Talen recognized an \$18 million charge during the year ended December 31, 2022, which is presented as "Other operating income (expense), net" on the Consolidated Statement of Operations. At this time, Talen cannot predict the final outcome of this matter or any additional effect on Talen's results of operations and liquidity.

PPL/Talen Montana Litigation. In October 2018, the Talen Montana Retirement Plan filed a class action suit in Montana state court against PPL, its affiliates, and certain officers and directors relating to a distribution by Talen Montana to PPL of \$733 million of net proceeds from the sale of Talen Montana's hydroelectric facilities in November 2014 (the Distribution), which was during PPL's tenure as owner of Talen Montana. The action generally alleges that the Distribution was improper under applicable law and claims that PPL and its directors improperly made the Distribution, leaving Talen Montana without adequate funds to pay its obligations. Plaintiff seeks compensatory and punitive damages. In January 2020, PPL filed a motion to dismiss this suit for, among other things, lack of personal jurisdiction. In September 2020, the Montana state court denied PPL's motion to dismiss, but granted a stay of the Montana claims until resolution of the Delaware case described below. After commencement of the Talen Bankruptcy and following numerous procedural matters, the case has been transferred to the Bankruptcy Court.

In November 2018, PPL filed a lawsuit in Delaware Court of Chancery (Delaware Court) against Talen and certain affiliates seeking, among other things, indemnity from Talen for the claims asserted in the Montana state lawsuit and a declaratory judgment that such claims asserted in the Montana state lawsuit are without merit and that Talen entities do not have standing to bring such claims. In October 2019, the Delaware Court granted Talen defendants' motion to dismiss one of PPL's claims but denied Talen defendants' other requests for dismissal. After the commencement of the Talen Bankruptcy and following numerous procedural matters, the case has been transferred to the Bankruptcy Court.

In addition, after the commencement of the Talen Bankruptcy, Talen Montana filed an adversary complaint against PPL and its affiliates in the Bankruptcy Court. The adversary complaint asserts actual and constructive fraudulent transfer claims arising from the Distribution, similar to the claims asserted in the Montana action. In August 2022, the Bankruptcy Court entered an order consolidating the Montana and Delaware cases with the adversary proceeding and Talen Montana and Talen Energy Supply filed an amended and consolidated complaint. The amended and consolidated complaint asserts substantially the same fraudulent transfer claims as in the adversary complaint, an indemnity claim by Talen Energy Supply to recover damages, including defense costs, arising from PPL's claims, and claims under the bankruptcy code to disallow claims asserted by PPL and its affiliates in the Bankruptcy Court and to subordinate any such claims that are allowed. In September 2022, the PPL defendants filed an answer responding to the amended and consolidated complaint and asserted counterclaims against the Talen defendants substantially similar to the claims asserted in the Delaware Court. At the PPL defendants' request, the parties participated in a mediation in February 2023. No settlement was reached during the mediation. Talen Montana and its affiliates believe that PPL's claims are without merit and intend to vigorously prosecute and defend these actions. PPL is expected to vigorously defend the claims asserted by Talen Montana. Talen Montana and Talen cannot predict the outcome of this matter or its effect on Talen Montana and Talen; however, a material adverse judgment could have an adverse effect on Talen Montana's and Talen's results of operations and liquidity.

Pension Litigation. In November 2020, four former Talen employees filed a lawsuit in the U.S. District Court for the Eastern District of Pennsylvania against Talen Energy Supply, Talen Energy Corporation, the TERP, and the Talen Energy retirement plan committee, alleging that they are owed enhanced benefits under the TERP because: (i) either or both of the 2015 Talen Formation Transactions and (or) the 2016 take-private transaction constituted a change in control as defined in the TERP; and (ii) their employment was terminated within three years following such change in control. The plaintiffs also allege they are entitled to such benefits because certain provisions in a PPL pension plan were not included in the TERP, and that the availability of the claimed additional benefits was not properly disclosed or made known to them. The lawsuit seeks class action status on behalf of all Talen non-union employees (or their surviving beneficiaries) whose employment was terminated between June 1, 2015 and December 5, 2019 and who were age 55 or older at the time of termination. In February 2021, the Talen defendants filed a motion to dismiss the plaintiffs' claims on the grounds that plaintiffs released the claims in connection with their termination of employment, and further that certain claims are time-barred by the applicable statute of limitations. In September 2021, the court denied this motion on procedural grounds and ordered the parties to commence discovery, but also noted that the court remained willing to consider the Talen defendants' arguments at a later point in the proceeding. In January 2022, plaintiffs filed a motion for class certification seeking to certify the class outlined above. We filed our opposition to this motion in April 2022. After commencement of the Talen Bankruptcy and following the filing of a joint motion, the District Court in Pennsylvania abated the litigation through January 31, 2023, subject to certain exceptions. In March 2023, the District Court granted plaintiffs leave to amend their complaint to add ten former retirement plan committee members as defendants, and the plaintiffs amended their complaint accordingly. Also in March 2023, the plaintiffs and the Talen defendants filed a joint stipulation with the District Court outlining their agreement with respect to the timing of the Talen defendants' production of certain documents, which had been stayed as a result of the Talen Bankruptcy. At this time, we cannot predict the outcome of this matter or its effect on Talen; however, a material adverse judgment could have an adverse effect on Talen's results of operations and liquidity.

Railroad Surcharge Litigation. In September 2019, Talen Energy Supply and certain of its subsidiaries filed suit in the U.S. District Court for the Southern District of Texas, alleging that the four major railroads in the United States, BNSF Railway Company, CSX Transportation, Inc., Norfolk Southern Railway Company and Union Pacific Railroad Company (collectively, the Railroads), violated the U.S. antitrust laws by conspiring during the periods from July 2003 through December 2008 to use fuel surcharges as a means to raise price for rail freight shipments. Numerous other plaintiff shippers in various jurisdictions throughout the United States have filed similar lawsuits. During the relevant periods, the Talen plaintiffs purchased rail freight transportation directly from certain of the Railroads to ship coal. The Talen plaintiffs were assessed rail fuel surcharges in connection with that transportation, and the Talen plaintiffs claim that they paid higher rail freight shipment rates than they otherwise would have paid absent the alleged conspiracy. In the suit, the Talen plaintiffs have requested, among other things, compensatory damages, to be automatically trebled under the antitrust laws, and attorneys' fees. In February 2020, this litigation was consolidated with certain other similar litigation in the District Court for the District of Columbia under the multi-district litigation rules. Talen expects the Railroads to vigorously defend this suit and the other similar suits. At this time, Talen cannot predict the outcome of this matter.

Spent Nuclear Fuel Litigation. There remains substantial uncertainty regarding the nuclear industry's permanent disposal of spent nuclear fuel. Federal law requires the U.S. Government to provide for the permanent disposal of commercial spent nuclear fuel. Prior to May 2014, nuclear generation facility operators were required to contribute to a fund to pay for the transportation and disposal of spent nuclear fuel. In May 2014, this fee was reduced to zero. Talen cannot predict if or when the U.S. Government will increase this fee in the future, which could result in significant additional costs to Susquehanna Nuclear.

In addition, in May 2011, Susquehanna Nuclear entered into an agreement with the U.S. Government to settle the U.S. Government's breach of contract to accept and dispose of spent nuclear fuel by the statutory deadline. The settlement agreement required the U.S. Government to reimburse certain costs to temporarily store spent nuclear fuel at the Susquehanna nuclear generation facility. In exchange, Susquehanna Nuclear waived any claims against the U.S. Government for costs paid or injuries sustained related to temporarily storing spent nuclear fuel. In 2022 and 2021, Susquehanna Nuclear received reimbursements of \$7 million and \$20 million for such costs. At December 31, 2022, the carrying value of allowable 2022 unreimbursed costs presented as "Accounts receivable, net" on the Consolidated Balance Sheet was \$24 million. A claim for such costs will be submitted under the agreement in 2023. This agreement has been extended three times, most recently in September 2020, through the end of 2022. Susquehanna Nuclear has been notified by the U.S. Government of its desire and intention to renew and extend this agreement and Susquehanna Nuclear is currently in negotiating the terms of this planned extension. In November 2022, the U.S. Government expressed an intent to extend the settlement agreement through the end of 2025. The extension will likely be executed in the second quarter of 2023. We cannot be certain that subsequent amendments will extend these arrangements beyond 2025.

Other. In the normal course of Talen's business, we are party to various legal proceedings, claims, and litigation arising from current or past operations. While the outcome of these matters is uncertain, the likely results are not expected, either individually or in the aggregate, to have a material adverse effect on our financial condition or results of operations, although the effect could be material to our results of operations in any interim reporting period.

Regulatory

Talen is subject to regulation by federal and state agencies in the various regions where we conduct business, including, but not limited to: the FERC; Department of Energy; Federal Communications Commission; NRC; NERC; public utility commissions in various states in which we conduct business; and RTOs and ISOs in the regions in which we conduct business. During the Talen Bankruptcy, the Talen Filing Parties may be required to obtain regulatory approvals from various federal, state, and local regulators in order to consummate the plan and restructuring pursuant to the Talen RSA and Talen RSA Term Sheet.

Talen is party to proceedings before such agencies arising in the ordinary course of business and have other regulatory exposure due to new and (or) amended regulations promulgated by such agencies from time to time. While the outcome of these regulatory matters and proceedings is uncertain, the likely results are not expected, either individually or in the aggregate, to have a material adverse effect on our financial condition or results of operations, although the effect could be material to our results of operations in any interim reporting period.

PJM Capacity Market

PJM MOPR. In June 2018, FERC directed PJM to revise its capacity auction tariff provisions to ensure that outside market subsidization of generation would not have price suppressive effects on capacity clearing prices. In October 2018, PJM proposed a revised capacity market construct to address the impact of subsidized generation assets, such as nuclear generation facilities that receive state payments for zero emissions, on the capacity market. In July 2019, FERC issued an order directing PJM to delay the auction until FERC established new auction market rules.

In December 2019, FERC issued an order providing that any new and existing state subsidized generation assets (which includes nuclear assets) and unsubsidized new natural gas generation facilities must be subject to a minimum offer price in the PJM capacity markets, with certain exemptions (such as certain existing resources, including existing renewables, which are not subject to the minimum offer price). Several orders and responses were issued by FERC and PJM between March 2020 and November 2020 related to these matters.

In April 2021, PJM announced that it will file to eliminate the existing MOPR from the PJM tariff and replace it with an alternative. In July 2021, PJM filed its proposed tariff language that significantly reduces the application of the existing MOPR by applying it only when the state requires an entity to act in a certain manner in the capacity market in exchange for receiving a subsidy. FERC did not act on PJM's July 2021 filing and therefore PJM's MOPR tariff language went into effect in September 2021 by operation of law. Certain parties have filed for rehearing and appeals of various FERC orders regarding the PJM capacity auction and MOPR process. As a result, the final impact on Talen's financial condition, results of operations, or liquidity is not known at this time. In December 2021, in a related order, FERC requested that PJM delay the auction again and file the new auction schedule. In February 2022, FERC approved PJM's revised schedule to hold the auctions, with the remaining auctions to be held as follows: (i) 2024/2025 PJM Capacity Year in December 2022; (ii) 2025/2026 PJM Capacity Year in June 2023; and (iii) 2026/2027 PJM Capacity Year in November 2023. The 2023/2024 PJM Capacity Year auction was completed in June 2022 as planned. In 2023, PJM announced it is making a filing with FERC to propose changes to the capacity market, which would delay the 2025/2026 PJM Capacity Year auction as well as subsequent auctions.

2024/25 Capacity Auction. PJM delayed the release of the 2024/25 PJM Capacity Year auction results until February 2023 due to issues regarding one region (the DPL-South LDA). PJM filed a request with FERC in December 2022 to revise its tariff to enable it to adjust the auction rules to correct the anomaly that occurred in the DPL-South LDA and to make adjustments to auction outcomes if similar issues arise in future auctions. PJM's proposed tariff revisions have been protested by various parties, but on February 21, 2023, FERC approved PJM's filing. On February 27, 2023, PJM released the 2024/25 auction results.

PJM Market Seller Offer Cap. In March 2021, FERC responded to complaints filed by the IMM for PJM and various consumer advocates alleging that the Market Seller Offer Cap, the default cap on offers into the PJM capacity market, was above a competitive offer level and was, therefore, unjust and unreasonable. In September 2021, FERC issued an order accepting the IMM's unit specific ACR proposal that requires the offer caps for each generator to be administratively determined by the IMM and PJM. In February 2022, FERC denied rehearing requests on the September 2021 order that were filed by multiple parties, including Talen. Appeals have been filed by various parties, including Talen. The final impact of this order on Talen's financial condition, results of operations or liquidity is unknown at this time.

Winter Storm Elliot. See "Regulatory – Winter Storm Elliot" below for information relating to PJM Capacity Performance penalties and revenues arising from Winter Storm Elliott, which occurred from December 23 to 27, 2022.

ERCOT Market Systemic Risks. Due to the effects of Winter Storm Uri, certain market participants in ERCOT have defaulted on settlements and caused a deficit of payments to ERCOT. For example, a number of market participants, including co-ops and retail electric providers filed for bankruptcy protection following the winter events primarily in response to unpaid ERCOT settlement invoices. In May 2022, ERCOT reported a cumulative aggregate payment deficit of approximately \$2.3 billion as result of winter storm events.

As a result of the ERCOT payment deficits, ERCOT has not been able to pay market participants for all amounts owed to them and has instituted "short payments." The short payment delays the remittance of cash for an uncertain period of time to non-defaulting market participants and will only be paid as ERCOT recovers money from defaulting parties or through the collection of default uplift payments.

There is a likelihood that due to market participant defaults, ERCOT could require Talen, as a non-defaulting market participant, to pay for unrecovered amounts in the form of uplift default charges or similar payments. The potential requirement for Talen and (or) our ERCOT QSE (on our behalf) to make default uplift payments or have short payments imposed could have a material impact on our results of operations, financial condition and cash flows. However, at this time, we cannot predict any amounts of uplift default charges or short payments that would be applicable to Talen.

In June 2021, Texas enacted a law that provides co-ops, retail electric providers and ERCOT the ability to finance, at low-interest rates, costs owed to ERCOT or outstanding default balances that are associated with Winter Storm Uri. Co-op and retail electric providers' related costs financed through the legislatively designed mechanisms are capped at \$2.1 billion and will be repaid by each covered entity. ERCOT's costs financed through the legislatively designed mechanisms are capped at \$800 million and will be repaid through a default charge which is applicable to all market participants. In July 2021, ERCOT filed applications with the PUCT to pursue financing of its default balance and retail electric providers' related costs, and the PUCT adopted related debt obligation orders in October 2021. In November 2021, ERCOT notified market participants that payments authorized by the debt obligation order will be disbursed to affected QSEs. Also, in November 2021, Talen received a non-material amount from debt obligation disbursements for certain short payments. In September 2022, ERCOT reached a settlement agreement with the largest defaulting co-op. In October 2022, Talen made disbursement elections to receive approximately \$5 million for its portion of the \$1.3 billion owed to applicable market participants. The ERCOT Board voted to approve the settlement agreement, and the first payment to ERCOT occurred on December 15, 2022, based on the agreed upon payment schedule over a period of years.

Under PUCT rules that govern certain electricity system events, the ERCOT system-wide offer cap for energy for the remainder of 2021 was set at \$2,000/MWh due to the length of the Winter Storm Uri event. While this cap was in place, generation resources could seek reimbursement for any actual marginal costs in excess of the larger of \$2,000/MWh or the resource's real-time energy price. In 2022, the system-wide offer cap was \$5,000/MWh based on a December 2021 PUCT order, although the cap could be reduced to \$2,000/MWh, if certain conditions are met.

In January 2023, the PUCT adopted the PCM market design in response to a directive contained within Texas Senate Bill 3 from 2021 to address market reliability concerns in Texas. There remains significant uncertainty surrounding the details of the proposed PCM design, the timing for implementation and whether the legislature will take further action to dictate a market design other than PCM. At this time, Talen cannot fully predict the impacts of the PCM market design, when and if implemented, on its results of operation and liquidity.

See Note 4 for additional information on short payments to Talen by ERCOT and the effects of Winter Storm Uri and see "Litigation - ERCOT Weather Event Lawsuits" above for Talen intervening in certain PUCT orders related to the event.

Inflation Reduction Act of 2022. The Inflation Reduction Act of 2022 was signed into law in August 2022. Among the Act's provisions are: (i) amendments to the Internal Revenue Code to create a nuclear production tax credit program; (ii) the creation, extension and modification of tax credit programs for certain clean energy projects, such as solar, wind and battery storage; and (iii) adjustments to corporate tax rates.

The nuclear production tax credit program provides qualified nuclear power generation facilities with a \$3 per MWh transferable credit for electricity produced and sold to an unrelated party during each tax year. Electricity produced and sold by Susquehanna Nuclear after December 31, 2023 through December 31, 2032 will qualify for the credit, which is subject to potential adjustments. Such adjustments include inflation escalators, a five-times increase in tax credit value (to \$15 per MWh) if the qualifying generation facility meets prevailing wage requirements, and a pro-rata decrease in tax credit value once the annual gross receipts of a qualifying generation facility exceed \$25 per MWh. The annual pro-rata decrease will be based upon a portion of the qualifying generation facility's prior year gross receipts (as defined and calculated per implementation guidelines to be issued). The credit is eliminated when the annual gross receipts are equivalent to \$43.75 per MWh (adjusted for inflation). Susquehanna Nuclear generated approximately 18 million MWhs in each of the calendar years 2022, 2021 and 2020.

Section 45 of the Internal Revenue Code was modified to provide qualified clean energy projects with a \$3 per MWh, ten-year transferable credit for electricity produced and sold to an unrelated party during each tax year. To qualify for the credit, the eligible facility must be placed in service after December 31, 2021 or begin construction prior to January 1, 2025. Additionally, the Act expands the investment tax credit program, within section 48 of the Internal Revenue Code, beyond the existing technologies, such as solar, to include qualified energy storage projects. A transferable base credit equaling 6% of the basis value of qualified property is also created. These programs are each subject to potential adjustments for inflation escalators, meeting prevailing wage and apprenticeship requirements, attaining specified percentages of domestic content, and locating the project within an energy community. After January 1, 2025, under the relevant qualification criteria, clean energy projects with a zero-greenhouse gas emission rate qualify for a new 10-year clean electricity production credit and energy storage projects qualify for a new clean electricity investment credit with equivalent terms as above.

These changes are expected to increase Susquehanna Nuclear's income and impact the expected returns for Talen's expected future clean energy development projects. However, the Act's provisions are subject to implementation regulations, whose terms are not yet known. As such, Talen cannot fully predict the impacts to its liquidity or results of operations.

Winter Storm Elliott. During December 2022, as a result of Winter Storm Elliott, PJM experienced extreme cold weather conditions that contributed to PJM declaring their first system-wide Maximum Generation Emergency Action since implementing Capacity Performance. Certain of Talen's generation facilities failed to meet the capacity performance requirements set forth by PJM, while Talen's remaining generation facilities met or exceeded their capacity obligations. As a result, Talen expects to: (i) incur certain capacity performance penalties charged by PJM for its nonperforming generation facilities; and (ii) earn bonus revenues from PJM for its performing generation facilities.

In February 2023, PJM notified Talen Energy Marketing of its expected capacity performance penalties incurred by Talen's nonperforming generation facilities and bonus revenues earned by performing generation facilities. Accordingly, Talen Energy Marketing has recognized a net penalty charge which could be subject to further revisions by PJM as it finalizes market settlements. Accordingly, a \$33 million penalty charge, net of expected bonus revenues, is presented as "Capacity revenues" on the Consolidated Statement of Operations. As Talen Energy Marketing has disputed approximately \$45 million of penalties assessed by PJM, the net penalty recognized by Talen Energy marketing could be reduced if its dispute with PJM is successfully resolved. No assurance can be provided that Talen Energy Marketing will be successful in reducing penalties assessed by PJM or that PJM will upwardly revise its net penalty assessment to Talen. PJM is expected to finalize its assessments during early April 2023.

Additionally, in February 2023, PJM filed with FERC proposed tariff revisions that would impact the time by which capacity performance non-performance charges would be assessed, including those stemming from Winter Storm Elliott. Specifically, the proposal would allow PJM, in certain circumstances, to permit non-performance charges to be paid over nine-month period with interest assessed on amounts paid after May 2023. Talen Energy Marketing has elected the extended payment terms. In April 2023, FERC granted PJM's request to extend payment terms.

In December 2022, the FERC and the NERC announced that they will open a joint inquiry into the operations of the bulk-power system leading up to and during the extreme winter weather conditions that occurred during Winter Storm Elliott. Reliability First and Texas Reliability Coordinator issued document holds for investigative purposes. On March 13, 2023, Talen, received data requests, along with all other PJM generators, from FERC and NERC regarding operations of its units during Winter Storm Elliott.

Environmental

Extensive federal, state and local environmental laws and regulations are applicable to our business, including air emissions, water discharges, and hazardous and solid waste management. From time to time, in the ordinary course of our business, Talen may become involved in other environmental matters or become subject to other environmental statutes, regulations or requirements.

Water and Waste

In August and October 2020, the EPA finalized certain CCR Rule and ELG Rule changes. Among other things, changes in both rules allows coal generation facility operators to request an extension to compliance deadlines if the facility commits to cessation of coal-fired generation by the end of 2028. With Talen's plans to cease coal operations, Talen had requested extensions for compliance for both the ELG Rule and CCR Rule that are applicable to certain Talen generation facilities; some have been approved and some are still under review. The most significant extension under review is the CCR Rule Part A extension request for Montour Ash Impoundment 1 and a negative result would have a significant impact on the closure plan for this impoundment. Due to court actions and the change of political party control of the U.S. government executive branch, the EPA has decided to make certain changes to the CCR and ELG Rules, EPA proposed changes to the ELG in March 2023 and expects to propose changes to the CCR Rule by mid-2023. Although Talen is still reviewing the ELG proposal for potential impacts, it does not add treatment requirements to Talen's coal-fired power generation facilities planning to cease the burning of coal by 2028, but it does propose discharge limits for waters collected from CCR units. For the CCR Rule changes, EPA has indicated they will begin to address legacy ash impoundments, which could affect several Talen facilities, and EPA has been changing interpretations of the CCR Rule through enforcement. At this time, Talen cannot predict the outcome of these various rule changes on the operations of its coal-fired generation facilities and its results of operations.

Air

Since 2016 Connecticut, Delaware, Maryland and New York have submitted petitions to the EPA under Section 126 of the CAA requesting that EPA make findings that different upwind coal-fired power generation facilities, including our Brunner Island and Montour generation facilities and the Keystone and Conemaugh generation facilities, in which we own undivided interests, are emitting air pollutants that significantly contribute to non-attainment of the 2008 and (or) 2015 ozone NAAQS in their respective states (each state pointing to different generation facilities). The EPA has denied each states' petitions. After Delaware, Maryland, New York and certain environmental groups filed petitions for review of the decisions for their states in the U.S. Court of Appeals for the D.C. Circuit, the Court vacated and remanded the Maryland and New York denials. The EPA is in the process of reconsidering the denials. In a parallel effort to attain the NAAQS, in May 2019 Maryland also requested, citing Section 184 of the CAA, that the Ozone Transport Commission petition EPA to lower air emissions from various generation facilities in Pennsylvania, including some generation facilities owned by Talen. After receiving public comment on the matter in June 2020, the Ozone Transport Commission recommended to EPA that they require additional nitrogen oxides control measures at the affected generation facilities. In December 2020, the EPA published a notice summarizing the OTC recommendations and seeking comments on the recommendations. Since receiving comments in February 2021, the EPA has not yet taken any action on the recommendation.

In February 2020, the states of New Jersey, Connecticut, Delaware, New York and Massachusetts, and the City of New York, filed a lawsuit in the U.S. District Court for the Southern District of New York seeking to compel EPA to promulgate FIPS for the 2008 NAAQS to address nitrogen oxide emissions from seven states, including Pennsylvania. In July 2020, the Court issued a decision requiring the EPA to issue those FIPs in March 2021. Also, in March 2021, the EPA finalized revisions to the CSAPR that, effective in June 2021, lowered the Ozone Season nitrogen oxide allowance budgets for certain upwind states, including Pennsylvania and Maryland, beginning in 2021. Talen had sufficient nitrogen oxide allowances to support generation in the 2022 ozone seasons and will manage its electricity generation and allowance inventory to maintain compliance going forward.

To address the 2015 ozone standard, in March 2023, EPA released a pre-publication of final changes to the CSAPR ozone season nitrogen oxide allowance trading program for 2023 and beyond. The final changes are known as the "Good Neighbor FIP." EPA has made some reductions in allowance allocations, among other changes, to minimize nitrogen oxide emissions during the ozone season. At this time, Talen cannot predict the long-term outcome of these rule changes on the operations of its generation facilities and its results of operations.

In May 2022, Pennsylvania updated its nitrogen oxide RACT standards for Montour and Keystone and Conemaugh and proposed those standards to EPA as part of its SIP for the 2008 ozone standard. However, in August 2022 EPA finalized a FIP to tighten the standards. Pennsylvania DEP agreed to stay the state standard while all the parties consider the different standards. The FIP has been appealed by other parties and Talen has intervened in the appellate proceeding. In November 2022, Pennsylvania finalized some changes to its nitrogen oxide RACT standards (RACT 3) for all power generation facilities to address the 2015 ozone standard. Affected Talen facilities have submitted permit applications demonstrating their compliance methods for the new standard. At this time, Talen cannot predict the outcome of these potential rule changes on the operations of its generation facilities and its results of operations.

RGGI

In October 2019, the Pennsylvania Governor signed an Executive Action Order instructing the Pennsylvania DEP to move forward with a rulemaking process that would facilitate the entry of the state into the RGGI program. In September 2021, the Independent Regulatory Review Commission provided the final required regulatory approval of DEP's proposed final rulemaking. However, in October and December 2021, the Pennsylvania House and Senate passed resolutions disapproving the DEP's proposed final rulemaking. In January 2022, the Governor of Pennsylvania vetoed the disapproval resolution. In April 2022, the final rule was published in the "Pennsylvania Code and Bulletin" and became effective, triggering Pennsylvania's entry into the RGGI program. Compliance with the rule was meant to begin on July 1, 2022. However, certain third parties have filed lawsuits and appeals questioning the legality of the regulation and the implementation of RGGI in Pennsylvania is currently stayed. The timing and potential impacts associated with these legal proceedings is uncertain and therefore, may change the state's participation in the RGGI program, including the compliance timeline. At this time, Talen is unable to determine the full impact of the RGGI program, when and if implemented, on its results of operations and liquidity.

Federal Climate Change Actions

The U.S. executive administration and a majority in the U.S. Congress have identified climate change policy as a priority that includes, but is not limited to, goals for greenhouse gas emissions reductions. Specifically, for the power sector, the EPA is addressing these initiatives through a new rulemaking after the D.C. Circuit Court vacated and remanded the ACE Rule. Such rulemaking will account for the U.S. Supreme Court's June 2022 ruling in *West Virginia vs. U.S. EPA*, which limits EPA's authority to regulate greenhouse gas emissions by power generation facilities. EPA has indicated that it plans to propose its new GHG rules for the power sector in the first half of 2023, with a final rule in 2024. Additionally, in February 2021, the U.S. rejoined the Paris Agreement on Climate Change and in November 2021, the U.S. joined other nations and pledged to make further progress in limiting the rise in global average temperature. It is expected that new executive orders, regulatory actions and (or) legislation intended to meet those goals will be proposed and (or) promulgated.

Environmental Remediation. From time-to-time, Talen undertakes investigative or remedial actions in response to notices of violations, spills or other releases at various on-site and off-site locations, negotiate with the EPA and state and local agencies regarding actions necessary for compliance with applicable requirements, negotiate with property owners and other third parties alleging impacts from our operations and undertake similar actions necessary to resolve environmental matters that arise in the course of normal operations. See Note 15 for information on accrued environmental costs.

Future investigation or remediation work at sites currently under review, or at sites not currently identified, may result in additional costs, but at this time we are unable to determine if such investigation or remediation work will have a material adverse effect on our financial condition or results of operations.

Guarantees and Other Assurances

In the normal course of business, Talen enters into agreements that provide financial performance assurance to third parties on behalf of certain subsidiaries. These agreements primarily support or enhance the creditworthiness attributed to a subsidiary on a stand-alone basis or facilitate the commercial activities in which these subsidiaries engage. Such agreements may include guarantees, stand-by letters of credit issued by financial institutions, surety bonds issued by insurance companies, and indemnifications. In addition, they may include customary indemnifications to third parties related to asset sales and associated with the Talen Formation Transactions. Based on our current knowledge, the probability of expected material payment/performance for the guarantees and other assurances is considered remote.

Surety Bonds. Surety bonds provide financial performance assurance to third parties on behalf of certain subsidiaries for obligations including, but not limited to, environmental obligations and AROs. In the event of nonperformance by the applicable subsidiary, the beneficiary would make a claim to the surety, and the Company would be required to reimburse any payment by the surety. Talen's liability with respect to any surety bond is released once the obligations secured by the surety bond are performed. Surety bond providers generally have the right to request additional collateral or request that such bonds be replaced by alternate surety providers, in each case upon the occurrence of certain events. At December 31, 2022 and December 31, 2021, the aggregate amount of surety bonds outstanding was \$248 million and \$237 million, including surety bonds posted on behalf of Talen Montana as discussed below. See Note 12 for information on a surety bond issued, included in the prior amount, on behalf of a related party at December 31, 2022.

Talen Montana Financial Assurance. Pursuant to the Colstrip AOC, Talen Montana, in its capacity as the Colstrip operator, is obligated to close and remediate coal ash disposal impoundments at Colstrip. The Colstrip AOC specifies an evaluation process between Talen Montana and the MDEQ on the scope of remediation and closure activities, requires the MDEQ to approve such scope, and requires financial assurance to be provided to the MDEQ on approved plans. Each of the co-owners of the Colstrip Units have provided their proportional share of financial assurance to the MDEQ for estimates of coal ash disposal impoundments remediation and closure activities approved by the MDEQ.

Talen Energy Supply has posted an aggregate \$113 million of surety bonds to the MDEQ on behalf of Talen Montana's proportional share of remediation and closure activities at both December 31, 2022 and December 31, 2021. Talen Montana has agreed to reimburse Talen Energy Supply and its affiliates in the event that these surety bonds are called. Talen Montana's surety bond requirements may increase due to scope changes, cost revisions and (or) other factors when the MDEQ conducts annual reviews of approved remediation and closure plans as required under the Colstrip AOC. The surety bond requirements will decrease as a result of such reviews as Colstrip's coal ash impoundments remediation and closure activities are completed. MDEQ is still performing the 2022 annual review. Any additional posting is expected to be made in the second quarter of 2023.

Cumulus Digital Assurances. See Note 18 for information on an LC that Talen Energy Supply has provided to unaffiliated parties in the support of the Cumulus Digital 2027 TLF.

NorthEast Gas Gen Letters of Credit Assurance. At December 31, 2022 and December 31, 2021, pursuant to the terms of NorthEast Gas Gen's chapter 11 plan of reorganization which is unrelated to the Talen Bankruptcy, Talen Energy Supply has provided \$11 million and \$17 million of letters of credit to backstop long-term letters of credit, including a letter of credit related to a property tax arrangement for Athens. Talen's backstop LCs will remain outstanding but such amounts may be reduced in accordance with arrangements agreed to in connection with NorthEast Gas Gen's chapter 11 plan of reorganization (as amended) until the earlier of the date the underlying letters of credit are no longer outstanding or the NorthEast Gas Gen's generation facilities are no longer owned by NorthEast Gas Gen's lender. Talen will be reimbursed by reorganized NorthEast Gas Gen, subject to a cap, for fees incurred for these backstop LCs.

Other Commitments and Contingencies

Nuclear Insurance. The Price-Anderson Act is a United States federal law which governs liability-related issues and ensures the availability of funds for public liability claims arising from a nuclear incident at any U.S. licensed nuclear facility. It also seeks to limit the liability of nuclear reactor owners for such claims from any single incident. At December 31, 2022, the liability limit per incident is \$13.7 billion for such claims, which is funded by insurance coverage from American Nuclear Insurers and an industry retrospective assessment program.

Under the industry retrospective assessment program, in the event of a nuclear incident at any of the reactors covered by the Price-Anderson Act, Susquehanna Nuclear could be assessed deferred premiums of up to \$275 million per incident, payable at a maximum of \$41 million per year.

Additionally, Susquehanna Nuclear purchases property insurance programs from NEIL, an industry mutual insurance company of which Susquehanna Nuclear is a member. At December 31, 2022, facilities at Susquehanna are insured against nuclear property damage losses up to \$2.0 billion and non-nuclear property damage losses up to \$1.0 billion. Susquehanna Nuclear also purchases an insurance program that provides coverage for the cost of replacement power during prolonged outages of nuclear units caused by certain specified conditions.

Under the NEIL property and replacement power insurance programs, Susquehanna Nuclear could be assessed retrospective premiums in the event of the insurers' adverse loss experience. The maximum assessment for this premium is \$44 million at December 31, 2022. Talen has additional coverage that, under certain conditions, may reduce this exposure.

Talen Montana Fuel Supply. Talen Montana purchases coal from the Rosebud Mine for its interest in Colstrip Units 3 and 4 under a full requirements contract with an unaffiliated coal mine operator. In 2015, the MDEQ issued coal-mine operator an amendment to one of its mine permits expanding the area authorized for mining. Environmental groups challenged the permit amendment in a proceeding at the MBER and, after the MBER issued a decision upholding the permit amendment, in a lawsuit in Montana state district court. In January 2022, the district court entered an order vacating the permit amendment effective April 1, 2022. Rosebud Mining ceased mining in the expansion area prior to the April 1, 2022 deadline. The coal-mine operator and the MDEQ appealed the district court's decisions to the Montana Supreme Court and filed motions seeking to stay the order vacating the permit. In August 2022, the Montana Supreme Court entered an order staying the district court's order vacating the permit amendment pending resolution of the appeal. Merits briefing is complete and oral argument will be held in April 2023.

In May 2022, MDEQ issued a second permit amendment expanding the area authorized for mining by the coal-mine operator. The environmental groups initiated proceedings at the MBER and in Montana state district court challenging the second permit amendment. Both proceedings are in the early stages.

In September 2022, the Montana Federal District Court entered an order upholding challenges by certain environmental groups to a third permit amendment expanding the area authorized for mining by the coal-mine operator. The environmental groups asserted that the OSM violated NEPA when preparing the EIS for the permit amendment. The court ordered OSM to complete an updated EIS in accordance with NEPA's requirements. The permit amendment will be vacated unless OSM completes the updated EIS within 19 months from the date of the court's order. The federal defendants did not appeal and expect to issue a revised decision on the permit amendment within the 19-month deadline, but in November 2022, intervenor-defendants, Westmoreland Rosebud and International Union, appealed the ruling to the Ninth Circuit Court of Appeals. MEIC and the environmental groups moved to dismiss the appeal for lack of jurisdiction, and the federal defendants do not oppose the motion to dismiss. The motion to dismiss and merits briefs are not yet complete.

At this time, Talen cannot predict the outcome of this matter or its effect on Talen Montana's operations, results of operations or liquidity.

Labor Union Agreement. At December 31, 2022, collective bargaining agreements to which Talen Energy Supply and (or) its subsidiaries are subject govern 41% of our workforce. In November 2022, the Company and IBEW Local 1600 in Pennsylvania, which represents 32% of our workforce agreed to a memorandum of agreement to extend the term of the existing collective bargaining agreement to August 2025. The memorandum of agreement was ratified by Local 1600 in December 2022. The collective bargaining agreement with IBEW Local 1638, which covers approximately 180 Talen Montana employees, is set to expire in August 2023.

17. Revolving Credit Facilities and Other Facilities

Talen Bankruptcy

In May 2022, the Talen Filing Parties filed voluntary petitions seeking relief under chapter 11 of the Bankruptcy Code. The Talen Bankruptcy constituted an event of default and accelerated obligations owed under Talen's recourse credit facilities outstanding prior to the Petition Date. The covenants and limitations contained in such credit agreements are not enforceable against the Debtors as a result of the Talen Bankruptcy, absent reinstatement of the defaulted indebtedness. Therefore, certain key terms related to those affected credit agreements are not addressed in the below disclosures. See Note 3 for additional information on the Talen Bankruptcy.

Revolving Credit and Other Facilities

	Expiration	December 31, 2022			December 31, 2021		
		Committed Capacity	Direct Cash Borrowings	LCs Issued	Unused Capacity	Direct Cash Borrowings	LCs Issued
Recourse							
Talen DIP Revolver	November 2023	\$ 300	\$ —	\$ 33	\$ 267	\$ —	\$ —
Talen DIP Continuing LC Agreement	November 2023	434	—	434	—	—	—
Talen Commodity Accordion RCF (a)	September 2024	848	848	—	—	848	—
Talen RCF	March 2024	—	—	—	—	—	439
Talen Unsecured LCF-1	June 2023	—	—	—	—	—	10
Talen Unsecured LCF-2	December 2023	—	—	—	—	—	—
Non-Recourse							
LMBE-MC RCF	December 2023	25	—	12	13	—	15
Total		\$ 1,607	\$ 848	\$ 479	\$ 280	\$ 848	\$ 464

(a) The weighted average interest rate was 12.12% and 9.00% at December 31, 2022 and December 31, 2021.

Outstanding direct cash borrowings under the: (i) Talen DIP Revolver, (ii) Talen Commodity Accordion RCF, and (iii) LMBE-MC RCF are each presented as "Revolving credit facilities" on the Consolidated Balance Sheets. See Note 18 for information on long-term debt and interest expense and other finance charges.

LC issuances are not permitted under the Talen Unsecured LCF-1 and LCF-2 due to the Talen Bankruptcy.

At December 31, 2022: (i) Talen Energy Supply was not in default under the Talen DIP Revolver and Talen DIP Continuing LC Agreement, and LMBE-MC was not in default under the LMBE-MC RCF; and (ii) certain Debtors were in default of the Talen Defaulted Credit Agreements. See Note 3 for information on the Talen Bankruptcy.

Talen DIP Credit Agreements. In May 2022, Talen Energy Supply entered into the Talen DIP Credit Agreements. The Talen DIP Credit Agreements consist of: (i) the Talen DIP New Money Agreement, and (ii) the Talen DIP Continuing LC Agreement. The Talen DIP New Money Agreement, as amended, provides Talen with \$1 billion term loan excluding lender premiums and fees, and access to up to \$300 million of revolving loan commitments, that can be utilized to issue new letters of credit. The Talen DIP Continuing LC Agreement provides Talen with approximately \$458 million of continuing letter of credit capacity permitting the continuation and further renewal of letters of credit outstanding under the Talen RCF as of the Petition Date. In June 2022, the Bankruptcy Court entered the final order with respect to the DIP Credit Facilities, which, among other things, provided for payments of interest on prepetition secured indebtedness, subject to, among other terms and conditions, minimum liquidity requirements.

Borrowings under the Talen DIP New Money Agreement are available to be used to: (i) pay fees, costs and expenses required to be paid in connection with the Talen DIP Credit Agreements and the Talen Bankruptcy; (ii) pay for working capital and other general corporate purposes of the Debtors; and (iii) to pay any obligations arising from or related to the “Carve Out” provisions in the Talen Bankruptcy, in each case in accordance with the cash flow forecast defined in the Talen DIP New Money Agreement, and for amounts attributable to decarbonization capital expenditures and pension contributions, in accordance with the budget for the Talen Bankruptcy.

The Talen DIP Credit Agreements mature in November 2023, subject to: (i) a springing maturity in the event certain material events occur during the pendency of the Talen Bankruptcy; and (ii) an automatic extension of six months solely to the extent necessary to obtain any applicable regulatory approvals necessary to consummate a plan of reorganization that has been approved by the Bankruptcy Court.

Borrowings under the Talen DIP Credit Agreements bear interest, at the borrowers’ option, at either a base rate (subject to a 1.75% floor), defined as a prime rate (subject to certain adjustments), or a SOFR-based rate (subject to a 0.75% floor), plus an applicable margin, with associated interest paid at least quarterly (or, if earlier, at the end of any SOFR period less than 90 days). The applicable margin on base rate loans is 3.75% and on SOFR-based loans is 4.75%. The lenders were paid an arranger premium and an upfront premium equal to 1.25% of the amount of each draw of term loans under the Talen DIP New Money Agreement. In addition, the revolving commitments under the Talen DIP New Money Agreement bear an undrawn commitment fee of 0.50% per annum on available but unused revolving facility capacity. Talen pays a fee with respect any letters of credit issued under the Talen DIP New Money Agreement of 4.5% of the daily stated amount of each letter of credit.

Borrowings, if any, under the Talen DIP Continuing LC Agreement bear interest, at the borrowers’ option, at either a base rate (subject to a 1.75% floor), defined as a prime rate (subject to certain adjustments), or a SOFR-based rate (subject to a 0.75% floor), plus an applicable margin, with associated interest paid at least quarterly (or, if earlier, at the end of any SOFR period less than 90 days). The applicable margin on base rate loans is 7.0% and on SOFR-based loans is 8.0%. Talen Energy Supply pays a fee with respect any letters of credit issued under the Talen DIP Continuing LC Agreement of 4.5% of the daily stated amount of each letter of credit.

Borrowings under the Talen DIP Credit Agreements are subject to mandatory prepayment requirements upon the receipt of proceeds from certain non-permitted issuances of indebtedness, asset sales and condemnation or recovery events, subject to customary reinvestment rights.

Certain voluntary prepayments of the Talen DIP Term Loans under the Talen DIP Credit Agreements are subject to a 1.00% premium for the first six months.

Amounts borrowed under the revolving facility in the Talen DIP New Money Agreement can be re-drawn, subject to compliance with certain conditions.

The Talen DIP Credit Agreements contain customary negative covenants, including but not limited to, certain limitations on incurrence of liens and additional indebtedness, payment of dividends asset sales, investments and transactions with affiliates, in each case subject to thresholds, carve outs and baskets. The Talen DIP Credit Agreements also require that the Debtors not permit liquidity, defined as unrestricted cash and cash equivalents and availability under the Debtors’ revolving credit facility, to be less than \$150,000,000 for any period of three consecutive days.

The Talen DIP Credit Agreements also contain negative covenants with respect to the Debtors’ ability to enter into hedging agreements. These restrictions include limitations, subject to conditions and exceptions on the Debtors’ ability to incur:

- indebtedness in the form of Bilateral Hedges (as defined in the Talen DIP New Money Agreement) and (or) FCM Hedges (as defined in the Talen DIP New Money Agreement); and
- liens on cash collateral and other credit support to secure obligations under Bilateral Hedges and (or) constituting initial and (or) variation margin to secure FCM Hedges.

Hedging agreements are also generally subject to a monthly cap on net hedging obligations and a limit on In-The-Money Generation (as defined in the Talen DIP New Money Agreement) in any particular month in the next 24 months after the date of incurrence (which time period was extended to 36 months effective November 1, 2022 pursuant to an amendment to the Talen DIP New Money Agreement executed in October 2022).

If an event of default occurs, the lenders under the Talen DIP Credit Agreements will be entitled to take various actions, including the acceleration of amounts due under the Talen DIP Credit Agreements, subject, if applicable, to the terms of the intercreditor agreement governing the Talen DIP Credit Agreements and other secured debt obligations.

Talen Postpetition ISDAs. Following commencement of the Talen Bankruptcy and as authorized by a final order of the Bankruptcy Court, Talen Energy Marketing is party to the Talen Postpetition ISDAs, under which Talen Energy Supply and the Talen Postpetition Subsidiary Guarantors provide the counterparty with superpriority liens (which rank *pari passu* with the liens securing the Talen DIP Obligations) against certain assets in lieu of posting collateral comprised of cash equivalents or LCs. The secured obligations under the Talen Postpetition ISDAs at December 31, 2022 were \$77 million.

Talen ISDAs. Talen Energy Marketing is party to the Talen ISDAs, under which Talen Energy Supply and the Subsidiary Guarantors provide the counterparty with a lien against certain assets in lieu of posting collateral comprised of cash equivalents or LCs. Although the obligations under the Talen ISDAs are still secured by the lien, the lien is subordinate to the liens securing the Talen DIP Obligations and the Talen Postpetition ISDAs. The secured obligations under the Talen ISDAs at December 31, 2022 and December 31, 2021 were \$1 million and \$195 million. The Talen ISDAs remain in place after the filing of the Talen Bankruptcy, although some counterparties have terminated their agreements as result of the Talen Bankruptcy.

LMBE-MC RCF. The Talen Bankruptcy was not an event of default under the LMBE-MC RCF. The LMBE-MC RCF allows for, at LMBE-MC's discretion, direct cash borrowings and letter of credit issuances up to an aggregate facility capacity of \$25 million through its expiry in December 2023. Borrowings bear interest, at LMBE-MC's option, at either: (i) a base rate, defined as a prime rate (subject to certain adjustments under the LMBE-MC RCF); or (ii) (a) prior to a January 2023 amendment to the LMBE-MC Credit and Guaranty Agreement that transitions the LIBOR-based agreement to a SOFR-based agreement, a LIBOR-based rate, or (b) following such amendment, a SOFR-based rate, in each case plus an applicable margin. Associated interest is paid at least quarterly. The applicable margin is (i) 3.00% on base rate loans; (ii) 4.00% on LIBOR-based loans; and (iii) 4.10%, 4.15%, and 4.25% on SOFR-based loans for one-month, three-month, and six-month tenors, respectively. Any current LIBOR-based borrowings can only be continued based on a SOFR rate (or converted to base rate borrowings) once the current interest period for such borrowing expires on March 31, 2023. In addition to interest, the lenders charge commitment fees on available, but unused facility capacity and customary letter of credit fees.

The LMBE-MC RCF is subject to customary negative covenants, including, but not limited to, certain limitations on incurrence of liens and additional indebtedness, payment of dividends and asset sales. The LMBE-MC RCF also contains customary representations and warranties, affirmative covenants and events of default. The LMBE-MC RCF requires LMBE-MC to maintain a debt service coverage ratio of no less than 1.10 to 1.00 as of the last day of any fiscal quarter.

The LMBE-MC RCF commitments can be terminated upon the occurrence of an event of default. If an event of default occurs, the lenders under the LMBE-MC RCF will be entitled to take various actions, including the acceleration of amounts due under the LMBE-MC RCF.

Security Interests of DIP Credit Agreements, Revolving Credit Facilities and Secured Hedging Obligations

Talen DIP Credit Agreements. The Talen DIP Obligations, which include LCs formerly issued under the Talen RCF and continued under the Talen DIP Continuing LC Agreement, are secured by superpriority liens and security interests in substantially all the assets of Talen Energy Supply and the Talen Postpetition Subsidiary Guarantors and guaranteed by the Talen Postpetition Subsidiary Guarantors. These security interests are equal and ratable with the security interests securing the Talen Postpetition ISDAs and senior to the liens securing the Talen Commodity Accordion RCF, Talen Senior Secured Term Loans, Talen Senior Secured Notes and Talen ISDAs.

Talen Postpetition ISDAs. Obligations under the Talen Postpetition ISDAs are afforded superpriority Administrative Claim status and are secured by security interests in substantially all the assets of Talen Energy Supply and the Talen Postpetition Subsidiary Guarantors. These security interests are equal and ratable with the security interests securing the Talen DIP Credit Agreements and senior to the liens securing the Talen Commodity Accordion RCF, Talen Senior Secured Term Loans, Talen Senior Secured Notes and Talen ISDAs.

Recourse Revolving Credit Facilities. Obligations under the Talen Commodity Accordion RCF are guaranteed by Talen Energy Supply and the Subsidiary Guarantors and secured by liens and security interests in substantially all of the assets of Talen Energy Supply and the Subsidiary Guarantors. These security interests are junior to security interests securing the Talen DIP Obligations and the Talen Postpetition ISDAs and otherwise are equal and ratable with the security interests securing the Talen Senior Secured Term Loans, Talen Senior Secured Notes and Talen ISDAs.

In January 2022, in connection with the Talen Commodity Accordion RCF and certain waivers and amendments under the Talen RCF, Talen Energy Supply caused certain of its wholly owned subsidiaries that were not already Subsidiary Guarantors to: (i) guarantee the obligations under the Talen Commodity Accordion RCF, the Talen RCF, the Talen Senior Secured Term Loans, the Talen Senior Secured Notes, the Talen ISDAs, the Talen Inventory Repurchase Obligations and the Talen Unsecured LCFs; and (ii) grant liens and security interests in substantially all of their respective assets to secure the obligations under the foregoing (other than the Talen Unsecured LCFs).

Non-recourse Revolving Credit Facilities. Obligations under the LMBE-MC Credit and Guaranty Agreement, which includes the LMBE-MC RCF, are secured by first-priority liens and security interests in substantially all the assets of LMBE-MC HC and each of its subsidiaries.

Talen ISDAs. Obligations under the Talen ISDAs are secured by liens and security interests in substantially all the assets of Talen Energy Supply and the Subsidiary Guarantors. These security interests are junior to security interests securing the Talen DIP Obligations and the Talen Postpetition ISDAs and otherwise are equal and ratable with the security interests securing the Talen Commodity Accordion RCF, Talen Senior Secured Term Loans, Talen Senior Secured Notes.

See Note 18 for information on guarantees and cross-default provisions related to Talen's indebtedness.

18. Long-term Debt

Talen Bankruptcy

In May 2022, the Talen Filing Parties filed voluntary petitions seeking relief under chapter 11 of the Bankruptcy Code. The Talen Bankruptcy constituted an event of default and accelerated obligations owed under Talen's long-term recourse indebtedness outstanding prior to the Petition Date, other than the Talen 2038 PEDFA Series 2009B and Talen 2037 PEDFA Series 2009C bonds. The covenants and limitations associated with the defaulted indebtedness are not enforceable against the Debtors as a result of the Talen Bankruptcy, absent reinstatement of the defaulted indebtedness. Therefore, certain key terms, such as principal repayments and covenant terms, of defaulted indebtedness are not addressed in the below disclosures. See Note 3 for information on the Talen Bankruptcy and execution of the Talen DIP Credit Agreements and Note 17 for more information on the terms of the Talen DIP Credit Agreements.

Long-term Debt

	Interest Rate (a)	December 31, 2022	December 31, 2021
Talen DIP Term Loan			
Talen 2023 DIP TLB	9.06 %	\$ 1,000	\$ —
Talen Senior Secured Term Loans			
Talen 2026 TLB	8.13 %	427	427
Talen Senior Secured Notes			
Talen 2027 Secured Notes	7.25 %	750	750
Talen 2028 Secured Notes	6.63 %	470	470
Talen 2028 Secured Notes	7.63 %	400	400
Talen Senior Unsecured Notes (b)			
Talen 2022 Notes	9.50 %	17	17
Talen 2024 Notes	6.50 %	24	24
Talen 2025 Notes	6.50 %	543	543
Talen 2026 Notes	10.50 %	607	607
Talen 2027 Notes	7.00 %	20	20
Talen 2036 Notes	6.00 %	119	119
Talen PEDFA Bonds (b)			
Talen 2038 PEDFA Series 2009A	6.40 %	100	100
Talen 2038 PEDFA Series 2009B	4.81 %	49	50
Talen 2037 PEDFA Series 2009C	4.81 %	79	81
Total recourse principal		\$ 4,605	\$ 3,608
Non-recourse Senior Secured Term Loan			
LMBE-MC 2025 TLB	8.73 %	301	353
Total non-recourse principal		301	353
Limited-recourse Senior Secured Term Loan			
Cumulus Digital 2027 TLF, including PIK	12.50 %	185	—
Total limited-recourse principal		185	—
Total principal		5,091	3,961
Unamortized deferred finance costs and original issuance discounts, recourse (c) (d)		(25)	(61)
Unamortized deferred finance costs and original issuance discounts, non-recourse		(4)	(6)
Total carrying value		5,062	3,894
Less: recourse long-term debt, due within one year (b)		1,000	150
Less: non-recourse long-term debt, due within one year		10	9
Less: amounts presented as "Liabilities subject to compromise" (b)		1,558	—
Long-term debt		\$ 2,494	\$ 3,735

(a) Computed interest rate at December 31, 2022.

(b) At December 31, 2022, amounts or a portion of such are presented as "Liabilities subject to compromise" on the Consolidated Balance Sheet. See Note 3 for additional information.

(c) The 2021 amount includes previously recognized fair value adjustments on certain exchanges of indebtedness.

(d) Previously unamortized fees related to unsecured indebtedness were written-off to "Reorganization income (expense), net presented on the Consolidated Statements of Operations.

See Note 17 for information on revolving credit facilities, LC issuances and facilities and the Talen ISDAs.

At December 31, 2022: (i) Talen Energy Supply was not in default under the Talen DIP Term Loan, LMBE-MC was not in default under the LMBE-MC 2025 TLB and Cumulus Digital was not in default under the Cumulus Digital 2027 TLF, and (ii) certain Debtors were in default of the Talen Defaulted Credit Agreements. See "Talen Bankruptcy" above for information on the impact of the Talen Bankruptcy on Talen's recourse long-term debt.

The aggregate long-term debt maturities, including quarterly amortization and early redemption provisions, at December 31, 2022 were:

	2023	2024	2025	2026	2027	Thereafter	Other (a)	Total
Recourse	\$ 1,000	\$ —	\$ —	\$ 427	\$ 750	\$ 870	\$ 1,558	\$ 4,605
Non-recourse	10	5	286	—	—	—	—	301
Limited-recourse	—	—	—	—	185	—	—	185
Total maturities	\$ 1,010	\$ 5	\$ 286	\$ 427	\$ 935	\$ 870	\$ 1,558	\$ 5,091

(a) Indebtedness presented as "Liabilities subject to compromise" on the consolidated balance sheet

Under the terms of the Plan of Reorganization related to the Talen Bankruptcy, the \$1.4 billion of recourse unsecured debt and the Talen 2038 PEDFA Series 2009A, presented as "Liabilities subject to compromise" on the Consolidated Balance Sheet at December 31, 2022, are expected to be converted to New Parent Equity upon the Debtors emergence from bankruptcy. The Talen 2038 PEDFA Series 2009B and Talen 2037 PEDFA Series 2009C, presented as "Liabilities subject to compromise" at December 31, 2022, are expected to continue in accordance with the agreed upon terms. See Note 3 for additional information on the Talen Bankruptcy.

The components of "Interest expense and other finance charges" presented on the Consolidated Statements of Operations for the years ended December 31 were:

	2022	2021	2020
Recourse Interest Expense			
Talen RCF and Talen DIP Continuing LC Agreement	\$ 21	\$ 15	\$ 5
Talen DIP Term Loan	46	—	—
Talen Commodity Accordion RCF	86	4	—
Talen Senior Secured Term Loans and Notes	140	132	124
Talen Senior Unsecured Notes	40	116	116
Talen PEDFA Bonds	2	7	11
Amortization (a)	24	14	13
Interest rate derivatives (gains) losses, net	(16)	(8)	29
Capitalized interest, other	(6)	—	(2)
Recourse interest expense	337	280	296
Talen Inventory Repurchase Obligations	6	10	9
Talen RCF and Talen DIP Revolver commitment fees	1	1	3
Amortization (a)	4	16	3
Other finance charges	2	1	1
Total recourse interest expense and other finance charges	350	308	312
Non-recourse Interest Expense			
LMBE-MC RCF and LMBE-MC 2025 TLB	21	19	22
NGG RCF, NGG 2023 TLB, NGG 2023 TLC and NGG PIK interest	—	—	12
Amortization (a)	1	2	2
Interest rate derivatives (gains) losses, net	(14)	(4)	16
Non-recourse capitalized interest, other	—	—	(1)
Total non-recourse interest expense and other finance charges	8	17	51
Limited-recourse Interest Expense			
Cumulus Digital 2027 TLF, including PIK interest	6	—	—
Capitalized interest, other	(5)	—	—
Total limited-recourse interest expense and other finance charges	1	—	—
Interest expense and other finance charges	\$ 359	\$ 325	\$ 363

(a) Non-cash amortization of: (i) original issuance discount; (ii) deferred finance costs; and (iii) previously recognized fair value adjustments on certain exchanges of indebtedness, as applicable.

Under GAAP, as a result of the Talen Bankruptcy, Talen no longer accrues interest on certain outstanding debt, including the Talen Unsecured Notes and the Talen PEDFA Bonds. For the year ended December 31, 2022, \$77 million of contractual interest expense has not been presented on the Consolidated Statement of Operations. Talen continues to reimburse the direct-pay LC provider for interest paid on the Talen 2038 PEDFA Series 2009B and Talen 2037 PEDFA Series 2009C bonds, as permitted by the final Bankruptcy Court order approving the Talen DIP Credit Agreements. The interest payments are treated as a reduction to principal.

The components of "Debt restructuring gain (loss), net" presented on the Consolidated Statements of Operations for the years ended December 31 were:

	2022	2021	2020
Talen RCF extinguishment	\$ —	\$ (10)	\$ (1)
Talen 2026 TLB extinguishment	—	—	(2)
Talen Commodity Accordion RCF prepayment premiums	(6)	—	—
Other	—	(1)	—
Debt restructuring gain (loss), net	\$ (6)	\$ (11)	\$ (3)

Long-Term Debt Transactions

2022 Transactions.

Talen 2023 DIP TLB. In May 2022, Talen Energy Supply executed the \$1 billion Talen 2023 DIP TLB that provided \$971 million of proceeds, net of discount and fees.

Cumulus Digital 2027 TLF. In September 2022, as a result of the Cumulus Digital Equity Conversion, Talen Energy Supply consolidated Cumulus Digital Holdings for financial reporting purposes and accordingly, has presented the Cumulus Digital 2027 TLF in the Talen Energy Supply financial statements as of December 31, 2022. The Cumulus Settlement transactions also amended certain aspects of the Cumulus Digital Credit Agreement as further described below. See Note 12 for additional information on the Cumulus Digital Equity Conversion and the other Cumulus Settlement transactions.

2021 Transactions.

Talen 2021 Secured Notes Repayment. In December 2021, Talen Energy Supply repaid an aggregate \$114 million principal amount upon maturity.

Talen PEDFA Bond Remarketing. In February 2021, Talen Energy Supply completed the remarketing of the Talen 2028 PEDFA series 2009B bonds and the Talen 2037 PEDFA Series 2009C bonds, and issued \$131 million principal amount of remarketed bonds and received proceeds of \$128 million, net of fees, which are presented as new indebtedness on the Consolidated Balance Sheet and Consolidated Statements of Cash Flows as of and for the year ended December 31, 2021. In connection with this transaction, Talen Energy Supply issued backstop LCs in the amount of principal outstanding of the remarketed bonds plus an interest component. The Company is continuing to pay interest as due on the remarketed bonds during its bankruptcy. See "Recourse Long-term Debt" below for additional information.

Recourse Long-Term Debt

Talen Senior Secured Term Loans. Interest for borrowings under the Talen 2026 TLB is variable and is equal to a LIBOR-based rate plus 3.75% (with a 0.00% LIBOR floor). Interest under the Talen 2026 TLB accrues and, prior to the Talen Bankruptcy, was payable monthly. Pursuant to a June 2022 order of the Bankruptcy Court, Talen Energy Supply is permitted, and in some circumstances required, to pay interest under the Talen 2026 TLB, subject to certain minimum liquidity requirements and other conditions.

Talen Senior Secured Notes. Any principal payments and redeemable provision terms are not currently in effect due to the Talen Bankruptcy. Interest on borrowings under the Talen Senior Secured Notes accrues at fixed-rates and, prior to the Talen Bankruptcy, was payable semi-annually. Pursuant to a June 2022 order of the Bankruptcy Court, Talen Energy Supply is permitted, and in some circumstances required, to pay interest under the Talen Senior Secured Notes, subject to certain minimum liquidity requirements.

Talen Senior Unsecured Notes. Any principal payments and redeemable provision terms are not currently in effect due to the Talen Bankruptcy. Interest on borrowings under the Talen Senior Unsecured Notes accrues at fixed rates and, prior to the Talen Bankruptcy, was payable semi-annually. As a result of the Talen Bankruptcy, Talen is currently not accruing interest on these notes.

As a result of the Talen Bankruptcy, these notes have been presented as "Liabilities subject to compromise" on the Consolidated Balance Sheet.

Talen PEDFA Bonds. Each series of Talen PEDFA Bonds was issued by the PEDFA on behalf of Talen Energy Supply. Talen Energy Supply received the proceeds from the original issuance of each series of Talen PEDFA Bonds pursuant to a separate exempt facilities loan agreement. An unsecured promissory note of Talen Energy Supply corresponding to each series of Talen PEDFA Bonds contains principal, interest and prepayment provisions of the respective series.

The Talen 2038 PEDFA Series 2009A: (i) are not subject to mandatory tender prior to their stated maturity date but may be redeemed at the option of Talen Energy Supply beginning in September 2025; and (ii) accrue fixed rate interest which is payable semi-annually, as provided in the Series A loan agreement.

Talen Energy Supply completed the remarketing of the Talen 2038 PEDFA Series 2009B and the Talen 2037 PEDFA Series 2009C in February 2021. The Talen 2038 PEDFA Series 2009B and the Talen 2037 PEDFA Series 2009C accrue interest at a variable rate in accordance with the provisions of the trust indentures which is payable monthly. Obligations under the Talen 2038 PEDFA Series 2009B and the Talen 2037 PEDFA Series 2009C are supported by two irrevocable, direct-pay letters of credit, each corresponding to the applicable series, that were issued by a third-party lender in favor of the bond trustee in an amount equal to the outstanding principal of each series plus an interest component. Talen Energy Supply's obligation to reimburse the third-party lender for payments made under each irrevocable, direct-pay letter of credit is in turn supported by a corresponding backstop letter of credit issued in favor of such lender under the Talen RCF.

The Talen 2038 PEDFA Series 2009B and the Talen 2037 PEDFA Series 2009C are: (i) subject to mandatory purchase by Talen Energy Supply at the option of each holder with at least a seven day advance notice, but may be redeemed at the option of Talen Energy Supply at any time; (ii) subject to mandatory tender and optional remarketing upon a conversion to an interest rate other than the daily rate as defined in the loan agreement or upon the cancellation, termination, expiration or substitution of the irrevocable, direct-pay letter of credit corresponding to the applicable PEDFA series; and (iii) subject to mandatory tender upon an event of default under the reimbursement agreement pursuant to which the irrevocable, direct-pay letter of credit for the applicable series was issued.

Each series of the Talen PEDFA Bonds is subject to customary affirmative and negative covenants appropriate for such indebtedness. In addition, the Talen 2038 PEDFA Series 2009A includes certain limitations on incurrence of additional liens and asset sales. The indentures governing the PEDFA Bonds do not limit Talen Energy Supply's ability to incur additional unsecured indebtedness. Each series of the Talen PEDFA Bonds also contains customary events of default. If an event of default occurs, the lenders under each series of the PEDFA Bonds will be entitled to take various actions, including the acceleration of any outstanding amounts due. The Talen Bankruptcy constituted an event of default under the Talen 2038 PEDFA Series 2009A bonds, but was not an event of default under the Talen 2038 PEDFA Series 2009B and Talen 2037 PEDFA Series 2009C bonds. The Talen 2038 PEDFA Series 2009B and Talen 2037 PEDFA Series 2009C bonds continue to be supported by the letters of credit described above and Talen Energy Supply continues to perform its associated reimbursement obligations.

As a result of the Talen Bankruptcy, these notes have been presented as "Liabilities subject to compromise" on the Consolidated Balance Sheet.

Non-recourse Senior Secured Long-term Debt

LMBE-MC and its subsidiaries were not included in the Talen Bankruptcy and therefore the Talen Bankruptcy was not an event of default under the LMBE-MC 2025 TLB.

LMBE-MC 2025 TLB. The LMBE-MC 2025 TLB requires quarterly amortization payments which equate on a quarterly basis to 0.25% of the total original principal amount, with the remaining principal balance due at maturity in December 2025. Additionally, the LMBE-MC 2025 TLB includes a quarterly cash sweep equal to the greater of: (i) 50% of excess cash flow of LMBE-MC; or (ii) up to 100% of excess cash flow of LMBE-MC to the extent required to reach target debt balances as defined under the LMBE-MC Credit and Guaranty Agreement. The LMBE-MC 2025 TLB permits quarterly cash distributions to Talen Energy Supply after meeting debt service and other cash flow requirements. As of the final 2022 quarterly cash sweep, the amount outstanding on the LMBE-MC 2025 TLB exceeds the target debt balance, therefore, cash distributions cannot occur until the balance is at or below the target in future quarters. Interest on borrowings under the LMBE-MC 2025 TLB is currently variable and is equal to a LIBOR-based rate plus 4.00%. As discussed in Note 17, following amendments to the LMBE-MC Credit and Guaranty Agreement, once the current interest period on these LIBOR-based borrowings expires on March 31, 2023, such borrowings can only be continued based on the applicable SOFR rate (or converted to base rate borrowings). The applicable margin is (i) 3.00% on base rate loans; and (ii) 4.10%, 4.15%, and 4.25% on SOFR-based loans for one-month, three-month, and six-month tenors, respectively.

The LMBE-MC 2025 TLB contains the same affirmative covenants, negative covenants and events of default as the LMBE-MC RCF. If an event of default occurs, the lenders under the LMBE-MC Credit and Guaranty Agreement, subject to certain limitations, are entitled to take various actions, including accelerating amounts due under such obligations. The LMBE-MC 2025 TLB requires LMBE-MC to maintain a debt service coverage ratio of no less than 1.10 to 1.00 as of the last day of any fiscal quarter.

Limited-recourse Senior Secured Long-Term Debt

Cumulus Digital 2027 Senior Secured Term Loan. In September 2021, Cumulus Digital executed the Cumulus Digital Credit Agreement, which provided for up to \$175 million in aggregate principal borrowings and matures in September 2027. Cumulus Digital borrowed \$60 million at closing of the loan transaction, and made additional borrowings over time to fund Cumulus Coin's contributions to Nautilus and Cumulus Data's construction of certain data center electrical infrastructure that will support the operations of both Cumulus Data and Nautilus. In connection with the Cumulus Settlement Transactions, Cumulus Digital borrowed the remaining available principal amount in the third quarter 2022. As a result, at December 31, 2022, the outstanding principal, including capitalized and accrued PIK interest was \$185 million.

Interest on outstanding borrowings is payable quarterly at 12.50% per annum. Interest was initially payable in cash or, at Cumulus Digital's election for the first four quarterly payment dates, 10% in cash with the remaining 2.50% capitalized as additional principal. In connection with the Cumulus Settlement transactions, the Cumulus Digital Credit Agreement was amended to provide that all interest accruing thereunder from July 1, 2022 through June 30, 2023 will be capitalized as additional principal, and thereafter will be paid in cash.

The Cumulus Digital Credit Agreement contains customary representations and warranties, affirmative covenants, negative covenants, and events of default. Notable covenants include limitations on incurrence of liens and additional indebtedness, payment of dividends and asset sales. The agreement also includes a requirement that Cumulus Digital procure equity funding from May 2023 through June 2023 for Cumulus Data to complete construction of the first data center shell and related infrastructure.

The Cumulus Digital Credit Agreement contains customary events of default, including: nonpayment of principal or interest when due, breach of covenants in Cumulus Digital 2027 TLF documents, and the bankruptcy of Cumulus Digital Holdings or any of its subsidiaries. It is also an event of default if Talen Energy Corporation files for bankruptcy while the Talen Energy Corporation guarantee described below remains in effect. This event of default was waived for purposes of Talen Energy Corporation's bankruptcy filing in December 2022, provided that the guaranty is assumed by Talen Energy Corporation in the bankruptcy as contemplated in the Plan of Reorganization. See Note 3 for more information on Talen Energy Corporation becoming a Debtor in the Talen Bankruptcy.

Security Interests of Long-term Debt

Recourse Debt. The obligations under the Talen Senior Secured Term Loans and Talen Senior Secured Notes are secured by liens and security interests in substantially all of the assets of Talen Energy Supply and the Subsidiary Guarantors. These security interests are equal and ratable with the security interests securing the Talen Commodity Accordion RCF, and Talen ISDAs, but are subordinated to the liens securing the Talen DIP Obligations and the Postpetition ISDAs.

Non-recourse Debt.

LMBE-MC Credit and Guaranty Agreement. Obligations under the LMBE-MC Credit and Guaranty Agreement, which includes the LMBE-MC 2025 TLB, are secured by first-priority liens and security interests in substantially all the assets of LMBE-MC HC and each of its subsidiaries. Such assets consist primarily of the property, plant and equipment of the Lower Mt. Bethel and Martins Creek generation facilities, materials and supplies, and restricted cash with an aggregate net book value of approximately \$529 million at December 31, 2022.

LMBE-MC is the borrower under the LMBE-MC Credit and Guaranty Agreement, which includes the LMBE-MC RCF and the LMBE-MC 2025 TLB. Obligations under the LMBE-MC Credit and Guaranty Agreement are guaranteed by LMBE-MC HC and LMBE-MC's subsidiaries. The maximum amount of potential future payments by the guarantors is equal to the maximum amount of outstanding obligations under the LMBE-MC Credit and Guaranty Agreement and may include unpaid interest, premiums, penalties, and (or) other fees and expenses. Talen Energy Supply and its subsidiaries (other than LMBE-MC HC and its subsidiaries) do not guarantee the obligations under the LMBE-MC Credit and Guaranty Agreement.

Limited-recourse Debt.

Cumulus Digital 2027 TLF. Obligations under the Cumulus Digital Credit Agreement are secured equally and ratably by first priority liens and security interests in substantially all the assets of Cumulus Digital and its subsidiaries (other than the assets of Nautilus), as well as a pledge of equity in Cumulus Digital by its direct parent, Cumulus Digital Holdings.

Guarantees and Cross-Defaults of Long-term Debt, Revolving Credit Facilities and Talen ISDAs

The Talen Postpetition Subsidiary Guarantors guarantee the obligations of: (i) Talen Energy Supply under the Talen DIP Credit Agreements; and (ii) Talen Energy Marketing under the Talen Postpetition ISDAs. The maximum amount of potential future payments by the Talen Postpetition Subsidiary Guarantors is equal to the maximum amount of outstanding obligations under such agreements and may include unpaid interest, premiums, penalties, and (or) other fees and expenses. An event of default if not cured or waived under the Talen DIP Credit Agreements and certain Talen Postpetition ISDAs may result in a cross acceleration of amounts due and (or) cross termination across all these agreements.

The Subsidiary Guarantors guarantee the obligations of: (i) Talen Energy Supply under the Talen RCF, Talen Unsecured LCFs, Talen Senior Secured Term Loans, Talen Senior Secured Notes, Talen Senior Unsecured Notes and Talen PEDFA Bonds; (ii) Talen Energy Marketing, under the Talen ISDAs; and (iii) Talen Energy Marketing and Susquehanna Nuclear under the Talen Commodity Accordion RCF. The maximum amount of potential future payments by the Subsidiary Guarantors is equal to the maximum amount of outstanding obligations under such agreements and may include unpaid interest, premiums, penalties, and (or) other fees and expenses. An event of default if not cured or waived under the Talen RCF, Talen Commodity Accordion RCF, Talen Senior Secured Term Loans, Talen Senior Secured Notes, Talen Unsecured LCF, Talen Senior Unsecured Notes, and certain Talen ISDAs may result in a cross acceleration of amounts due and (or) cross termination across all these agreements.

The Talen Senior Unsecured Notes, Talen PEDFA Bonds, and Talen Unsecured LCFs are senior unsecured obligations of Talen Energy Supply that are effectively subordinated to the secured obligations of Talen Energy Supply, including the Talen RCF, Talen Commodity Accordion RCF, Talen Senior Secured Term Loans, Talen Senior Secured Notes, and Talen ISDAs.

The guarantees under the Talen Senior Unsecured Notes, Talen PEDFA Bonds, and Talen Unsecured LCFs are the general unsecured obligations of the Subsidiary Guarantors, guaranteeing such indebtedness, rank equally with all of such Subsidiary Guarantors' other senior unsecured indebtedness, and are effectively subordinated to the secured obligations of the Subsidiary Guarantors, including the Talen RCF, Talen Commodity Accordion RCF, Talen Senior Secured Term Loans, Talen Senior Secured Notes, and Talen ISDAs.

Guarantees on Cumulus Digital 2027 TLF

All obligations under the Cumulus Digital Credit Agreement are guaranteed by Cumulus Digital Holdings and each of Cumulus Digital's subsidiaries (other than Nautilus). The maximum amount of potential future payments by the guarantors is equal to the maximum amount of outstanding obligations under the Cumulus Digital Credit Agreement and may include unpaid interest, premiums, penalties, and (or) other fees and expenses.

Additionally, Talen Energy Corporation has provided a guarantee to the lenders under the Cumulus Digital 2027 TLF for certain shortfalls in principal and interest payments by Cumulus Digital (up to a maximum of 23% of the principal amount of outstanding loans under the Cumulus Digital 2027 TLF). The guarantee will terminate if the principal amount of loans outstanding is reduced to \$50 million or less.

Letters of Credit. At December 31, 2022, under the terms of the Cumulus Digital Credit Agreement, Talen Energy Supply has provided \$50 million in LCs to Orion to support certain of Cumulus Digital's obligations under the Cumulus Digital 2027 TLF. The LCs can be drawn upon, among other events: (i) the acceleration of the Cumulus Digital loan due to an event of default; or (ii) a bankruptcy of Cumulus Digital. The amount of the LCs will be decreased from time to time based on the outstanding principal balance of the Cumulus Digital debt. In the event that the letters of credit are drawn, Cumulus Digital Holdings has agreed to issue additional common equity to Talen Energy Supply to reimburse it for the amount drawn. Cumulus Digital has agreed to reimburse Talen Energy Supply for fees associated with the LCs with payment of such amounts deferred, until the earlier of: (i) two years from the commercial operation date of the Nautilus facility; and (ii) the date Cumulus Data and Cumulus Coin meet a minimum interest coverage threshold. Talen Energy Supply will have the option to receive payment for the deferred fees in cash payments ratably over the next succeeding 24 months or in additional common units of Cumulus Digital Holdings, subject to certain caps under the amended Cumulus Digital COSA. The LC reimbursement agreement was assumed by Talen Energy Supply upon the Bankruptcy Court's approval of the Cumulus Settlement transactions. For the year ended December 31, 2022, Talen Energy Supply recognized \$2 million of income within "Other non-operating income (expense), net" presented on the Consolidated Statements of Operations for this reimbursement of the LC costs. As a result of the September 2022 consolidation of Cumulus Digital Holdings, going forward, this income will no longer be recognized because it will eliminate in consolidation. See Note 12 for information on the Cumulus Digital COSA.

19. NorthEast Gas Gen

NorthEast Gas Gen Deconsolidation

VIE Reconsideration and Deconsolidation. In March 2020, NorthEast Gas Gen defaulted under the NGG First Lien Credit Agreement from the failure to pay a required quarterly cash interest payment due on March 31, 2020 and to deliver a compliance certificate by March 15, 2020. This triggered a cross default pursuant to the NGG Affiliate Second Lien Credit Agreement under which Talen Energy Supply was the lender. In April 2020, all interested parties consummated a series of forbearance arrangements that contained conditions agreed to with the unaffiliated lender that substantially limited our ability to make certain financial decisions for NorthEast Gas Gen in the ordinary course of business. These conditions triggered a VIE reconsideration assessment of Talen's investment in NorthEast Gas Gen. As a result, we determined Talen did not have a controlling financial interest in NorthEast Gas Gen given the limiting effects of the forbearance conditions and that NorthEast Gas Gen had insufficient equity to finance its activities.

Accordingly, in April 2020, Talen deconsolidated NorthEast Gas Gen.

As a result of the deconsolidation of NorthEast Gas Gen, Talen recognized a non-material investment in NorthEast Gas Gen and fully reserved the carrying values of certain receivables owed to Talen by NorthEast Gas Gen. As the carrying values of NorthEast Gas Gen's liabilities exceeded its assets, an aggregate non-cash gain is presented as "Deconsolidation of subsidiary gain (loss), net" presented on the Consolidated Statements of Operations for the year ended December 31, 2020:

	NorthEast Gas Gen
Restricted cash and cash equivalents	\$ 6
Affiliate trade accounts receivable	3
Inventory	8
Other current assets	8
Property, plant and equipment	468
Other noncurrent assets	1
Total assets	\$ 494
Revolving credit facilities	\$ 10
Accrued interest	5
Accounts payable and other accrued liabilities	15
Long-term debt, due within one year	529
Other current liabilities	3
Affiliate long-term debt, due within one year (a)	30
Asset retirement obligations and accrued environmental costs	2
Affiliate noncurrent accounts payable (b)	30
Other noncurrent liabilities	1
Total liabilities	\$ 625
Non-cash (gain) on deconsolidation of NorthEast Gas Gen's net assets and liabilities	\$ (131)
Less:	
Non-cash charge to fully reserve Talen's carrying value of its loan receivable for NGG's affiliate long-term debt (a)	30
Non-cash charge to fully reserve Talen's subordinated account receivables for NGG's affiliate accounts payable (b)	30
(Gain) loss, net on deconsolidation of NorthEast Gas Gen	\$ (71)

(a) Carrying value of the NGG Second Lien Affiliate TL owed to Talen Energy Supply by NorthEast Gas Gen.

(b) Carrying value of a subordinated affiliated accounts payable owed to Talen Energy Supply by NorthEast Gas Gen.

2020 NorthEast Gas Gen Bankruptcy

A Chapter 11 plan of reorganization for NorthEast Gas Gen under the Bankruptcy Code became effective in December 2020 that, among other things: (i) transferred ownership of NorthEast Gas Gen and its subsidiaries from Talen to an affiliate of NorthEast Gas Gen's lenders; (ii) required Talen to provide RGGIs to NorthEast Gas Gen for a portion of its RGGI obligation (the non-material impact of such was recognized on the statement of operations in the fourth quarter 2020); and (iii) except as expressly provided for in the plan of reorganization, released Talen from further liability related to NorthEast Gas Gen. The NorthEast Gas Gen bankruptcy activities were not material to Talen's financial condition or results of operations.

NorthEast Gas Gen Related Party Transactions

During 2020, pursuant to short-term energy management arrangements, Talen Energy Marketing received a monthly fee in exchange for providing NorthEast Gas Gen with certain marketing services such as energy management and fuel procurement. Additionally, Talen received a monthly fee in exchange for providing NorthEast Gas Gen other support services. These agreements expired in December 2020. Talen's related party activities with NorthEast Gas Gen subsequent to the NorthEast Gas Gen deconsolidation and under these agreements were:

- an aggregate \$10 million natural gas sales to NorthEast Gas Gen for the year ended December 31, 2020, that is presented as "Energy revenues" on the Consolidated Statement of Operations;
- an aggregate \$603 thousand of earned energy management fees for the year ended December 31, 2020 and an aggregate \$1 million of earned support services fees for the year ended December 31, 2020; and
- an aggregate \$2 million payable for commodity activities due to NorthEast Gas Gen under the energy management arrangements at December 31, 2020 that is presented as "Accounts payable and other accrued liabilities" on the Consolidated Balance Sheet.

20. Fair Value

Recurring Fair Value Measurements

Financial assets and liabilities reported at fair value on a recurring basis primarily include energy commodity derivatives, interest rate derivatives, and investments held within the Susquehanna Nuclear NDT.

Energy Commodity Derivatives. Level 1 derivative assets and liabilities primarily consist of exchange-traded futures and options. Level 2 derivative assets and liabilities primarily consist of over-the-counter swaps, options and forward purchase and sale contracts that are valued using adjusted exchange prices, prices provided by brokers or price service companies that are all corroborated by market data. Level 3 derivative assets and liabilities consist of over-the-counter swaps, options and forward purchase and sale contracts where a significant portion of fair value is calculated from underlying market data that is not readily available. The derived value uses industry standard methodologies that may consider the historical relationships among various commodities, modeled market prices, time value, volatility factors and other relevant economic measures. The use of these inputs results in management's best estimate of fair value.

Interest Rate Derivatives. Level 2 derivative assets and liabilities primarily consist of fixed for floating over-the-counter swaps which are valued using readily observable inputs, such as forward interest rates (e.g., LIBOR and government security rates).

Nuclear Decommissioning Trust Funds. Level 1 investments consist of individual equity securities and U.S. treasury bills and (or) U.S. government debt securities that are valued using unadjusted prices available from the underlying exchange. Level 2 investments primarily consist of municipal and investment grade corporate debt securities which are valued using benchmark yields, relevant trade data, broker/dealer bid/ask prices, benchmark securities, and credit valuation adjustments. Certain investments in money market funds, real estate investment trusts, commingled equity funds, and commingled fixed income funds are not classified within the fair value hierarchy. The fair value measurements of these funds are based on firm quotes of NAV per share, as a practical expedient for valuation, which are not obtained from a quoted price in an active market. Real estate investment trust shares are redeemable on a quarterly basis. However, the investment manager has discretion over when the redemptions are paid out which is dependent on liquidity and redemption and subscription queues.

VEBA Trust. Level 1 investments consist of U.S. treasury notes that are valued using unadjusted prices available from the underlying exchange. Level 2 investments primarily consist of investment grade corporate debt securities which are valued using benchmark yields, relevant trade data, broker/dealer bid/ask prices, benchmark securities, and credit valuation adjustments. Certain investments, when held, in money market funds are not classified within the fair value hierarchy. The fair value measurements of these funds are based on firm quotes of NAV per share, as a practical expedient for valuation, which are not obtained from a quoted price in an active market.

The classifications of recurring fair value measurements within the fair value hierarchy were:

	December 31, 2022					December 31, 2021				
	Level 1	Level 2	Level 3	NAV	Total	Level 1	Level 2	Level 3	NAV	Total
Assets										
Cash equivalents	\$ —	\$ —	\$ —	\$ 6	\$ 6	\$ —	\$ —	\$ —	\$ 5	\$ 5
Equity securities (a)	508	—	—	429	937	629	—	—	549	1,178
U.S. Government debt securities	272	—	—	—	272	166	—	—	—	166
Municipal debt securities	—	91	—	—	91	—	109	—	—	109
Corporate debt securities	—	114	—	—	114	—	174	—	—	174
Other debt securities	—	—	—	—	—	—	1	—	—	1
Receivables (payables), net (b)					(20)					2
Nuclear decommissioning trust funds	780	205	—	435	1,400	795	284	—	554	1,635
Corporate debt securities	—	—	—	—	—	—	4	—	—	4
U.S. Government debt securities	—	—	—	—	—	1	—	—	—	1
VEBA trust (c)	—	—	—	—	—	1	4	—	—	5
Commodity derivatives	1,807	565	12	—	2,384	1,797	176	10	—	1,983
Interest rate derivatives	—	9	—	—	9	—	—	—	—	—
Total assets	\$ 2,587	\$ 779	\$ 12	\$ 435	\$ 3,793	\$ 2,593	\$ 464	\$ 10	\$ 554	\$ 3,623
Liabilities										
Commodity derivatives (d)	\$ 1,879	\$ 411	\$ —	\$ —	\$ 2,290	\$ 2,101	\$ 330	\$ 16	\$ —	\$ 2,447
Interest rate derivatives	—	—	—	—	—	—	14	—	—	14
Less: amounts presented as "Liabilities subject to compromise"	—	1	—	—	1	—	—	—	—	—
Total liabilities	\$ 1,879	\$ 410	\$ —	\$ —	\$ 2,289	\$ 2,101	\$ 344	\$ 16	\$ —	\$ 2,461

(a) Includes commingled equity and fixed income funds and real estate investment trusts.

(b) Represents: (i) interest and dividends earned but not received; and (ii) net sold or purchased investments, but not settled.

(c) Presented as "Other current assets" on the Consolidated Balance Sheet and relates to Talen Energy Supply's health and welfare "wrap" plan. See Note 21 for additional information.

(d) A portion of these amounts have been presented as "Liabilities subject to compromise" on the Consolidated Balance Sheet. See Note 3 for additional information.

The changes in the net Level 3 commodity derivative assets and liabilities for the years ended December 31 were:

	2022	2021	2020
Asset (liability), net, beginning of the period	\$ (6)	\$ 41	\$ (4)
Gains (losses), net, included in earnings	8	(24)	41
Settlements	10	(23)	4
Asset (liability), net, end of the period	\$ 12	\$ (6)	\$ 41

The significant unobservable inputs used in the fair value measurement of Level 3 commodity derivatives at December 31, 2022 were:

Transaction Type	Valuation Technique	Unobservable Input	Low End Range	High End Range	Weighted Average (a)	Fair Value
Congestion Products	Historical congestion	Forward congestion price	\$(11.18)/MWh	\$77.65/MWh	\$ 1.05	\$ 12

(a) Weighted average is based on notional volumes at December 31, 2022.

The significant unobservable inputs used in the fair value measurement of Level 3 commodity derivatives at December 31, 2021 were:

Transaction Type	Valuation Technique	Unobservable Input	Low End Range	High End Range	Weighted Average (a)	Fair Value
Congestion Products	Historical congestion	Forward congestion price	\$(8.05)/MWh	\$94.08/MWh	\$ 1.77	\$ 10
Heat rate options	Option models	Power volatilities	11%	145%	54%	(16)
		Gas volatilities	3%	57%	13%	
		Power and gas correlation	(5)%	35%	16%	

(a) Weighted average is based on notional volumes at December 31, 2021.

The significant unobservable inputs used in the fair value measurement of Level 3 commodity derivatives at December 31, 2020 were:

Transaction Type	Valuation Technique	Unobservable Input	Low End Range	High End Range	Weighted Average (a)	Fair Value
Congestion Products	Historical congestion	Forward congestion price	\$(6.31)/MWh	\$95.89/MWh	\$ 0.63	\$ 4
Heat rate options	Option models	Power volatilities	7%	158%	43%	37
		Gas volatilities	2%	33%	7%	
		Power and gas correlation	(5)%	35%	10%	

(a) Weighted average is based on notional volumes at December 31, 2020.

The sensitivity of fair value measurements to changes in the significant unobservable inputs at December 31, 2022 and December 31, 2021 were:

Significant Unobservable Input	Position	Change in Input	Fair Value Effect
Forward congestion price	Purchased pathway	Price increase / decrease	Higher / (Lower)
Forward congestion price	Sold pathway	Price increase / decrease	Lower / (Higher)
Power and gas spread volatilities	Sold call option	Spread increase / decrease	Lower / (Higher)
Power and gas correlation	Sold call option	Correlation increase / decrease	Higher / (Lower)

The net gains and losses of Level 3 commodity derivatives for the years ended December 31 were:

	2022	2021	2020
Energy Revenues			
Gains (losses) included in earnings	\$ 8	\$ (24)	\$ 41
Change in unrealized gains (losses) (a)	18	(47)	41
Energy Expenses			
Change in unrealized gains (losses) (a)	—	—	4

(a) Amounts included in earnings for positions still held at the end of each reporting date.

Nonrecurring Fair Value Measurements

See Note 11 for information on the nonrecurring fair value measurement of Cumulus Digital Holdings during the year ended December 31, 2022. There were no nonrecurring fair value measurements related to impairments of long-lived assets for the year ended December 31, 2021.

Reported Fair Value

The carrying value of certain assets and liabilities on the Consolidated Balance Sheets, including "Cash and cash equivalents," "Restricted cash and cash equivalents," "Accounts receivable, net," "Inventory repurchase obligations," "Deferred capacity obligations," and "Accounts payable and other accrued liabilities" approximate fair value.

The fair value measurements of indebtedness are classified as Level 2 within the fair value hierarchy. The fair value of fixed rate debt was estimated primarily utilizing an income approach whereby the future cash flows of the obligations are discounted at the estimated current cost of funding rates, which incorporates the credit risk associated with the obligations. The carrying value of variable rate indebtedness approximates fair value.

The carrying value and fair value of indebtedness presented on the Consolidated Balance Sheets were:

	December 31, 2022		December 31, 2021	
	Carrying Value	Fair Value	Carrying Value	Fair Value
Revolving credit facilities	\$ 848	\$ 848	\$ 848	\$ 848
Other short-term indebtedness (a)	—	—	5	5
Long-term debt (b)	5,062	4,386	3,894	2,995

(a) Presented as "Other current liabilities" on the Consolidated Balance Sheets.

(b) Aggregate value of "Long-term debt" and "Long-term debt, due within one year" presented on the Consolidated Balance Sheets.

21. Postretirement Benefit Obligations

Talen Energy Supply and certain subsidiaries sponsor postemployment benefits which include defined benefit pension plans, health and welfare postretirement plans (other postretirement benefit plans), and defined contribution plans. In May 2022, the Talen Filing Parties filed for protection under Chapter 11 of the Bankruptcy Code. Subsequent to that filing, the Bankruptcy Court approved the continued management and operation of Talen's pension and other postretirement plans during the Talen Bankruptcy.

Pension and Other Postretirement Defined Benefit Plans

Obligations under the defined benefit pension and other postretirement plans are generally based on factors, among others, such as age of the participants, years of service, and compensation. The pension and other postretirement plans are closed to new participants. Effective December 31, 2018, all participants ceased accruing additional benefits in the TERP, the Company's largest defined benefit pension plan.

Funded Status. The net fair value of underfunded defined benefit pension and other postretirement plans are presented as "Postretirement benefit obligations" on the Consolidated Balance Sheets. Certain other postretirement plans were overfunded by \$28 million at December 31, 2022 and 2021 and by \$24 million at December 31, 2020 are presented as "Other noncurrent assets" on the Consolidated Balance Sheets. The current portion of certain unfunded postretirement obligations were not material.

The aggregate funded status and the weighted average assumptions at December 31 were:

	Pension Benefits		
	2022	2021	2020
Change in benefit obligation			
Benefit obligation at January 1	\$ 1,721	\$ 1,853	\$ 1,732
Service cost	4	4	4
Interest cost	50	47	56
Actuarial (gain) loss	(408)	(77)	162
Plan participant contributions	—	—	—
Actual benefits paid	(94)	(106)	(102)
Benefit obligation at December 31	1,273	1,721	1,852
Change in plan assets			
Plan assets fair value at January 1	1,437	1,388	1,305
Actual return on plan assets	(359)	141	184
Employer contributions	10	14	—
Plan participant contributions	—	—	—
Actual benefits paid	(94)	(106)	(102)
Plan assets fair value at December 31	994	1,437	1,387
Funded Status	\$ (279)	\$ (284)	\$ (465)
Accumulated benefit obligation	\$ 1,273	\$ 1,721	\$ 1,852
Aggregate amounts of underfunded plans			
Benefit obligation / Accumulated benefit obligation	1,273	1,721	1,852
Fair value of plan assets	994	1,437	1,387
Amounts recognized in accumulated other comprehensive income			
Net (gain) loss	\$ 239	\$ 247	\$ 450
Prior service cost (credit)	—	—	—
Total accumulated other comprehensive income	\$ 239	\$ 247	\$ 450
Assumptions			
Discount rate	5.41 %	2.97 %	2.61 %
Interest crediting rate	6.00 %	6.00 %	6.00 %
Rate of compensation increase	3.45 %	3.45 %	3.45 %

	Other Postretirement Benefits		
	2022	2021	2020
Change in benefit obligation			
Benefit obligation at January 1	\$ 104	\$ 108	\$ 99
Service cost	2	2	2
Interest cost	3	3	3
Actuarial (gain) loss	(24)	—	11
Plan participant contributions	2	3	2
Actual benefits paid	(10)	(11)	(9)
Benefit obligation at December 31	77	105	108
Change in plan assets			
Plan assets fair value at January 1	99	101	96
Actual return on plan assets	(17)	5	12
Employer contributions	1	1	1
Plan participant contributions	2	3	2
Actual benefits paid	(10)	(11)	(9)
Plan assets fair value at December 31	75	99	102
Funded Status	\$ (2)	\$ (6)	\$ (6)
Accumulated benefit obligation	\$ —	\$ —	\$ —
Aggregate amounts of underfunded plans			
Benefit obligation / Accumulated benefit obligation	51	70	71
Fair value of plan assets	21	36	41
Amounts recognized in accumulated other comprehensive income			
Net (gain) loss	\$ 4	\$ 7	\$ 8
Prior service cost (credit)	(4)	(5)	(6)
Total accumulated other comprehensive income	\$ —	\$ 2	\$ 2
Assumptions			
Discount rate	5.41 %	2.94 %	2.57 %
Interest crediting rate			
Rate of compensation increase	2.31 %	2.31 %	2.31 %

In 2022, the decrease in postretirement benefit obligations was primarily attributable to increasing interest rates, offset by actual returns being less than expected returns on plan assets. In 2021, the decrease in postretirement benefit obligations was primarily attributable to increasing interest rates, combined with actual returns in excess of expected returns on plan assets. In 2020, the increase in the postretirement benefit obligations was primarily attributable to decreasing interest rates, offset by actual returns in excess of expected returns on plan assets.

Net Periodic Benefit Cost and amounts recognized in OCI. Service cost is presented as "Postretirement benefits service cost", while the other components of net periodic defined benefit cost (credit) for pension and other postretirement plans are presented as "Postretirement benefits gain (loss), net" on the Consolidated Statements of Operations. The portion of net periodic benefit cost capitalized during the years ended December 31, 2022 and 2021 was not material.

The components of net periodic benefit cost (credit), the amounts recognized in OCI and the associated weighted average assumptions for pension and other postretirement plans for the years ended and at December 31 were:

	Pension Benefits		Other Postretirement Benefits	
	2022	2021	2022	2021
Net periodic benefit costs (credits):				
Service cost	\$ 4	\$ 4	\$ 1	\$ 2
Interest cost	50	47	3	3
Expected return on plan assets	(68)	(67)	(4)	(4)
Amortization of prior service cost (credit)	—	—	(1)	(1)
Amortization of net (gain) loss	27	52	—	—
Net periodic defined benefit cost (credit)	13	36	—	—
Net actuarial (gain) loss	19	(151)	(3)	—
Reclassifications due to settlement and (or) curtailment:				
Amortization of prior service cost (credit)	—	—	1	1
Amortization of net (gain) loss	(27)	(52)	(1)	—
Total recognized in OCI	(8)	(203)	(3)	1
Total recognized in net periodic costs and OCI	\$ 5	\$ (167)	\$ (3)	\$ 1
Assumptions				
Discount rate	2.97 %	2.61 %	2.94 %	2.57 %
Rate of compensation increase	3.45 %	2.96 %	2.31 %	2.61 %
Expected return on plan assets	5.75 %	5.75 %	3.89 %	3.89 %
Health care grading trend rates (a)	—	—	5.60% to 4.50%	6.75% to 4.93%

(a) Trend rates grading to 2027.

The expected long-term rates of return for pension and other postretirement plans are based on management's projections using a best-estimate of expected returns, volatilities and correlations for each asset class. Each plan's specific current and expected asset allocations are also considered in developing a reasonable return assumption.

Contributions and Payments. The American Rescue Plan Act was enacted in March 2021 and provides pension plan funding relief for sponsoring employers. In the second quarter 2021, Talen Energy Supply made certain elections available under The American Rescue Plan Act with respect to its largest defined benefit pension plan that includes relief provisions for minimum defined benefit pension contributions. Accordingly, there were no minimum required contributions for any of our sponsored pension plans in 2022 and 2021. Talen Montana contributed \$10 million and \$13 million of discretionary contributions in 2022 and 2021 to the Talen Montana pension plan.

There are no expected minimum required contributions for any of our sponsored pension plans in 2022. Talen Montana expects to contribute approximately \$6 million of discretionary contributions in 2023.

The aggregate benefits paid to pension and other postretirement plan participants was \$104 million in 2022 and \$117 million in 2021.

The forecasted undiscounted benefit payments to plan participants at December 31, 2022 were:

	2023	2024	2025	2026	2027	2027-2031
Pension plans	\$ 98	\$ 92	\$ 93	\$ 93	\$ 93	\$ 458
Other postretirement plans	7	7	7	6	6	27

Pension plan assets. Pension plan assets are invested in external trusts, including a master trust, which includes a 401(h) account that is restricted for certain other postretirement benefit obligations of Talen Energy Supply. The plans' investment policies outline investment objectives.

The risk management framework categorizes the plan assets within three sub-portfolios: growth, immunizing and liquidity. The trust investments within these portfolios are routinely monitored to seek a risk-adjusted return on a mix of assets that, in combination with our funding policy, will provide sufficient assets to provide long-term growth and liquidity for benefit payments, match asset duration with the expected liability duration, and mitigate concentrations of risk with asset diversification.

The weighted-average target asset allocations for the pension plan assets at December 31 were:

	2022
Equity securities	31 %
Debt securities	10 %
Other	6 %
Growth portfolio	47 %
Debt securities	38 %
Other	11 %
Immunizing portfolio	49 %
Liquidity portfolio	4 %
Total	100 %

The classification of pension plan asset fair value measurements within the fair value hierarchy were:

	December 31, 2022					December 31, 2021				
	Level 1	Level 2	Level 3	NAV	Total	Level 1	Level 2	Level 3	NAV	Total
Cash equivalents	\$ —	\$ —	\$ —	\$ 102	\$ 102	\$ —	\$ —	\$ —	\$ 139	\$ 139
Equity securities	—	—	—	—	—	—	—	—	509	509
Commingled debt securities	—	—	—	689	689	—	—	—	455	455
Alternative and other investments	1	—	—	188	189	4	—	—	254	258
Receivables (payables), net (a)	—	—	—	—	22	—	—	—	—	95
Total trust funds	1	—	—	979	1,002	4	—	—	1,357	1,456
Restricted 401(h) assets (b)	—	—	—	—	(8)	—	—	—	—	(19)
Total plan assets	\$ 1	\$ —	\$ —	\$ 979	\$ 994	\$ 4	\$ —	\$ —	\$ 1,357	\$ 1,437

(a) Represents (i) interest and dividends earned but not received and (ii) net sold or purchased investments, but not settled.

(b) Other postretirement 401(h) benefits assets are a component of the pension plan master trust. Accordingly, these are excluded from pension plan assets.

Level 1 investments consist of U.S. Treasury and (or) U.S. government debt securities and exchange-traded futures contracts, which are valued using unadjusted prices available from the underlying market.

Certain investments in cash equivalent funds, commingled equity funds, commingled debt securities, and alternative investments are not classified within the fair value hierarchy. The fair value measurement of these funds is based on firm quotes of NAV per share, as a practical expedient for valuation, which are not obtained from a quoted price in an active market.

Investments in cash equivalent funds consist of short-term investment funds and commingled cash equivalent funds. Investments in equity funds consist of large and small cap U.S. and international funds that can be redeemed daily. Investments in commingled debt funds consist of funds that invest in investment-grade intermediate and long-duration corporate and government fixed-income securities. These investments can be redeemed daily.

Alternative and other investments consist of investments in funds that invest in a portfolio of exchange-traded futures and forward contracts, hedge funds of funds that employ investment strategies including long/short equity, market neutral, distressed debt, and relative value, private equity partnerships, with limited lives ranging from ten to fifteen years, and real estate investment partnerships. Investments in real estate partnerships have redemption limitations based on available funding and investments in private equity partnerships that cannot be redeemed with the partnership prior to the end of the partnerships' lives, however, the interest may be sold to other parties. Redemptions of hedge funds, private equity, and real estate partnerships are also subject to the respective general partner's approval.

Other postretirement benefit plan assets. The investment strategy with respect to most of the other postretirement benefit obligations is to fund VEBA or similar trusts and (or) 401(h) accounts with voluntary contributions, when appropriate, and to invest in a tax efficient manner. Excluding the 401(h) accounts included in the master trust, other postretirement benefit plans are invested in a mix of assets for long-term growth with an objective of earning returns that provide liquidity as required for benefit payments. These plans benefit from diversification of asset types, investment fund strategies and investment fund managers, and therefore, have no significant concentration of risk. Equity securities include investments in domestic large-cap commingled funds. Ownership interests in commingled funds that invest entirely in debt securities are classified as equity securities but treated as debt securities for asset allocation and target allocation purposes. Ownership interests in money market funds are treated as cash and cash equivalents for asset allocation and target allocation purposes.

The target asset allocations for other postretirement benefit assets at December 31 were:

	2022
Cash and cash equivalents	6 %
Equity securities	12 %
Debt securities	82 %
Total	100 %

The classification of other postretirement benefit plan asset fair value measurements within the fair value hierarchy were:

	December 31, 2022					December 31, 2021				
	Level 1	Level 2	Level 3	NAV	Total	Level 1	Level 2	Level 3	NAV	Total
Cash equivalents	\$ —	\$ —	\$ —	\$ 7	\$ 7	\$ —	\$ —	\$ —	\$ 4	\$ 4
Equity securities	—	—	—	7	7	—	—	—	9	9
U.S. Government debt securities	6	—	—	—	6	5	—	—	—	5
Corporate debt securities	—	17	—	—	17	—	19	—	—	19
Commingled debt securities	—	—	—	31	31	—	—	—	43	43
Total trust funds	6	17	—	45	68	5	19	—	56	80
Restricted 401(h) assets (a)					7					19
Total plan assets	\$ 6	\$ 17	\$ —	\$ 45	\$ 75	\$ 5	\$ 19	\$ —	\$ 56	\$ 99

(a) Other postretirement 401(h) benefits assets are a component of the pension plan master trust. Accordingly, these are reported as postretirement assets.

Level 1 investments consist of U.S. Treasury and (or) U.S. government debt securities, which are valued using unadjusted prices available from the underlying market.

Level 2 investments consist of corporate debt securities, which are valued using observable inputs such as benchmark yields, relevant trade data, broker/dealer bid/ask prices, benchmark securities, and credit valuation adjustments.

Certain investments in money market funds, commingled equity funds, and commingled debt securities are not classified within the fair value hierarchy. The fair value measurements of these funds are based on firm quotes of NAV per share, as a practical expedient for valuation, which are not obtained from a quoted price in an active market.

Investments in equity securities consist of investments in a passively managed equity index fund that invests in securities and a combination of other collective funds. Investments in debt securities represent investments in funds that invest in a diversified portfolio of investment grade fixed income securities.

Defined Contribution Plans

Substantially all Company employees are eligible to participate in 401(k) deferred savings plans. Employer contributions to the plans were \$18 million in 2022 and 2021.

Coal Industry Retiree Benefit Plans

Talen is obligated under the Coal Act and the Black Lung Act to pay for certain health care and black lung benefits of retired miners and allowable beneficiaries. These obligations are funded from medical VEBAs and a black lung trust.

The funded status of each plan at December 31, 2022 were:

	Trust Asset Fair Value	Obligation Fair Value	Funded Status
Benefit Plan for UMWA Represented Retirees of Pennsylvania Mines, LLC	\$ 28	\$ 20	\$ 8
Coal Worker's Pneumoconiosis (Black Lung) Benefit Plan	13	7	6

Shortfalls in funded status of the plans are assessed as contingent liabilities. As the fair value of VEBA and black lung trust assets exceed the plan obligations, both VEBA and black lung trust assets and the plan obligations are not reported on the Talen Consolidated Balance Sheets. See "Postretirement Benefit Obligations" in Note 2 for additional information.

In January 2020, the Benefit Plan for UMWA Represented Retirees of Pennsylvania Mines, LLC was merged with and into Talen's health and welfare "wrap" plan, under which Talen provides a variety of health and welfare benefits to employees and other eligible participants pursuant to a single ERISA administrative framework. Excess assets from the PA Mines UMWA Plan VEBA were transferred to a separate VEBA which provides benefits for participants in Talen's health and welfare wrap plan in the amount of \$15 million for the year ended December 31, 2021. As such assets were not presented on the Consolidated Balance Sheets prior to the transfer of the assets from the PA Mines UMWA Plan VEBA, Talen recognized gains for the amounts transferred in their respective periods, which are presented as "Other non-operating income (expense), net" on the Consolidated Statements of Operation.

22. Accumulated Other Comprehensive Income

The total changes in AOCI for the years ended December 31 were:

	2022	2021	2020
Beginning balance	\$ (152)	\$ (294)	\$ (279)
Gains (losses) arising during the period	(84)	138	(9)
Reclassifications to Consolidated Statements of Operations	59	53	(11)
Income tax benefit (expense)	10	(49)	5
Other comprehensive income (loss)	(15)	142	(15)
Accumulated other comprehensive income	\$ (167)	\$ (152)	\$ (294)

The components of AOCI, net of tax, at December 31 were:

	2022	2021	2020
Available-for-sale securities unrealized gain (loss), net	\$ (16)	\$ 4	\$ 10
Qualifying derivatives unrealized gain (loss), net	9	11	13
Postretirement benefit prior service credits (costs), net	7	6	5
Postretirement benefit actuarial gain (loss), net	(167)	(173)	(322)
Accumulated other comprehensive income	\$ (167)	\$ (152)	\$ (294)

The locations of pre-tax gains (losses) reclassified from AOCI and included on the Consolidated Statements of Operations for the years ended December 31 were:

Location of gain (loss)	2022	2021	2020
Nuclear decommissioning trust funds gain (loss), net (a)	\$ (33)	\$ (2)	\$ 36
Depreciation, amortization and accretion (b)	2	2	3
Impairments (b)	—	—	9
Postretirement benefit gain (loss), net (c)	(28)	(53)	(37)
Total	\$ (59)	\$ (53)	\$ 11

(a) Available-for-sale securities unrealized gain (loss), net

(b) Qualifying derivatives unrealized gain (loss)

(c) Postretirement benefit prior service credits (costs), net and Postretirement benefit actuarial gain (loss), net

The postretirement obligations components of AOCI are not presented in their entirety on the statement of operations during the periods; rather, they are included in the computation of net periodic defined benefit costs (credits). See Note 21 for additional information.

23. Supplemental Cash Flow Information

Supplemental information for the Consolidated Statements of Cash Flows for the years ended December 31:

	2022	2021	2020
Cash paid (received) during the period			
Interest and other finance charges, net of capitalized interest (\$12 million in 2022 and \$4 million in 2021)	\$ 277	\$ 316	\$ 303
Income taxes, net	14	20	21
Non-cash investing and operating activities			
Capital expenditure accrual increase (decrease)	\$ 2	\$ (2)	\$ 2
Accounts receivable contributed to equity method investment (a)	2	6	18
Non-cash preferred equity method investment contribution and accounts payable accrual (b)	—	5	—
Depreciation, amortization and accretion included on the Statements of Operations:			
Depreciation, amortization and accretion	\$ 520	\$ 524	\$ 452
Amortization of deferred finance costs and original issuance discounts (interest expense) (b)	29	31	17
Total	\$ 549	\$ 555	\$ 469
Non-cash financing/investing activities			
Non-cash hypothetical liquidation at book value contribution to equity and noncurrent assets	\$ —	\$ 11	\$ —
Non-cash increase to PPE and decrease to other current assets for transfer of miners by Cumulus Coin (c)	30	—	—
Non-cash increase to PPE and increase to noncontrolling interest for transfer of miners by TeraWulf (c)	14	—	—
Unrealized (gain) loss on derivatives:			
Commodity contracts	\$ (625)	\$ 712	\$ 34
Interest rate swap contracts	(23)	(28)	35
Total	\$ (648)	\$ 684	\$ 69
Operating Activities Reconciliation Adjustments, Other:			
Net periodic defined benefit cost	\$ 12	\$ 36	\$ 31
Derivative option premium amortization	67	(176)	23
Non-cash environmental liability revisions	13	—	—
Non-cash "construction work in progress" capital project cancellations	—	—	23
Non-cash ARO revisions	—	(3)	(7)
Nonrecourse PIK interest	(1)	—	11
Derivatives with financing elements	104	—	—
Debt restructuring (gain) loss, net	6	2	3
Other	(1)	(9)	10
Total	\$ 200	\$ (150)	\$ 94

(a) See Note 11 for information on equity method investments.

(b) Includes previously recognized fair value adjustments on certain exchanges of indebtedness.

(c) In 2022, the joint venture partners of Nautilus each made a non-cash contribution of cryptocurrency miners that increased PPE.

Other Non-cash Matters

In September 2021, Talen Energy Supply deconsolidated the assets and liabilities of Cumulus Coin Holdings, including its equity method investment in Nautilus, which resulted in the following non-cash change to Talen Energy Supply's Consolidated Balance Sheet at September 30, 2021:

	Increase (Decrease)
Other noncurrent assets	\$ (29)
Other noncurrent liabilities	(29)

In September 2021, Talen deconsolidated Cumulus Data which resulted in the following non-cash change to Talen Energy Supply's Consolidated Balance Sheet at September 30, 2021:

	Increase (Decrease)
Property, plant and equipment	\$ (31)
Other noncurrent assets	23
Accounts payable and accrued liabilities	(8)

In September 2022, as a result of the Cumulus Digital Equity Conversion, Talen Energy Supply consolidated Cumulus Digital Holdings, which included restricted cash. See Note 12 for additional information on the Cumulus Term Sheet and consolidation of Cumulus Digital Holdings, which included certain non-cash impacts.

Cash and Restricted Cash

The following provides a reconciliation of "Cash and cash equivalents" and "Restricted cash and cash equivalents" presented on the Consolidated Statements of Cash Flows to line items within the Consolidated Balance Sheets:

	December 31, 2022	December 31, 2021
Cash and cash equivalents	\$ 724	\$ 276
Restricted cash and cash equivalents:		
Commodity exchange margin and other collateral deposits	174	442
Cumulus Digital Holdings debt restricted deposits	49	—
Nautilus project restricted deposits	19	—
LMBE-MC major maintenance reserve deposits	7	15
LMBE-MC debt service reserve deposits	7	10
TEC Global Settlement deposits	7	—
Other	1	—
Restricted cash and cash equivalents	264	467
Total	\$ 988	\$ 743

24. Related Party Transactions

Talen historically has incurred and paid customary management fees for services provided by Riverstone and its affiliates and reimbursed Riverstone for certain costs. In November 2021, Riverstone agreed to suspend Talen's payment obligations for these management fees. In the third quarter 2022, Talen adjusted amounts previously accrued for these fees. The aggregate fees incurred for services and reimbursements for the years ended December 31 were:

	2022	2021
Riverstone Holdings, LLC management fees (a) (c)	\$ —	\$ 1
Riverstone Holdings, LLC litigation fees (a) (b) (c)	(5)	6

(a) Presented as "General and administrative" on the Consolidated Statements of Operations.

(b) At December 31, 2021, \$5 million was presented as "Accounts payable and other accrued liabilities" on the Consolidated Balance Sheets.

(c) Includes adjustments recognized in September 2022. See below for additional information.

In recent years, Talen Energy Supply has paid certain expenses and liabilities incurred by Talen Energy Corporation. Accordingly, at December 31, 2022 and 2021, Talen Energy Supply presented \$2 million due from Talen Energy Corporation as "Accounts receivable, net" presented on the Consolidated Balance Sheets.

Pursuant to the TEC Global Settlement: (i) upon confirmation of the Plan of Reorganization in December 2022, Talen Energy Supply paid \$8 million in fees and expenses of Talen Energy Corporation's professional advisors; (ii) deposited \$7 million in a custodial account presented as "Restricted cash" on the Consolidated Balance Sheet which will be used to pay fees and expenses of Talen Energy Corporation's advisors when due at future dates; (iii) all other unpaid management fees and expenses owed to Riverstone will be forfeited by Riverstone upon the Plan of Reorganization Effective Date; and (iv) amounts owed by Talen Energy Corporation to Talen Energy Supply will either be waived or reinstated, at the option of New Parent, upon the Plan of Reorganization Effective Date.

During the year ended December 31, 2022, as a result of the TEC Global Settlement and UCC Settlement, Talen: (i) reversed prior amounts accrued due to Riverstone for unpaid management fees and expenses totaling \$5 million (to "General and administrative"); and (ii) recognized expense totaling \$8 million (to "Reorganization gain (loss)"), for certain fees and expenses incurred by Talen Energy Corporation which have been reimbursed by Talen Energy Supply pursuant to the TEC Global Settlement.

See Note 3 for information on the TEC Global Settlement and the UCC Settlement.

During 2022 and 2021, Talen engaged parties related to two employees in management positions, both under two separate independent contractor agreements for office maintenance and IT services. During the years ended December 31, 2022 and 2021, Talen paid approximately \$88 thousand and \$140 thousand under these agreements. Talen terminated the contracts with these independent contractors in July 2022 as their services are no longer required.

See Notes 12 for information on a related party transaction whereby Riverstone sold a portion of its common equity in Cumulus Digital Holdings to one current and one former member of the Talen management team.

See Notes 11 and 12 for additional information on other related party transactions.

25. Acquisitions and Divestitures

Potential Acquisition

Talen Montana Colstrip Units 3 and 4 Transaction. In September 2022, Talen Montana entered into a definitive agreement under which Puget Sound Energy, Inc. will transfer its 25% share of Colstrip Units 3 and 4 to Talen Montana for nominal consideration. As part of the transaction, Puget Sound Energy, Inc. will retain certain liabilities attributable to pre-closing operations, including environmental remediation and decommissioning costs. Until the closing of the transaction, Talen Montana is entitled to increased voting rights (via Puget's voting rights) regarding certain decisions relating to Colstrip Units 3 and 4. The agreement is subject to customary closing conditions. In addition, the co-owners of Colstrip Units 3 and 4 have certain rights of first refusal which may entitle them to acquire a portion of the interest being transferred by Puget Sound Energy, Inc. The anticipated closing date of the transaction is December 31, 2025. Talen also enjoys a right of first refusal on any other changes in ownership in Colstrip Units 3 and 4.

Talen Montana owns 30% of Colstrip Unit 3 and does not own any portion of Colstrip Unit 4. However, it is a participant in agreements regarding the ownership and operation of Colstrip Units 3 and 4, whereby Talen Montana is responsible for 15% of the total operating costs and expenditures of Colstrip Unit 3 and 15% of Colstrip Unit 4. Accordingly, it is entitled to 15% of the available generation from each of these units. Following the consummation of the transaction, assuming no co-owner exercises right of first refusal, Talen Montana will own a 55% share of Colstrip Unit 3 and a 25% share of Colstrip Unit 4 and continue to be the sole operator of both Colstrip Units 3 and 4.

Completed Acquisition

Conemaugh Generation Facility Additional Interest. In July 2020, Talen subsidiaries executed an agreement to purchase another co-owner's 5.97% undivided interest in Conemaugh and its 5.97% membership interest in Conemaugh Fuels for a non-material amount of cash consideration. The purchase was completed in September 2020. After completion of the transaction, Talen owns a 22.22% interest in both Conemaugh and Conemaugh Fuels. Additionally, Talen recognized a \$162 million non-cash impairment charge for the year ended December 31, 2021 on the aggregate carrying value of the Keystone and Conemaugh asset group's property, plant, and equipment. See Note 14 for additional information on the impairment.

Potential Divestiture

Western Gas Book Divestiture. In March 2023, Talen executed an agreement to sell certain contracts relating to transportation of natural gas in the southwestern United States for approximately \$15 million. The transaction is subject to approval by the Bankruptcy Court. Talen expects to recognize a gain on the transaction that approximates the sales price when the transaction settles, which is expected to occur in April 2023.

Completed Divestitures

Pennsylvania Minerals Divestiture. In March 2023, Talen sold certain mineral interests located in Pennsylvania for \$29 million, while preserving the right to certain royalty payments from existing and future producing natural gas wells. Talen expects to recognize a gain on the transaction that approximates the sales price in the first quarter 2023.

IEC Pipeline. In January 2020, Talen consummated a sale of 100% of its equity interests in IEC and received \$153 million of cash proceeds, net of transaction costs, which were used to repay a portion of Talen Energy Supply recourse indebtedness. Talen separately received \$10 million in initial cash consideration in the fourth quarter 2017 contemporaneously with the execution of the IEC purchase and sale agreement. Upon completion of the sale, the purchaser of IEC began to provide firm transportation for natural gas to the Martins Creek and Lower Mount Bethel generation facilities.

During the year ended December 31, 2020, the \$144 million gain on IEC sale was presented as "Other operating income (expense), net" presented on the Consolidated Statement of Operations.

Other

The September 2022 Cumulus Digital Holdings and Nautilus August 2022 consolidations were accounted for as business combinations. See Note 12 for additional information.

26. Subsequent Events

Talen Energy Supply evaluated subsequent events through April 3, 2023, the date the financial statements are available to be issued; all significant subsequent events are included in their respective notes to the financial statements.

TALEN ENERGY SUPPLY, LLC AND SUBSIDIARIES MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS (UNAUDITED)

The following Management's Discussion and Analysis of Financial Condition and Results of Operations should be read in conjunction with the Consolidated Financial Statements and the accompanying notes to the Consolidated Financial Statements. In addition, the following contains forward-looking statements, which involve risks and uncertainties. See Forward-Looking Statements and Significant Business Risks for additional information on forward-looking statements. Capitalized terms and abbreviations are defined in the glossary. Dollars are in millions, unless otherwise noted.

Overview

Talen owns, operates and optimizes high-quality power infrastructure in North America. As of December 31, 2022, our generation capacity was 12,436 MW (summer rating). We produce and sell electricity, capacity and ancillary services into wholesale power markets in the United States primarily PJM and ERCOT. Our generation fleet, which includes zero-carbon generation facilities, is principally located in the Mid-Atlantic region of the United States, Texas and Montana and has significant fuel diversity with certain facilities capable of utilizing multiple fuel sources. See "Organizational Structure" and "Generation Fleet" for a schedule of our generation portfolio at December 31, 2022.

The Company is also engaged in the decarbonization of approximately 3,238 MW of its existing coal assets, developing its pipeline of 1,450 MW of renewable energy and 865 MW of battery storage projects, and developing and operating digital infrastructure projects adjacent to its generation.

Most notably, adjacent to Susquehanna, Talen, through Cumulus Data, is developing a data center campus capable of supporting 950 MWs of digital capacity with the first 48 MW data center building expected to be available for tenants in the second half 2023. The entire data center campus utilizes zero-carbon power produced by the Susquehanna nuclear generation facility.

We employ a risk management strategy, through physical and financial commodity transactions, that economically hedges our margin and provides increased cash flow stability across our business.

We are helping advance the transition of the electric power industry to a more sustainable future committing to cease burning coal at our wholly owned generating facilities and, where economical, converting those facilities to alternative fuels, developing a pipeline of renewable energy and battery storage projects at or near our existing generation facilities and, through our Cumulus Digital subsidiary, developing a hyperscale data center adjacent to our Susquehanna nuclear generation facility which will utilize zero-carbon power provided directly from the plant.

Talen Bankruptcy

In recent years, the competitive power industry in the markets in which we operate was challenged with depressed wholesale natural gas and power prices. However, in mid-2021, however, changes in market conditions provided for an environment of rapid and sustained increases to wholesale natural gas and power prices. While these market conditions provided for the opportunity to earn higher commodity margin associated with electric generation in future delivery months, it also resulted in increases of mark-to-market losses on hedges for corresponding future delivery periods. As a result, our commercial counterparties and commodity exchanges that were party to certain hedge transactions required elevated levels of collateral for mark-to-market losses. As we are required to collateralize hedges that settle in future delivery periods, but do not receive settlements for electric generation until delivery, this resulted in lower available cash and liquidity.

In May 2022, Talen Energy Supply commenced reorganization under chapter 11 of the Bankruptcy Code. In connection with the chapter 11 filing, we entered into the Talen DIP Credit Agreements to provide liquidity to fund our operations during the restructuring process.

In December 2022, the Bankruptcy Court approved our Plan of Reorganization. Among other things, the Plan of Reorganization requires: (i) regulatory approvals from FERC and NRC and expiration of the applicable waiting period under the HSR Act; and (ii) execution of "exit" financing to support operations in the post-bankruptcy periods. FERC and NRC approvals were received in March 2023. The "exit" financing under the Plan of Reorganization includes:

- the Rights Offering, which will infuse up to \$1.55 billion of new equity capital (which is backstopped by various leading financial institutions that hold approximately \$1.1 billion of Talen Energy Supply's existing unsecured notes) and participants therein will become the new owners of Talen Energy Corporation;
- a revolving credit facility; and
- one or more term loan facilities.

Talen expects to use cash on hand and the proceeds from these financings to fund the cash requirements related to bankruptcy claims and working capital upon emergence from bankruptcy. However, there is no assurance that Talen will enter into these or different financings in connection with emergence from bankruptcy.

While we expect to be in a position to exit bankruptcy in the second quarter of 2023, no assurance can be provided that we will be successful in doing so. Upon emergence from Chapter 11 pursuant to the Plan of Reorganization consummation of "exit" financings, we will have achieved a significant reduction in debt and interest, provided for full repayment of Talen Energy Supply's first lien funded debt outstanding at the commencement of the Chapter 11 case, and the consensual equitization of all of Talen Energy Supply's existing unsecured notes outstanding at the commencement of the Chapter 11 case.

Talen will adopt “fresh start” accounting beginning with the fiscal quarter during which we emerge from bankruptcy, expected to be in the second quarter of 2023. Pursuant to “fresh start” accounting, our assets and liabilities will be remeasured at fair value as of the fresh start reporting date, which will affect our financial statements for the quarter we emerge from bankruptcy and future periods and may cause them not to be comparable to our financial statements for prior periods.

The following sections in Notes to the Consolidated Financial Statements should be read contemporaneously with information regarding various bankruptcy topics:

- See Note 1, Organization and Operations, or additional information on the factors that led to the Talen Bankruptcy.
- See Note 3, Talen Bankruptcy, for additional information on: (i) the Talen Bankruptcy; (ii) the Talen RSA; (iii) the Backstop Commitment Letter; (iv) the Plan of Reorganization; (v) various settlement agreements; (vi) Accelerated Indebtedness; (vii) Liabilities subject to compromise; (viii) claims processing; and (ix) Reorganization expenses.
- See (i) Note 3, Talen Bankruptcy; (ii) Note 17, Revolving Credit Facilities and Other Facilities; and (iii) Note 18, Long-Term Debt for additional information on the Talen DIP Credit Agreements.
- See Note 4, Risk Management, Derivative Instruments and Hedging Activities, for additional information on contract terminations that occurred in connection with the Talen Bankruptcy.

Factors Affecting Talen’s Financial Position and Results of Operations

Market Conditions

Our revenue consists primarily of capacity revenues, energy revenues and unrealized gain (loss) on derivative instruments. See “Results of Operations” for a description of these sources of revenues. Each of these sources of revenue are affected by the following in the markets in which we operate.

Commodity Markets. During 2022, primarily due to higher natural-gas prices, PJM, ERCOT, and WECC wholesale settled power prices continued to improve from the rapid increase in power prices experienced during the third and fourth quarters of 2021. The increase in natural gas prices was due to demand for natural gas-fired power generation and strong global fuel market fundamentals. As a result, in PJM and WECC, the 2022 calendar-year average wholesale settled power prices reached 20-year highs. ERCOT 2022 calendar year average wholesale settled power prices reached the second highest level since ERCOT nodal market inception.

PJM. The average settled market prices for each of the last three years ended December 31 were:

	2022	2021	2020
PJM West Hub Day Ahead Peak - \$/MWh	\$ 83.59	\$ 45.55	\$ 24.55
PJM PL Zone Day Ahead Peak - \$/MWh	76.06	40.30	20.50
PJM BGE Zone Day Ahead Peak - \$/MWh	95.45	51.43	27.90
Texas Eastern M-3 - \$/MMBtu	6.80	3.40	1.59

The average January and February forward market prices as of December 31, 2022 and 2021 were:

	December 31, 2022	December 31, 2021
2023 PJM West Hub Day Ahead Peak - \$/MWh	\$ 91.99	\$ 62.12
2024 PJM West Hub Day Ahead Peak - \$/MWh	108.57	59.79
2023 Texas Eastern M-3 - \$/MMBtu	11.62	7.28
2024 Texas Eastern M-3 - \$/MMBtu	12.40	6.31

The 2022 calendar year average PJM West Hub Day Ahead on-peak power prices settled at the highest level in the past 20 years, primarily due to Texas Eastern M-3 settled natural gas prices reaching 10-year highs resulting from strong global natural gas demand along with other fundamental factors. As of December 31, 2022, the PJM West Hub 2023 January and February average on-peak forward prices increased by approximately 48% since December 31, 2021 while the 2024 January and February average on-peak forward prices increased by approximately 82% since December 31, 2021.

ERCOT. The average settled market prices for each of the last three years ended December 31 were:

	2022	2021	2020
ERCOT South Hub Day Ahead Peak - \$/MWh	\$ 74.92	\$ 178.33	\$ 26.87
ERCOT South Hub Day Ahead Spark Spreads - \$/MWh(a)	34.16	124.70	12.98
Houston Ship Channel - \$/MMBtu	5.81	7.59	1.99

(a) Spark Spreads are computed based on a heat rate of 7 MMBtu/MWh.

The 2021 average settled prices in the preceding table include the effects of Winter Storm Uri. Excluding the effects of Winter Storm Uri: (i) ERCOT South Hub Day Ahead Peak settled at \$40.90/MWh, ERCOT South HUB Day Ahead Spark Spreads settled at \$3.62/MWh, and Houston Ship Channel settled at \$15.63/MMBtu.

The average July and August forward market prices as of December 31, 2022 and 2021 were:

	December 31, 2022	December 31, 2021
2023 ERCOT South Hub Real Time Spark Spreads - \$/MWh (a)	\$ 74.21	\$ 44.75
2024 ERCOT South Hub Real Time Spark Spreads - \$/MWh (a)	53.28	31.92

(a) Spark Spreads are computed based on a heat rate of 7 MMBtu/MWh.

The 2022 calendar year average ERCOT South Hub Day Ahead Spark Spreads settled at the third highest level since the ERCOT nodal market inception in 2010 resulting from: (i) hotter summer weather across Texas that resulted in record high peak loads during July and the second highest calendar year average ERCOT South Hub Day Ahead on-peak power prices since 2019; and (ii) the second highest calendar year average Houston Ship Channel natural gas prices since 2010 due to strong global fuel market fundamentals.

During 2021, more than 8,000 MW of renewable generation capacity completed the interconnection process and began commercial operations and during 2022, over 4,000 MW of renewable generation capacity completed the interconnection process and began commercial operations, resulting in approximately 18% more renewable generation year over year.

As of December 31, 2022, the ERCOT South Hub 2023 January and February average on-peak forward prices increased by approximately 66% since December 31, 2021 while the 2024 January and February average on-peak forward prices increased by approximately 67% since December 31, 2021.

WECC. The average settled market prices for each of the last three years ended December 31 were:

	2022	2021	2020
Mid-Columbia Day Ahead Peak - \$/MWh	\$ 93.01	\$ 58.38	\$ 24.54
Sumas - \$/MMBtu	8.12	3.96	2.14

The average first quarter forward market prices as of December 31, 2022 and 2021 were:

	December 31, 2022	December 31, 2021
2023 Mid-Columbia Day Ahead Peak - \$/MWh	\$ 172.81	\$ 57.88
2024 Mid-Columbia Day Ahead Peak - \$/MWh	119.14	50.49

The 2022 calendar year average Mid-Columbia day ahead on-peak power prices settled at the highest level in the past 20 years due to record high peak loads and high natural gas prices. At December 31, 2022, the Mid-Columbia 2023-2024 first quarter average on-peak forward prices increased by approximately 169% since December 31, 2021.

Capacity Market

Approximately 84% of our generation capacity is located in markets with capacity products, which ensure long-term grid reliability for customers by securing sufficient power supply resources to meet predicted future demand. Capacity prices are affected by supply and demand fundamentals, such as generation facility additions and retirements, capacity imports from and exports to adjacent markets, generation facility retrofit costs, non-performance risk premium penalties, demand response products, ISO demand forecasts and reserve margin targets, as well as adjustments to Market Seller Offer Caps (the maximum price at which certain units can bid into the market) as determined by the IMM and/or PJM.

PJM Capacity Auctions. Under the RPM, PJM conducts a series of capacity auctions. Most capacity is procured in the auctions conducted each May for the delivery of generation capacity for the PJM Capacity Year, which is three years from the date of the auction. Capacity auctions have recently been delayed, resulting in the auctions being held with less than 3 years between the auctions and the PJM Capacity Year. The capacity market construct provides generation owners the opportunity for some revenue visibility on a multiyear basis. The results of each of these auctions impacts Talen's capacity revenues in the specific PJM Capacity Year.

The 2023/2024 PJM Capacity Year auction was completed in June 2022 and the 2024/2025 PJM Capacity Year auction was completed in December 2022. PJM filed a request with FERC in December 2022 to revise its tariff to enable it to adjust the auction rules to correct the anomaly that occurred in the DPL-South LDA and to make adjustments to auction outcomes if similar issues arise in future auctions. PJM delayed the release of the 2024/25 auction results until February 2023 due to this anomaly. PJM's proposed tariff revisions were protested by various parties, but on February 21, 2023, FERC approved PJM's filing. On February 27, 2023, PJM released the 2024/25 auction results.

Future auctions are scheduled to occur as follows: 2025/2026 PJM Capacity Year in June 2023 and 2026/2027 PJM Capacity Year in November 2023. In 2023, PJM announced it is making a filing with FERC to propose changes to the capacity market, as well as filing to delay the 2025/2026 PJM Capacity Year auction as well as certain subsequent auctions. Certain parties have filed appeals of certain FERC orders regarding the PJM capacity auction rules.

See "Capacity Prices" below for additional information on capacity prices and see Note 16 in Notes to the Consolidated Financial Statements for additional information on the PJM Capacity Market and other PJM matters.

See "Environmental and Regulatory - Regulatory Developments" below for information related to PJM capacity auction-related regulatory actions.

Capacity Prices. The following table displays the PJM Base Residual Auction's cleared capacity prices for the markets and zones in which we primarily operate and the ISO-NE Forward Capacity Market auction's clearing price for the zone in which we operate:

	2020/2021	2021/2022	2022/2023	2023/2024	2024/2025
PJM Capacity Performance (\$/MW-day) (a)					
MAAC	\$ 86.04	\$ 140.00	\$ 95.79	\$ 49.49	\$ 49.49
PPL	86.04	140.00	95.79	49.49	49.49
BGE	86.04	200.30	126.50	69.95	73.00
EMAC	187.87	165.73	97.86	49.49	54.95
PSEG	187.87	204.29	97.86	49.49	54.95
PS North	187.87	204.29	97.86	49.49	54.95
ISO-NE (\$/kW-month) (a) (b)					
Southeast New England	\$ 5.30	\$ 4.63	\$ 3.80	\$ 2.00	\$ 3.98

(a) Displayed prices are from the applicable market publications.

(b) Prices for 2025/2026 are \$2.64 and 2026/2027 are \$2.59.

Nuclear Production Tax Credit

The Inflation Reduction Act of 2022 was signed into law in August 2022. Among the Act's provisions are amendments to the Internal Revenue Code to create a nuclear production tax credit program.

The nuclear production tax credit program provides qualified nuclear power generation facilities with a \$3 per MWh transferable credit for electricity produced and sold to an unrelated party during each tax year. Electricity produced and sold by Susquehanna Nuclear after December 31, 2023 through December 31, 2032 will qualify for the credit, which is subject to potential adjustments. Such adjustments include inflation escalators, a five-times increase in tax credit value (to \$15 per MWh) if the qualifying generation facility meets prevailing wage requirements, and a pro-rata decrease in tax credit value once the annual gross receipts of a qualifying generation facility exceeds \$25 per MWh. The annual pro-rata decrease will be based upon a portion of the qualifying generation facility's prior year gross receipts (as defined and calculated per implementation guidelines to be issued). The credit is eliminated when the annual gross receipts are equivalent to \$43.75 per MWh (adjusted for inflation). Susquehanna Nuclear generated approximately 18 million MWh in each of the calendar years 2022, 2021 and 2020.

The credit would be:

Annual Gross Receipts	Credit Amount
\$25 per MWh or less	\$15 per MWh
Greater than \$25 per MWh	Ratably reduced until gross receipts equal \$43.75 per MWh, \$0 after that threshold

The Act's provisions are subject to implementation regulations, whose terms are not yet known. As such, Talen cannot fully predict the impacts to its liquidity or results of operations.

Seasonality / Scheduled Maintenance

The demand for and market prices of electricity and natural gas are affected by weather. As a result, our operating results in the future may fluctuate substantially on a seasonal basis. For example, a lack of sustained cold weather in the Mid-Atlantic region may suppress regional natural gas prices and reduce our future capacity and energy revenues. Alternatively, above-average temperatures in the summer tend to increase summer cooling electricity demand, energy prices and revenues, and below-average temperatures in the winter tend to increase winter heating electricity demand, energy prices and revenues. In addition, our operating expenses typically fluctuate geographically on a seasonal basis, with peak power generation during the winter in the Mid-Atlantic region and during the summer in Texas.

We ordinarily perform facility maintenance during lower or non-peak demand periods to ensure reliability during periods of peak usage. The pattern of the fluctuations in our operating results varies depending on the type and location of the power generation facilities being serviced, capacity markets served, the maintenance requirements of our facilities and the terms of bilateral contracts to purchase or sell electricity. The largest and recurring maintenance project is the annual spring refueling outage at Susquehanna. The outages normally occur during late March and into April each year. Susquehanna Unit 2 entered its spring refueling outage on March 20, 2023.

Unusual Events

Winter Storm Elliott. During December 2022, as a result of Winter Storm Elliott, PJM experienced extreme cold weather conditions that contributed to PJM declaring their first system-wide Maximum Generation Emergency Action since implementing Capacity Performance. Certain of Talen's generation facilities failed to meet the capacity performance requirements set forth by PJM, while Talen's remaining generation facilities met or exceeded their capacity obligations. As a result, Talen expects to: (i) incur certain capacity performance penalties charged by PJM for its nonperforming generation facilities; and (ii) earn bonus revenues from PJM for its performing generation facilities.

In February 2023, PJM notified Talen Energy Marketing of its expected capacity performance penalties incurred by Talen's nonperforming generation facilities and bonus revenues earned by performing generation facilities. Accordingly, Talen Energy Marketing has recognized a net penalty charge which could be subject to further revisions by PJM as it finalizes market settlements. Accordingly, in the fourth quarter 2022, a \$33 million penalty charge, net of expected bonus revenues, is presented as "Capacity revenues" on the Consolidated Statement of Operations. As Talen Energy Marketing has disputed approximately \$45 million of penalties assessed by PJM, the net penalty recognized by Talen Energy marketing could be reduced if its dispute with PJM is successfully resolved. No assurance can be provided that Talen Energy Marketing will be successful in reducing penalties assessed by PJM or that PJM will upwardly revise its net penalty assessment to Talen. PJM is expected to finalize its assessments during early April 2023.

Additionally, in February 2023, PJM filed at FERC proposed tariff revisions that would impact the time by which capacity performance non-performance charges would be assessed, including those stemming from Winter Storm Elliot. Specifically, the proposal would allow PJM, in certain circumstances, to permit non-performance charges to be paid over a nine-month period with interest assessed on amounts paid after May 2023. In April 2023, FERC granted PJM's request to extend payment terms. Talen Energy Marketing has elected the extended payment terms.

FERC and the NERC announced that they will open a joint inquiry into the operations of the bulk-power system leading up to and during the extreme winter weather conditions that occurred during Winter Storm Elliott. Talen cannot predict the outcome of these inquiries.

See Note 16 in Notes to the Consolidated Financial Statements for additional information.

Winter Storm Uri. In mid-February 2021, Texas experienced an extreme winter weather event, Winter Storm Uri, that led to systemic energy market disruptions and price volatility throughout ERCOT. Winter Storm Uri precipitated a rapid increase in energy demand due to the storm's historically cold temperatures and a simultaneous decrease in energy supply caused by operational disruptions to the electric grid, natural gas production and distribution systems, water supplies, and other critical infrastructure throughout Texas.

Talen incurred an estimated \$78 million pre-tax nonrecurring commercial loss associated with its ERCOT activities during Winter Storm Uri for the year ended December 31, 2021. Additionally, due to defaults of other ERCOT market participants, ERCOT has instituted short payments as described below. Due to uncertainty when and how such short payments would ultimately be recovered from ERCOT, Talen recognized an additional charge of \$9 million during the year ended December 31, 2021 to fully reserve the amount due to Talen that is the subject of short payments, net of a November 2021 receipt of a non-material amount for certain short payment reimbursements. See "ERCOT Market Systemic Risks" in Note 16 in Notes to the Consolidated Financial Statements for additional information.

Significant Activities and Events

Decarbonization. Talen is in the process of decarbonizing approximately 3,238 MW of its existing coal assets. This includes the:

- already completed conversion of its 1,424 MW Brunner Island generation facility to natural gas;
- the ongoing conversion of its 1,508 MW Montour generation facility to natural gas to be completed in 2023; and
- the conversion of its 306 MW Wagner unit to diesel generation by the end of 2023 to remain as a capacity resource.

Overall, these conversions represent a reduction of Talen's carbon footprint while also extending the cash flows of the assets beyond their agreed upon dates to cease coal-based generation.

Cumulus Growth Projects. Through its subsidiaries, Talen Energy Supply is investing in a pipeline of renewable energy and battery storage projects; and developing digital infrastructure projects adjacent to the Susquehanna nuclear generation facility. Although not all such subsidiaries are wholly owned by Talen Energy Supply, the Company is consolidating these subsidiaries under GAAP due to its level of control. See Notes 2 and 12 in Notes to the Consolidated Financial Statements for additional information, including on Talen's equity's ownership percentage in these entities and the periods of consolidation.

Cumulus Data. During 2022, Cumulus Data substantially completed its first data center shell and is seeking tenants to occupy the building in the second half 2023. Additional capital expenditures for completion of the data center shell is expected to be less than \$10 million. Further material investment to complete construction "fit-out" of the building will only be made upon securing long-term tenants. During the year ended December 31, 2022, Talen Energy Supply, directly and through Talen Growth, provided approximately \$142 million of funding in the aggregate for Cumulus Data in exchange, through September 2022, for convertible preferred equity in Cumulus Data Holdings (the direct parent of Cumulus Data) and post September 30, 2022, for common equity in Cumulus Digital Holdings (the indirect parent of Cumulus Data). A portion of the Cumulus Data's capital expenditures were funded from proceeds received from the Cumulus Digital Loan Transaction that has provided funding for certain data center project costs.

Additionally, Talen Energy Supply and certain of its subsidiaries are party to affiliate arrangements to supply power to the data center and to provide other services to Cumulus Data. See Note 12 in Notes to the Consolidated Financial Statements for additional information on the Cumulus Digital Holdings consolidation by Talen Energy Supply and on Cumulus Data related party agreements.

Cumulus Coin. In August 2022, Cumulus Coin and Terawulf executed an amendment to the Nautilus limited liability company agreement which, among other things, provided for changes to the Nautilus governance structure, funding requirements, and changes in ownership. As a result, Cumulus Coin assumed control of Nautilus. Nautilus commenced commercial operations in February 2023 and Talen currently has no material capital commitments with respect to Nautilus going forward. Talen and Cumulus Coin currently have no plans to expand beyond the current 150 MW of capacity. Distributable Bitcoin from Nautilus to Cumulus Coin is expected to be converted immediately to U.S. dollars, which limits our exposure to Bitcoin holdings and price volatility. During the year ended December 31, 2022, Talen Energy Supply, directly and through Talen Growth, provided Cumulus Coin a non-material amount of funding in the aggregate for Cumulus Coin's cash capital contributions to Nautilus in exchange, through August 2022, for convertible preferred equity in Cumulus Coin Holdings (the direct parent of Cumulus Coin) and post September 30, 2022, for common equity in Cumulus Digital Holdings (the indirect parent of Cumulus Coin). The majority of the capital expenditures of Nautilus were funded from proceeds received from the Cumulus Digital Loan Transaction that has provided funding for certain project costs. See Note 12 in Notes to the Consolidated Financial Statements for additional information on the on the Cumulus Digital Holdings consolidation by Talen Energy Supply and related party agreements associated with Talen Energy Supply, Cumulus Coin and Cumulus Data.

Renewable and Battery Development Joint Ventures. During the year ended December 31, 2022, Talen Energy Supply contributed aggregate cash contributions of approximately \$5 million to the joint ventures to support the renewable and battery storage growth initiatives. Talen expects to continue development of its pipeline, which will require a non-material amount of funding toward these projects in 2023. As the scope of these projects is continuing to evolve and their sources of funding may change, future funding requirements in 2023 and beyond by Talen Energy Supply are uncertain. See Note 11 in Notes to the Consolidated Financial Statements for additional information on its equity-method investments in certain renewables projects.

Environmental, Regulatory and Legislative Matters

Extensive federal, state and local environmental laws and regulations are applicable to our power generation operations, including the regulation of air emissions, water discharges and the management of hazardous and solid waste. In addition, many of these environmental considerations are also applicable to the operations of key suppliers and customers, such as coal producers and industrial power users, and may impact the cost for their products or their demand for our services.

It may be necessary for us to modify, curtail, replace or cease operation of certain facilities or performance of certain operations to comply with statutes, regulations and other requirements imposed by regulatory bodies, courts or environmental groups. We may incur costs to comply with environmental laws and regulations, including increased capital expenditures or operation and maintenance expenses, monetary fines, penalties or other restrictions, which could be material. Legal challenges to environmental permits or rules add to the uncertainty of estimating the future cost of complying with these permits and rules. In addition, costs may increase significantly if the requirements or scope of environmental laws or regulations, or similar rules, are expanded or changed.

We are also subject to regulation by certain federal and state agencies in the various regions where we conduct business, including, but not limited to, the FERC, Department of Energy, Federal Communications Commission, NRC, NERC, state public utility commissions, and RTOs and ISOs.

We are party to proceedings before such agencies arising in the ordinary course of business and have other regulatory exposure due to new and (or) amended regulations promulgated by such agencies from time to time. While the outcome of these regulatory matters and proceedings is uncertain, the likely results are not expected, either individually or in the aggregate, to have a material adverse effect on our financial condition or results of operations, although the effect could be material to our results of operations in any interim reporting period.

The following is a discussion of the significant recent environmental and regulatory developments impacting our business.

Environmental Developments

The EPA continues to reconsider several key regulatory matters that could materially impact our business and results of operations, as described below.

Water and Waste. In August and October 2020, the EPA finalized certain CCR Rule and ELG Rule changes. Among other things, changes in both rules allow coal generation facility operators to request extensions to compliance deadlines, if the facility commits to cessation of coal-fired generation by the end of 2028. With Talen's plans to cease coal operations, Talen had requested extensions for compliance for both the ELG Rule and CCR Rule that are applicable to certain Talen generation facilities; some have been approved and some are still under review. Furthermore, EPA has and plans to propose additional changes to both rules, which will have additional impacts on Talen. At this time, Talen cannot predict the outcome of these various rule changes on the operations of its coal-fired generation facilities and its results of operations. See Note 16 in Notes to the Consolidated Financial Statements for additional information.

Air. There has been significant attention by EPA, certain states and ENGOS on reducing nitrogen oxide emissions from coal-fired generation. There have been various lawsuits, petitions, and regulatory changes in an attempt to reduce nitrogen oxide emissions from the electric generation industry, with the goal of helping certain states attain the 2008 and 2015 ozone NAAQS. The most recent changes have come in the form of a new ozone season nitrogen oxide allowance trading program under CSAPR and new RACT rules. In March 2023, EPA executed a new update to the ozone season nitrogen oxide allowance trading program of CSAPR, which will reduce ozone season nitrogen oxide allowances, including for Talen's power generation facilities in Texas, Maryland, Pennsylvania and New Jersey. In 2022 and 2023, Talen's generation facilities in Pennsylvania have become subject to new nitrogen oxide standards implemented under Pennsylvania's two most recent set of nitrogen oxide RACT Rules, RACT 2 and RACT 3. At this time, Talen cannot predict the long-term outcome of these rule changes on the operations of its generation facilities and its results of operations. See Note 16 in Notes to the Consolidated Financial Statements for additional information.

RGGI. In October 2019, the Pennsylvania Governor signed an Executive Action Order instructing the Pennsylvania DEP to move forward with a rulemaking process that would facilitate the entry of the state into the RGGI program. Several actions occurred in 2021 and early 2022 regarding the enactment of this rule. In April 2022, the final rule was published in the "Pennsylvania Code and Bulletin" and became effective, triggering Pennsylvania's entry into the RGGI program. Compliance with the rule was meant to begin on July 1, 2022. However, certain third parties have filed lawsuits and appeals questioning the legality of the regulation- and the implementation of RGGI in Pennsylvania is currently stayed. The timing and potential impacts associated with these legal proceedings is uncertain and therefore, may change the state's participation in the RGGI program, including the compliance timeline. At this time, Talen is unable to determine the full impact of the RGGI program, when and if implemented, on its results of operations and liquidity. See Note 16 in Notes to the Consolidated Financial Statements for additional information.

Federal Climate Change Actions. Since carbon dioxide, GHG was classified as a regulated pollutant, EPA has made attempts to regulate it under the NSPS section 111(d) rules, through the CPP Rule and the ACE Rule. Both have been vacated and remanded to EPA, in part due to the U.S. Supreme Court's June 2022 ruling in *West Virginia vs. U.S. EPA*, which limits EPA's authority to regulate GHG emissions by power generation facilities. EPA indicates it plans to propose new GHG rules for the power sector in the first half of 2023. At this time, Talen is unable to determine the full impact of this future regulation on its results of operations and liquidity. See Note 16 in Notes to the Consolidated Financial Statements for additional information.

In November 2020, Talen announced a commitment to cease coal-fired operations at certain generation facilities in PJM by the end of 2025 or 2028. In September 2021, notification was filed with DEP that the Keystone and Conemaugh generating facilities would cease burning coal no later than 2028.

See "Liquidity and Capital Resources - Forecasted Uses of Cash - Capital Expenditures" for information on Talen's forecasted capital expenditures, including the Montour coal to natural gas conversion project. See Note 16 in Notes to the Consolidated Financial Statements for additional information on environmental matters.

Regulatory and Legislative Developments

PJM Capacity Market

PJM MOPR. In June 2018, FERC directed PJM to revise its capacity auction tariff provisions to ensure that outside market subsidization of generation would not have price suppressive effects on capacity clearing prices.

In April 2021, PJM announced that it will file to eliminate the existing MOPR from the PJM tariff and replace it with an alternative. In December 2021, in a related order, FERC requested that PJM delay the auction again and file the new auction schedule. In 2023, PJM announced that it is planning a process to look at changes to the capacity market, which could result in delays of auctions.

Capacity Auctions. See "Capacity Market" above for information on capacity auctions and prices.

PJM Market Seller Offer Cap. In March 2021, FERC responded to complaints filed by the IMM for PJM and various consumer advocates alleging that the Market Seller Offer Cap, the default cap on offers into the PJM capacity market, was above a competitive offer level and was, therefore, unjust and unreasonable. In September 2021, FERC issued an order accepting the IMM's unit specific ACR proposal that requires the offer caps for each generator to be administratively determined by the IMM and PJM. In February 2022, FERC denied rehearing requests on the September 2021 order that were filed by multiple parties, including Talen. Appeals have been filed by various parties, including Talen. The final impact of this order on Talen's financial condition, results of operations or liquidity is unknown at this time.

Inflation Reduction Act of 2022. The Inflation Reduction Act of 2022 was signed into law in August 2022. Among the Act's provisions are: (i) amendments to the Internal Revenue Code to create a nuclear production tax credit program; (ii) the creation, extension and modification of tax credit programs for certain clean energy projects, such as solar, wind and battery storage; and (iii) adjustments to corporate tax rates.

These changes are expected to increase Susquehanna Nuclear's income and impact the expected returns for Talen's expected future clean energy development projects. However, the Act's provisions are subject to implementation regulations, whose terms are not yet known. As such, Talen cannot fully predict the impacts to its liquidity or results of operations.

See Note 16 in Notes to the Consolidated Financial Statements for additional information on regulatory and legislative matters.

Subsidiary Consolidations

Cumulus Digital Holdings Consolidation. In September 2022, Talen Energy Supply and its Talen Growth subsidiary exchanged their preferred units in Cumulus Coin Holdings and Cumulus Data Holdings for common units in Cumulus Digital Holdings. Following the consummation of the exchange and other related transactions contemplated by the Cumulus Term Sheet, Talen Energy Supply became the primary beneficiary of Cumulus Digital Holdings, a VIE, due to its ability to control the activities that most significantly impact Cumulus Digital Holdings. Accordingly, Cumulus Digital Holdings was consolidated by Talen Energy Supply as of September 30, 2022. During the year ended December 31, 2022, Talen incurred a charge related to the consolidation of \$(170) million presented as "Consolidation of subsidiary gain (loss), net" on the Consolidated Statement of Operations. At December 31, 2022, Talen Energy Supply owns a 75% equity interest in Cumulus Digital Holdings, and Cumulus Digital Holdings' indirect subsidiary, Cumulus Coin, holds a 75% equity interest in the Nautilus joint venture. See Note 12 in Notes to the Consolidated Financial Statements for additional information.

Liquidity and Capital Resources

Our liquidity and capital requirements are generally a function of: (i) debt service requirements; (ii) capital expenditures; (iii) maintenance activities; (iv) liquidity requirements for our commercial and hedging activities, including cash collateral and other forms of credit support; (v) legacy environmental obligations; and (vi) other working capital requirements.

Our primary sources of liquidity and capital include available cash deposits, cash flows from operations, amounts available under our debt facilities, and debt issuance proceeds. Generating sufficient cash flows for our business is primarily dependent on capacity revenue, the production and sale of power at margins sufficient to cover fixed and variable expenses, hedging and optimization strategies to mitigate price risk exposure, and the ability to access a wide range of capital market financing options.

We are exposed to financial risks arising from natural business exposures including commodity price and interest rate volatility. Within the bounds of our risk management program and policies, we use a variety of derivative instruments to enhance the stability of future cash flows to maintain sufficient financial resources for working capital, debt service, capital expenditures, debt covenant compliance, and (or) other requirements.

We expect to be in a position to exit bankruptcy in the second quarter of 2023, no assurance can be provided that we will be successful in doing so. Talen expects to use cash on hand and the proceeds from these financings to fund the cash requirements related to bankruptcy claims and working capital upon emergence from bankruptcy. However, there is no assurance that Talen will enter into these or different financings in connection with emergence from bankruptcy. The exit financing is expected to include a revolving credit facility to assist with short-term liquidity needs. See "Talen Bankruptcy" above for additional information on the Talen Bankruptcy.

The following sections in Notes to the Consolidated Financial Statements should be read contemporaneously with information regarding various liquidity topics contained below:

- Note 2, Basis of Presentation and Summary of Significant Accounting Policies, for additional information on management's going concern assessment;
- Note 3, Talen Bankruptcy, for additional information regarding Talen Bankruptcy matters;
- Note 4, Risk Management, Derivative Instruments and Hedging Activities, for additional information regarding Talen's derivative and hedging activities;
- Note 15, Asset Retirement Obligations and Accrued Environmental Costs, and Note 16, Commitments and Contingencies, for additional information on coal-related AROs and surety bonds;
- Note 17, Revolving Credit Facilities and Other Facilities, and Note 18, Long-Term Debt, for additional information on financing activities; and
- Note 23, Supplemental Cash Flow Information, for disaggregated information regarding the Consolidated Statement of Cash Flows.

Talen Liquidity

	December 31, 2022	December 31, 2021
Talen DIP Revolver (a)	\$ 267	\$ —
Unrestricted cash and cash equivalents	724	276
Available liquidity	\$ 991	\$ 276

(a) Facility expires in November 2023. See Note 17 in Notes to the Consolidated Financial Statements for additional information.

In May 2022, the Talen Filing Parties filed voluntary petitions seeking relief under chapter 11 of the Bankruptcy Code. As a result of the Talen Bankruptcy, the remaining capacity under our recourse revolving credit facilities was terminated. However, Talen Energy Supply entered into the Talen DIP Credit Agreements, which provided Talen with sufficient liquidity to fund its operations while in bankruptcy. Additionally, the Bankruptcy Court has approved motions permitting us to conduct business activities in the ordinary course filed by the Debtors that were designed primarily to mitigate the impact of the Chapter 11 Cases on our operations and employees. We expect Talen Energy Supply to exit bankruptcy in the first half of 2023 following: (i) regulatory approvals by FERC and NRC and expiration of the HSR Act waiting period; (ii) the successful execution of "exit" financing facilities; and (iii) the completion of the transactions contemplated under the Talen RSA and other activities. FERC and NRC approvals were obtained in March 2023.

Based on current and anticipated levels of operations, industry conditions, and market environments in which we transact, we believe available liquidity from financing activities, cash on hand and cash flows from operations (including changes in working capital) will be adequate to meet working capital, debt service, non-discretionary capital expenditures, and (or) other future requirements for at least the next twelve months.

This liquidity assessment depends, in part, on projected market conditions, the ability to obtain sufficient "exit" financing on favorable terms, and other estimates that management believes are reasonable. No assurance can be provided that such projections and estimates will be proven correct or that "exit" financing arrangements will successfully be executed. See "Talen Bankruptcy" above for additional information on the Talen Bankruptcy.

Recourse Long-term Debt

	December 31, 2022	December 31, 2021
Talen 2023 DIP TLB	\$ 1,000	\$ —
Talen Senior Secured Term Loans	427	427
Talen Senior Secured Notes	1,620	1,620
Talen Senior Unsecured Notes (a)	1,330	1,330
Talen PEDFA Bonds (a)	228	231
Total recourse principal	4,605	3,608
Less: recourse principal long-term debt, due within one year	1,000	150
Less: amounts classified as "Liabilities subject to compromise" (a)	1,558	—
Recourse principal long-term debt, due after one year	\$ 2,047	\$ 3,458

(a) Presented as "Liabilities subject to compromise" on the Consolidated Balance Sheet at December 31, 2022.

Non-recourse Liquidity and Long-term Debt

	December 31, 2022	December 31, 2021
LMBE-MC Liquidity		
LMBE-MC RCF unused capacity (a)	\$ 13	\$ 10
LMBE-MC restricted cash and cash equivalents (b)	14	25
Available liquidity	\$ 27	\$ 35
LMBE-MC Long-term Debt (c)		
LMBE-MC 2025 TLB	\$ 301	\$ 353
Less: principal long-term debt, due within one year	10	9
Non-recourse principal long-term debt, due after one year	\$ 291	\$ 344

(a) The committed capacity was \$25 million at December 31, 2022 and December 31, 2021. Facility expires in December 2023.

(b) Cash is available to LMBE-MC for its operations, but is restricted from use by Talen Energy Supply.

(c) See Note 18 in Notes to the Consolidated Financial Statements for additional information on this debt and interest rates at December 31, 2022.

Limited-recourse Liquidity and Long-term Debt

	December 31, 2022	December 31, 2021
Cumulus Digital Liquidity		
Cumulus Digital Holdings cash and cash equivalents (a)	\$ 49	\$ —
Nautilus project restricted cash and cash equivalents (b)	19	—
Available liquidity	\$ 68	\$ —
Cumulus Digital Long-term Debt (c)		
Cumulus Digital 2027 TLF, including PIK	\$ 185	\$ —
Less: principal long-term debt, due within one year	—	—
Limited-recourse principal long-term debt, due after one year	\$ 185	\$ —

(a) Cash is available to Cumulus Digital Holdings and its subsidiaries for its operations, but is restricted from use by Talen Energy Supply.

(b) Cash is available to Nautilus for its operations, but is restricted from use by Talen Energy Supply and Cumulus Digital Holdings.

(c) See Note 18 in Notes to the Consolidated Financial Statements for additional information on this debt, including interest rates at December 31, 2022.

Credit Developments

The credit rating of a securities issuer and (or) its debt instruments reflects a creditworthiness assessment performed by ratings agencies. While each agency applies a proprietary methodology to creditworthiness, it generally includes qualitative and quantitative information, which is based in part on operating performance, policies, and strategies of the issuer's management. The ratings, which are subject to revision or withdrawal by ratings agencies at any time, should be evaluated independently of each other and any other rating that may be assigned to a debt instrument.

As a result of the Talen Bankruptcy, the Talen Energy Supply indebtedness credit ratings were withdrawn by the credit agencies, which are not currently providing on-going monitoring and public ratings.

Working Capital

	December 31, 2022	December 31, 2021
Working Capital	\$ (598)	\$ (707)

Working capital is computed as "Total current assets" less "Total current liabilities" as presented on the Consolidated Balance Sheet. The overall change in working capital during 2022 is primarily from:

- an increase in net "Cash and cash equivalents" and "Restricted cash and cash equivalents" as presented on the Consolidated Balance Sheet, partially driven by the issuance of the Talen 2023 DIP TLB in May 2022;
- an increase in accounts receivable primarily due to increase in PJM receivables and ERCOT receivables due to Winter Storm Elliot;
- repayments of the Inventory Repurchase Obligations and Deferred Capacity Obligations in the second quarter 2022;
- the non-cash net change in the mark-to-market of derivative instruments in 2022 primarily due to rising market prices and the settlement of positions that were in a loss position. The mark-to-market value is presented as "Derivative instruments" on the Consolidated Balance Sheet.;
- an increase in "Long-term debt due within one year" as presented on the Consolidated Balance Sheet, related to the Talen 2023 DIP TLB that is due in November 2023;
- an increase in "Accrued interest" as presented on the Consolidated Balance Sheet, partially due to make whole premiums recognized on certain debt;
- an increase in "Accounts payable and other accrued liabilities" as presented on the Consolidated Balance Sheet, partially due to liabilities for professional services related to the Talen Bankruptcy and the consolidation of Cumulus Digital Holdings in the third quarter 2022; and
- an increase in "Other current liabilities" as presented on the Consolidated Balance Sheet, primarily due to accruals related to the Backstop Commitment Letter.

In 2023, Talen received \$80 million of cash that was on deposit with third parties as collateral at December 31, 2022. The deposits were in "Other current assets" as presented on the Consolidated Balance Sheet.

Financial Performance Assurances

	December 31, 2022	December 31, 2021
Outstanding surety bonds	\$ 248	\$ 237

Talen Energy Supply has provided financial performance assurances in the form of surety bonds to third parties on behalf of certain subsidiaries for obligations including, but not limited to, environmental obligations and AROs. Surety bond providers generally have the right to request additional collateral to backstop surety bonds.

Cash Flow Activities

The net cash provided by (used in) operating, investing, and financing activities and the changes between the years ended December 31 were:

	2022	2021	2020	2022 vs 2021 Change	2021 vs 2020 Change
Operating activities	\$ 187	\$ (294)	102	\$ 481	\$ (396)
Investing activities	(368)	(280)	11	(88)	(291)
Financing activities	426	956	65	(530)	891

Year Ended December 31, 2022 vs. December 31, 2021

Net cash provided by (used in) operating activities.

Change	
\$	622 Higher realized energy margin between periods (See 'Realized Energy Margin' within "Non-GAAP Financial Measures")
	(50) Increase in cash collateral deposits paid to counterparties
	35 Overall lower recourse interest payments primarily due to lower aggregate payments on indebtedness that was stayed during the Talen Bankruptcy partially offset in increases of interest paid on the Talen Commodity Accordion RCF issued in December 2021 and on the Talen 2023 DIP TLB issued in May 2022.
	(18) Higher general and administrative expenditures between periods (See "Results of Operations")
	(67) Lower capacity payments between periods (See "Results of Operations")
	(26) Lower operation and maintenance expenditures between periods (See "Results of Operations")
	(15) Other changes in cash provided by (used in) operating activities
\$	481 Total

See Note 18 in Notes to the Consolidated Financial Statements for additional information on the PEDFA remarketing.

Net cash provided by (used in) investing activities.

Change	
\$	(97) Higher contributions to equity method and preferred equity investments. See Note 11 and Note 12 in Notes to the Consolidated Financial Statements for additional information on the equity method and preferred equity investments.
	(87) Higher capital expenditures between periods for the Montour natural gas conversion project
	(22) Higher capital expenditures between periods on the renewable, battery, and digital infrastructure growth projects
	(12) Lower return of cash from equity method investments between periods
	123 Increase in cash and restricted cash due to consolidation of affiliate subsidiaries, TRF and Cumulus Digital Holdings
	19 Lower capital expenditures at generation facilities
	(12) Other changes in cash provided by (used in) investing activities
\$	(88) Total

In September 2022, a Talen Energy Supply consolidated Cumulus Digital Holdings. In the preceding table: (i) amounts contributed by Talen Energy Supply for Cumulus Digital Holdings projects before consolidation of Cumulus Digital Holdings are displayed as changes in equity method and preferred equity investment contributions; and (ii) amounts incurred by Cumulus Digital Holdings for growth projects after consolidation of Cumulus Digital Holdings are displayed as changes in growth capital expenditures. See Note 12 in Notes to the Consolidated Financial Statements for additional information on Talen Energy Supply's equity interests in Cumulus Digital Holdings.

Net cash provided by (used in) financing activities

Change	
\$	(827) Proceeds, net of premium paid on Talen Commodity Accordion RCF in 2021
	(337) Net proceeds and repayments of the Talen Deferred Capacity Obligations between periods
	(165) Net proceeds and repayments of the Talen Inventory Repurchase Obligations in 2022
	(131) Proceeds from the issuance of PEDFA bonds in 2021
	(104) Payments made on the termination of certain economic hedge contracts
	(52) LMBE-MC 2025 TLB repayments in 2022
	(36) Higher debt issuance costs between periods
	987 Proceeds, net of premium paid on Talen DIP Term Loan in 2022
	114 Repayment of Talen 2021 Notes at maturity
	27 LMBE-MC 2025 TLB repayments in 2021
	(6) Other changes in cash flows provided by (used in) financing activities
\$	(530) Total

See Notes 17 and 18 in Notes to the Consolidated Financial Statements for additional information on revolving and other credit facilities and long-term debt.

Year Ended December 31, 2021 vs. December 31, 2020*Net cash provided by (used in) operating activities.*

Change	
\$	(356) Lower realized energy margin between periods (See 'Realized Energy Margin' within "Non-GAAP Financial Measures")
	(102) Increase in cash collateral deposits paid to counterparties
	(14) Overall higher recourse interest payments primarily due to: higher payments on the Talen 2028 Secured Notes that were issued in the second quarter 2020
	129 Higher capacity payments between periods due to increases from PJM, partially offset by the April 2020 deconsolidation of NorthEast Gas Gen (See "Results of Operations")
	(53) Other changes in cash provided by (used in) operating activities
\$	(396) Total

See Notes 17 and 18 in Notes to the Consolidated Financial Statements for additional information on revolving and other credit facilities and long-term debt.

Net cash provided by (used in) investing activities.

Change	
\$	(153) Proceeds from the sale of IEC in January 2020
	(59) Higher contributions to equity method and preferred equity investments. See Notes 11 and 12 in Notes to the Consolidated Financial Statements for additional information on the equity method methods and preferred equity investments.
	(34) Higher capital expenditures between periods on the renewable, battery, and digital infrastructure growth projects
	(27) Increase in nuclear fuel expenditures between periods
	(28) Lower casualty insurance proceeds in 2021 compared to 2020 for forced outages at Lower Mt. Bethel and Martins Creek
	10 Other changes in cash provided by (used in) investing activities
\$	(291) Total

In September 2021, a Talen Energy Supply subsidiary sold its ownership interests in Cumulus Data, the company constructing the Cumulus Data Center Campus, to a subsidiary of Cumulus Growth. In the preceding table, capital expenditures from January 2021 through August 2021 by Cumulus Data are displayed as changes on renewable, battery, and digital infrastructure growth projects. See Note 12 in in Notes to the Consolidated Financial Statements for additional information on the Cumulus equity investments.

Net cash provided by (used in) financing activities.

Change	
\$	827 Proceeds, net of premium paid on Talen Commodity Accordion RCF in 2021
	161 Proceeds, net of discount and net of subsequent repayments of \$209 million related to Talen Deferred Capacity Obligations in 2021
	131 Proceeds from the issuance of PEDFA bonds in 2021
	131 Repayments of PEDFA bonds in 2020 that were subsequently reissued in 2021 (see above)
	105 Talen RCF net repayments in 2020
	72 Talen 2026 TLB repayments in 2020
	33 LMBE-MC 2025 TLB repayments in 2020
	(400) Talen 2028 Secured Notes issuance proceeds in 2020
	(114) Repayment of Talen 2021 Notes at maturity
	(27) LMBE-MC 2025 TLB repayments in 2021
	(15) Net proceeds from the Talen Inventory Repurchase Obligations in 2020
	(14) Higher debt issuance costs between periods
	1 Other changes in cash flows provided by (used in) financing activities
\$	891 Total

Forecasted Uses of Cash

Capital Expenditures and Cumulus Funding. Capital expenditure plans are revised periodically for changes in operational needs, market conditions, regulatory requirements and cost projections. Accordingly, these capital expenditures and any funding by Talen Energy Supply for these projects are subject to revision. Projected capital expenditures were:

	2023	2024
PJM		
Susquehanna Nuclear (a)	\$ 120	\$ 154
Fossil-fired generation facilities	55	48
Total PJM	175	202
ERCOT	31	33
Wagner and Montour conversion to gas projects (b)	64	—
Corporate	7	1
Total Before Cumulus Data	\$ 277	\$ 236
Cumulus Data (c)	10	—
Total	\$ 287	\$ 236

(a) Includes nuclear fuel of \$90 million in 2023 and \$101 million in 2024.

(b) See "Montour Coal-to-Natural Gas Conversion Project" below for information on that project.

(c) Amount represents Talen Energy Supply's expected funding into Cumulus Data.

Montour Coal-to-Natural Gas Conversion Project. In connection with Talen's plans to cease coal operations at wholly-owned generation facilities, Talen is converting the generation fuel for Montour from coal to natural gas. We made significant progress in 2022 on the conversion, including incurring approximately \$90 million in capital expenditures, and expect completion in 2023. The future expected cash outlays are reflected in the table above in the line "Talen Energy Supply Development."

Guarantees of Subsidiary Obligations

Talen Energy Supply guarantees certain agreements and obligations for its subsidiaries. Certain agreements may contingently require payments to a guaranteed or indemnified party. See Note 16 in Notes to the Consolidated Financial Statements for additional information regarding guarantees.

Results of Operations

Factors Affecting Operating Results

Earnings in future periods are subject to various uncertainties and risks. See "Forward-Looking Statements and Significant Business Risks" below and Notes 4 and 16 in Notes to the Consolidated Financial Statements for additional information on our risks.

Key Components of our Results of Operations

Operating Revenues and Energy Expenses

"Operating Revenues and Energy Expenses" is made up of the following components:

Capacity revenues. Capacity revenues are primarily comprised of amounts earned from capacity auctions in PJM and under bilateral contracts to provide generation capacity that is needed to satisfy system reliability and integrity requirements.

Energy revenues. Energy revenues are primarily comprised of: (i) amounts earned from an ISO or RTO for electric generation and for ancillary services such as regulation and reserve services and other products that support transmission and grid operations; (ii) amounts earned for wholesale electricity sales to bilateral counterparties; (iii) amounts earned for retail electricity sales to commercial and industrial retail customers; and (iv) realized gains and losses on commodity derivative instruments.

Unrealized gain (loss) on derivative instruments. Revenues from unrealized gain (loss) on derivative instruments include unrealized gains and losses resulting from the changes in fair value on commodity derivative instruments.

Fuel and Energy Purchases

"Fuel and energy purchases" are primarily comprised of: (i) costs incurred by our generation facilities for coal, natural gas and oil products; (ii) environmental product costs, such as emission allowances, that are mandated by certain states for compliance; (iii) purchases of physical electricity incurred to fulfill commercial and industrial retail power sales requirements when in excess of generated volumes; and (iv) settlements of financial and physical transactions related to fuel and energy purchases. Energy purchases are presented net of physical electric generation sales on an hourly basis. Where the effect of such netting results in a net purchase, the net hourly amounts are presented within "Fuel and energy purchases." "Fuel and energy purchases,"

"Unrealized gain (loss) on derivative instruments" and "Nuclear fuel amortization" are referred to collectively as "Energy expenses."

Nuclear fuel amortization

"Nuclear fuel amortization" is composed of nuclear fuel-related costs, including the procurement of uranium, conversion, enrichment, the fabrication of assemblies and other related costs. Such costs are initially capitalized and presented as Property, plant and equipment, and are thereafter amortized and presented as Nuclear fuel amortization as the fuel is consumed using the units-of-production method. "Fuel and energy purchases," "Unrealized gain (loss) on derivative instruments" and "Nuclear fuel amortization" are referred to collectively as "Energy expenses."

Operation and Maintenance

"Operation and maintenance" primarily consists of generation facility operating costs. Such costs include salary and benefit costs for generation-facility employees, the costs of removal, repairs and maintenance that are not capitalized, contractor costs and certain materials and supplies.

Interest Expense and Other Finance Charges

"Interest expense and other finance charges" primarily include the interest costs to service indebtedness and the realized and unrealized gains and losses of interest rate derivative instruments.

See Note 2 in Notes to the Consolidated Financial Statements for additional information on the accounting of certain of the above revenues and expenses.

Comparative Results of Operations

In the comparative tables and subsequent explanations below, increases in revenue and income or decreases in expense are favorable variances and are displayed without brackets. Decreases in revenue and income or increases in expense are unfavorable variances and are shown with brackets. The following table and subsequent sections display the results of operations and the changes between the years ended December 31:

	2022	2021	2020	2022 vs 2021 Change	2021 vs 2020 Change
Capacity revenues	\$ 377	\$ 444	\$ 315	\$ (67)	\$ 129
Energy and other revenues	2,035	1,331	1,480	704	(149)
Unrealized gain (loss) on derivative instruments	677	(847)	(69)	1,524	(778)
Operating Revenues	3,089	928	1,726	2,161	(798)
Energy Expenses					
Fuel and energy purchases	(938)	(856)	(649)	(82)	(207)
Nuclear fuel amortization	(94)	(96)	(106)	2	10
Unrealized gain (loss) on derivative instruments	(52)	135	36	(187)	99
Total Energy Expenses	(1,084)	(817)	(719)	(267)	(98)
Operating Expenses					
Operation, maintenance and development	(605)	(579)	(589)	(26)	10
General and administrative	(106)	(88)	(82)	(18)	(6)
Postretirement benefits service cost	(5)	(5)	(6)	—	1
Depreciation, amortization and accretion	(520)	(524)	(452)	4	(72)
Operational restructuring	(488)	—	—	(488)	—
Impairments	—	—	(681)	—	681
Other operating income (expense), net	(40)	(15)	87	(25)	(102)
Operating Income (Loss)	241	(1,100)	(716)	1,341	(384)
Interest expense and other finance charges	(359)	(325)	(363)	(34)	38
Nuclear decommissioning trust funds gain (loss), net	(184)	196	172	(380)	24
Postretirement benefits gain (loss), net	(7)	(31)	(25)	24	(6)
Debt restructuring gain (loss), net	(6)	(11)	(3)	5	(8)
Consolidation of subsidiary gain (loss)	(170)	—	—	(170)	—
Reorganization income (expense), net	(812)	—	—	(812)	—
Deconsolidation of subsidiary gain (loss), net	—	—	71	—	(71)
Other non-operating income (expense), net	(31)	(6)	19	(25)	(25)
Income (Loss) Before Income Taxes	(1,328)	(1,277)	(845)	(51)	(432)
Income tax benefit (expense)	35	300	181	(265)	119
Net Income (Loss)	(1,293)	(977)	(664)	(316)	(313)
Less: Net income (loss) attributable to noncontrolling interest	(4)	—	—	(4)	—
Net Income (Loss) Attributable to Members	\$ (1,289)	\$ (977)	\$ (664)	\$ (312)	\$ (313)

The following variance explanations are based on the market areas in which our generation fleet operates and the manner in which our senior management team reviews our financial and operating performance and allocates resources. Our segments, PJM, ERCOT and Other Power Markets, are engaged in electricity generation, marketing activities, commodity risk and fuel management within their respective RTO or ISO markets. Descriptions of segments are:

- PJM - a grouping that includes the operating and marketing activities within the PJM market. PJM is comprised of Susquehanna Nuclear and Talen's natural gas and coal generation facilities located within the PJM market;
- ERCOT - a grouping that includes the operating and marketing activities within the ERCOT market for the operations of the Talen Texas power generation facilities; and
- Other Power Markets - a grouping that includes the operating and marketing activities for Talen Montana's proportionate share of the Colstrip Units, the operating and marketing activities within the ISO-NE and NYISO markets for the operations of the Talen NE power generation facilities (including Millennium and Athens when owned in 2020).

Corporate, Development and Other, or CD&O, is a non-segment grouping that includes corporate activities and other expenses incurred by our corporate and commercial functions that are not allocated to our above groupings, business units that do not fall under the prior definitions, and intercompany eliminations. The primary grouping of other business units includes: (i) General and administrative expenses (ii) the development activities of Cumulus Growth Holdings; and (iii) the development and operating activities of Cumulus Digital. This grouping is presented to reconcile the other above groupings to consolidated results.

Year Ended December 31, 2022 vs Year Ended December 31, 2021

Operating Revenues, net of Total Energy Expenses. \$1.9 billion overall favorable increase comprised of changes in "Capacity revenue," Realized Energy Margin, Unrealized Gains (Losses) on Derivative Instruments and "Nuclear fuel amortization":

Change	
<i>Capacity Revenue</i>	
\$	(125) Unfavorable decrease primarily due to lower cleared capacity prices and less MWs cleared through PJM's capacity auction for 2022/2023 PJM Capacity Year compared to the 2021/2022 PJM Capacity Year. See "Factors Affecting Talen's Financial Position - Capacity Market" above for information on capacity prices.
	(33) Unfavorable decrease due to a net PJM capacity penalty related to the 2022 Winter Storm Elliott extreme weather event. See "Unusual Events - Winter Storm Elliott" within "Factors Affecting Talen's Financial Position" for additional information.
	91 Favorable increase primarily due to higher cleared capacity prices and additional MWs cleared in PJM's base capacity auction for the 2021/2022 PJM Capacity Year to the 2020/2021 PJM Capacity Year. See "Factors Affecting Talen's Financial Position - Capacity Market" above for information on capacity prices.
	(67) <i>Total Capacity Revenue</i>
<i>Realized Energy Margin</i>	
1,058	Favorable increase in margin associated with electric generation primarily due to: (i) higher around-the-clock settled power prices received at Susquehanna; (ii) higher power prices received at our PJM fossil-fueled generation facilities; (iii) higher realized Spark Spread received at our ERCOT facilities; partially offset by (iv) decreased generation volumes at our fossil-fueled generation portfolio in PJM and at our ERCOT fossil-fueled generation facilities
78	Favorable increase in ERCOT due to the losses incurred to the 2021 Winter Storm Uri extreme winter weather event
(357)	Unfavorable decrease in hedge results primarily due to higher settled PJM PPL Zone and PJM West Hub day ahead on-peak power prices and higher realized ERCOT Spark Spreads, excluding the price effects of Winter Storm Uri
(124)	Unfavorable decrease in hedge results due to the termination of certain outstanding economic hedges between Talen Energy Marketing and a commercial counterparty that were scheduled to be priced and deliver from April 2022 through December 2022
(33)	Unfavorable decrease in hedge results due to losses incurred on early terminated commodity contract agreements
622	<i>Total Realized Energy Margin</i>
<i>Unrealized Gains (Losses) on Derivative Instruments</i>	
474	Favorable increase primarily due to the "roll-off" of \$392 million in loss positions during 2022 compared to the "roll-off" \$(83) million in gain positions during 2021
457	Favorable increase primarily due to newly executed trades transacted in 2022 which resulted in gain positions compared to trades transacted in 2021 which resulted in loss positions
243	Favorable increase primarily due to the "roll-off" of premium losses in 2022 compared to the "roll-off" of premium gains in 2021
163	Favorable increase primarily due to lower losses in 2022 compared to 2021 on positions existing in both periods
1,337	<i>Total Unrealized Gains (Losses) on Derivative Instruments</i>
2 <i>Nuclear Fuel Amortization</i>	
\$	1,894 Total

"Energy revenues" and "Fuel and energy purchases" are evaluated collectively as Realized Energy Margin because the price for power is generally determined by the variable operating cost of the next marginal generator dispatched to meet demand. See "Realized Energy Margin" within "Non-GAAP Financial Measures" for a description of this non-GAAP measure and a discussion of the period-over-period change by our segments.

Unrealized gains (losses) on derivatives are presented separately as both revenues and expenses within "Operating Revenues, net of Total Energy Expenses" on the Consolidated Statements of Operations. We evaluate them collectively because it represents the changes in fair value of Talen's economic hedging activities. See Notes 4 and 20 in Notes to the Consolidated Financial Statements for additional information on unrealized gains and losses associated with commodity derivatives.

Operation, Maintenance and Development. \$(26) million unfavorable increase primarily due to higher operation expense in 2022 throughout PJM due to employee retention payments and an increase in short-term incentive compensation in 2022 and higher operation and maintenance expense primarily at Susquehanna due to an increase in the cost of material and chemicals, higher utilities, and disposal costs.

General and Administrative. \$(18) million unfavorable increase at CD&O primarily due to:

Change	
\$	(21) Increase in employee short-term performance incentive payments due to above target performance in 2022 while 2021 performance incentive payments were below target; and non-recurring retention bonuses paid 2022
	3 Other
\$	(18) Total

Operational Restructuring. \$(488) million charge recognized in 2022 due to: \$(453) million within PJM, primarily for the charge related to Talen Energy Marketing retail power contracts that were rejected in connection with the Talen bankruptcy and \$(35) million within ERCOT primarily due to the charges for long-term service agreements that were rejected in connection with the Talen bankruptcy. These charges are management's estimates of damages for allowed claims from counterparties and were approved by the Bankruptcy Court. See Note 3 in Notes to the Consolidated Financial Statements for additional information on the Talen Bankruptcy.

Other Operating Income (Expense), net. \$(25) million unfavorable increase in expense primarily due to: (i) \$17 million increase to expense within PJM for PA Mines PA environmental liability revisions in 2022; and (ii) \$18 million increase to expense for the estimate of a legal settlement related to the Kinder Morgan litigation. These amounts were partially offset by the ERCOT reserve of \$12 million recognized in the first quarter 2021 on receivables due from ERCOT that were subject to "short payments" related to the effects of Winter Storm Uri in 2021. Subsequent to the initial charge, Talen received non-material "short payments" in 2022 and 2021 which lowered the impact of the aforementioned initial charge.

See Note 15 in Notes to the Consolidated Financial Statements for additional information on PA Mines, Note 4 in Notes to the Consolidated Financial Statements for additional information on Winter Storm Uri, and Note 7 in Notes to the Consolidated Financial Statements for additional detail of Other Operating Income (Expense), net.

Interest Expense and Other Finance Charges. \$(34) million unfavorable increase primarily due to:

Change	
	CD&O
	Corporate
\$	(97) Interest of (\$82 million) in addition to an increase in amortization of original issue discounts and debt issuance costs on the Talen Commodity Accordion RCF, that was executed in fourth quarter 2021
	(46) Interest on the Talen DIP Term Loan, that was executed in second quarter 2022
	77 Interest accruals on Talen Senior Unsecured Notes and Talen PEDFA Bonds that ceased upon commencement of the Talen Bankruptcy
	12 Lower amortization of deferred finance costs and original issuance discounts related to the Deferred Capacity Obligation, which matured in second quarter 2022
	11 Increase in affiliate interest income at Talen Energy Marketing for amounts loaned to Talen Montana
	5 Other
	(38) Total CD&O
	PJM
	15 Increase primarily from change in unrealized and realized gains on interest rate swaps primarily due to a 2022 increase of forward LIBOR rates
	15 Total PJM
	Other Power Markets
	(11) Increase in affiliate interest expense for amounts borrowed by Talen Montana from Talen Energy Marketing
	(11) Total Other Power Markets
\$	(34) Total

See Notes 17 and 18 in Notes to the Consolidated Financial Statements for additional information on revolving credit facilities and long-term debt.

Nuclear Decommissioning Trust Funds Gain (Loss), net. \$(380) million unfavorable increase at PJM in expense due to:

Change	
\$	(297) Inflation, geopolitics, and rising interest rates weighed on the equity markets in 2022 resulting in an unrealized loss of \$230 million for the year. Meanwhile equity markets were favorable in 2021 resulting in an unrealized gain of \$68 million for the year.
	(83) Unfavorable change in realized activity for the period primarily due to realized gains recognized in 2021 as a result of asset portfolio re-balancing activity.
\$	(380) Total

See Notes 13 and 20 in Notes to the Consolidated Financial Statements for additional information on the NDT.

Postretirement benefits Gain (Loss), net. \$24 million favorable decrease in losses for PJM, Other Power Markets, and CD&O primarily due to an increase in amortization of net gain that resulted from an increase in the discount rate.

Debt Restructuring Gain (Loss), net. \$5 million favorable decrease in losses for CD&O primarily due to amendment fees incurred during 2021 for the Talen RCF, offset by prepayment premiums required as a result of mandatory repayments of the Talen Commodity Accordion RCF in 2022. See Note 18 in Notes to the Consolidated Financial Statements for additional information

Consolidation of Subsidiary Gain (Loss), net. \$(170) million unfavorable losses recognized within CD&O from the consolidation of Cumulus Digital Holdings due to a change of control. See Note 12 in Notes to the Consolidated Financial Statements for additional information.

Reorganization income (expense), net. \$(812) million unfavorable increase to losses primarily at CD&O due to:

Change	
(310)	Backstop Premium. See "Backstop Commitment Letter" in Note 3 in Notes to the Consolidated Financial Statements for additional information.
(210)	Talen Bankruptcy professional fees
(183)	Make-whole premiums and accrued interest on certain indebtedness. See "Reorganization Income (Expense), net" Note 3 in Notes to the Consolidated Financial Statements for additional information.
(70)	Professional fees incurred to obtain the Talen DIP Credit Agreements
(30)	Write-off of the aggregate pre-petition debt issuance cost carrying value
(9)	Other
\$	(812) Total

See Note 3 in Notes to the Consolidated Financial Statements for additional information on the Talen Bankruptcy.

Other Non-operating Income (Expense), net. \$(25) million unfavorable increase to expense primarily due to increases in non-recurring corporate professional fees incurred in 2022 associated with liability and other management initiatives. See Note 8 in Notes to the Consolidated Financial Statements for additional information.

Income Tax Benefit (Expense). \$(265) million unfavorable decrease in corporate tax benefit primarily due to:

Change	
\$	(198) Increase in valuation allowance expense
	(94) Increase in unfavorable permanent differences
	(53) Decrease in federal and state tax benefit due to change in pre-tax book income
	56 Decrease in Nuclear Decommissioning Trust net tax expense
	24 Remeasurement of deferred taxes related to change in Pennsylvania state rate
\$	(265) Total

See Note 6 in Notes to the Consolidated Financial Statements for additional information.

Year Ended December 31, 2021 vs. Year Ended December 31, 2020

Operating Revenues, net of Total Energy Expenses. \$(896) million overall unfavorable change is comprised of changes in "Capacity revenue," Realized Energy Margin, Unrealized Gains and Losses on Derivative Instruments, and "Nuclear fuel amortization":

Change	
<i>Capacity Revenue</i>	
\$	127 Favorable increase primarily due to higher cleared capacity prices and additional volume of cleared MWs through PJM's capacity auction for the 2021/2022 PJM Capacity Year compared to the 2020/2021 PJM Capacity Year. See "Capacity Market - Capacity Prices" within Factors Affecting Talen's Financial Position for additional information on capacity prices.
	2 Other
	129 <i>Total Capacity Revenue</i>
<i>Realized Energy Margin</i>	
(580)	Unfavorable decrease in hedge results primarily due to higher settled: (i) PJM West Hub day ahead on-peak power prices; and (ii) ERCOT South Hub day ahead Spark Spreads
(78)	Unfavorable decrease in ERCOT due to the nonrecurring extreme winter weather event during Winter Storm Uri. See "Unusual Events - Winter Storm Uri" within "Factors Affecting Talen's Financial Position" for additional information.
277	Favorable increase in margin associated with electric generation primarily due to: (i) higher around-the-clock settled power prices received at Susquehanna; (ii) higher Capacity Factors of our fossil-fueled generation portfolio in 2021; and (iii) increased generation volumes due to higher operational availability at Lower Mount Bethel.
25	Favorable increase primarily due to lower contracted amendment fees incurred in 2021. During 2020, fees were incurred to reduce contracted coal deliveries as Talen reached its storage capacity limits due to the effects of warm weather and low Capacity Factors.
(356)	<i>Total Realized Energy Margin</i>
<i>Unrealized Gains (Losses) on Derivative Instruments</i>	
(679)	Unfavorable decrease in unrealized hedge results are primarily due to the effects of: (i) higher forward PJM West Hub day-ahead on-peak prices for the 2022/2023 delivery years; and (ii) higher forward summer 2022/2023 ERCOT South-Hub Spark Spreads
(679)	<i>Total Unrealized Gains (Losses) on Derivative Instruments</i>
10	<i>Nuclear Fuel Amortization.</i>
\$	(896) Total

"Energy revenues" and "Fuel and energy purchases" are evaluated collectively as Realized Energy Margin because the price for power is generally determined by the variable operating cost of the next marginal generator dispatched to meet demand. See "Realized Energy Margin" within "Non-GAAP Financial Measures" for a description of this non-GAAP measure and a discussion of the period-over-period change by our segments.

Unrealized gains (losses) on derivatives are presented separately as both revenues and expenses within "Operating Revenues, net of Total Energy Expenses." presented on the Consolidated Statements of Operations. We evaluate them collectively because it represents the changes in fair value of Talen's economic hedging activities. See Notes 4 and 20 in Notes to the Consolidated Financial Statements for additional information on unrealized gains and losses associated with commodity derivatives.

Operation, Maintenance and Development. \$10 million favorable decrease primarily due to:

Change	
	<i>PJM</i>
\$	21 Lower non-cash charge primarily for the cancellation of a capital project at Susquehanna in 2020. See Note 14 in Notes to the Consolidated Financial Statements for additional information.
	(9) Other
	12 <i>Total PJM</i>
	<i>ERCOT</i>
	(14) Primarily due to higher operation and maintenance expenses at Nueces Bay related to its major outage in 2021 and at Barney Davis due to the Winter Storm Uri event in February 2021
	(14) <i>Total ERCOT</i>
	<i>Other Power Markets</i>
	8 Primarily lower operation and maintenance costs at Colstrip
	7 Overall operation and maintenance cost reduction attributable to NorthEast Gas Gen, which was deconsolidated beginning in the second quarter 2020. See Note 19 in Notes to the Consolidated Financial Statements for additional information.
	15 <i>Total Other Power Markets</i>
	<i>CD&O</i>
	(3) <i>Total CD&O</i>
\$	10 Total

Depreciation, Amortization and Accretion. \$(72) million unfavorable increase primarily due to higher depreciation expense at Brandon Shores, Newark Bay, and Montour for accelerated retirement dates. See "Property, Plant and Equipment" of Note 2 in Notes to the Consolidated Financial Statements for additional information on retirement date revisions.

Impairments. \$681 million favorable decrease due to the aggregation non-cash impairment charge within PJM of property, plant, and equipment in 2020 for Montour, Keystone and Conemaugh, and other assets. See Note 14 in Notes to the Consolidated Financial Statements for additional information on impairments.

Other Operating Income (Expense), net. \$(102) million unfavorable decrease in income due to \$144 million gain on sale of IEC in January 2020 partially offset by \$29 million lower non-cash net realizable value and obsolescence fuel charges between periods within PJM. See Note 7 in Notes to the Consolidated Financial Statements for additional information.

Interest Expense and Other Finance Charges. \$38 million favorable decrease primarily due to:

Change	
	<i>CD&O</i>
	<i>Corporate</i>
\$	37 Decrease in unrealized and realized losses on interest rate swaps primarily due to a first and second quarter 2020 decrease of forward LIBOR rates
	(12) Increased interest on Talen 2028 Senior Secured Notes that were issued in the second quarter 2020
	(13) Increase due to amortization of original issue discount and debt issuance costs related to the Deferred Capacity Obligations executed in the first quarter 2021
	(8) Other
	4 <i>Total CD&O</i>
	<i>PJM</i>
	24 Decrease primarily from a change in unrealized and realized losses on interest rate swaps primarily due to a 2020 decrease of forward LIBOR rates and lower interest on the LMBE-MC 2025 TLB due to lower average outstanding indebtedness of \$28 million and decreasing LIBOR rates
	24 <i>Total PJM</i>
	<i>Other Power Markets</i>
	10 Reduction primarily attributable to NorthEast Gas Gen, which was deconsolidated beginning in the second quarter 2020. See Note 19 in Notes to the Consolidated Financial Statements for additional information.
	10 <i>Total Other Power Markets</i>
\$	38 Total

See Notes 17 and 18 in Notes to the Consolidated Financial Statements for additional information on revolving credit facilities and long-term debt.

Nuclear Decommissioning Trust Funds Gain (Loss), net. \$24 million favorable increase in income at PJM due to:

Change	
\$	14 Higher realized gains in 2021 due to additional portfolio re-balancing activities in the period
	10 Primarily due to lower unrealized gains on equity securities in 2020 due to due to the Covid-19 pandemic and the resulting financial and health crisis's impact on the global economy
\$	24 Total

See Notes 13 and 20 in Notes to the Consolidated Financial Statements for additional information on the NDT.

Deconsolidation of Subsidiary Gain (Loss), net. \$(71) million unfavorable decrease to income at Other Power Markets due to a \$131 million (gain) and CD&O \$60 million loss related to the non-cash gain due to the derecognition of NorthEast Gas Gen's assets and liabilities and the recognition of a non-material investment in NorthEast Gas Gen in April 2020. See Note 19 in Notes to the Consolidated Financial Statements for additional information.

Other Non-operating Income (Expense), net. \$(25) million unfavorable decrease to income primarily at CD&O due to non-recurring professional fees incurred in 2021 related to liability and other management initiatives. See Note 8 in Notes to the Consolidated Financial Statements for additional information.

Income Tax Benefit (Expense). \$119 million favorable increase to tax benefit primarily due to:

Change	
\$	139 Increase in pre-tax book loss
	(20) State deferred tax rate change
\$	119 Total

See Note 6 in Notes to the Consolidated Financial Statements for additional information.

Non-GAAP Financial Measures

The following non-GAAP financial measures of Realized Energy Margin, Adjusted EBITDA and Adjusted Free Cash Flow discussed below, which we use as measures of our performance and liquidity. Non-GAAP financial measures do not have definitions under GAAP and may be defined and calculated differently by, and not be comparable to, similarly titled measures used by other companies. These non-GAAP measures are not intended to replace the most comparable GAAP measure as an indicator of performance. Generally, a non-GAAP financial measure is a numerical measure of financial performance, financial position, or cash flows that excludes (or includes) amounts that are included in (or excluded from) the most directly comparable measure calculated and presented in accordance with GAAP. Management cautions readers of this financial information not to place undue reliance on such non-GAAP financial measures but to also consider them with their most directly comparable GAAP measures. Realized Energy Margin, Adjusted EBITDA and Adjusted Free Cash Flow have limitations as analytical tools and should not be considered in isolation or as a substitute for analyzing our results as reported under GAAP.

Realized Energy Margin

Realized Energy Margin, a key non-GAAP financial measure, is a useful metric utilized by our chief operating decision makers to assess the performance of our core operations against our strategic priorities and business plans. It represents a combination of sales of generated electricity, sales of purchased power and physical natural gas, fuel expense, purchased energy expense, fuel transportation expense, and realized settlements from economic hedging activities. It is calculated by adjusting operating revenues, net of total energy expenses to exclude capacity revenues, unrealized mark-to-market gains and losses on derivative instruments and nuclear fuel amortization. This measure is not intended to replace operating revenues, net of total energy expenses, which is the most comparable measure calculated in accordance with GAAP.

"Energy revenues" and "Fuel and energy purchases" are evaluated collectively as Realized Energy Margin because the price for power is generally determined by the variable operating cost of the next marginal generator dispatched to meet demand. Our financial performance is highly correlated to how we maximize Realized Energy Margin through management of our generation portfolio and the results of our hedging and optimization activities.

Realized Energy Margin is a supplemental measure that is utilized, in conjunction with other information, by our senior management team and Talen Energy Corporation's Board of Directors to manage our operations and analyze actual results against our budget. We believe Realized Energy Margin is useful to investors and other users of our financial statements who seek to evaluate, consistent with the use by our senior management team, our operating performance because it allows them to compare the energy revenues we produce, less the related costs, on a consistent basis across periods. Realized Energy Margin, to some extent, also provides an additional tool to compare business performance across companies.

Based on the market areas in which our generation fleet operates and the manner in which our senior management team reviews our financial and operating performance and allocates resources, we have grouped our businesses into the below Realized Energy Margin analysis. Each grouping is engaged in electricity generation, marketing activities, commodity risk and fuel management within their respective RTO or ISO markets. Our segments are PJM, ERCOT, and Other Power Markets. See "Results of Operations - Comparative Results of Operations" above for descriptions of our segments.

Realized Energy Margin to "Operating Revenues, net of Total Energy Expenses" presented on the Consolidated Statements of Operations for the years ended December 31:

	2022	2021	2020	2022 vs 2021 Change	2021 vs 2020 Change
Electricity sales and ancillary services	\$ 2,832	\$ 2,532	\$ 982	\$ 300	\$ 1,550
Realized hedging gain (loss), net (a)	(797)	(1,201)	498	404	(1,699)
Energy revenues	2,035	1,331	1,480	704	(149)
Fuel expense and energy purchases	(1,065)	(1,073)	(575)	8	(498)
Realized hedging gain (loss), net (a)	127	217	(74)	(90)	291
Realized Energy Margin	1,097	475	831	622	(356)
Add (Less):					
Capacity revenues	377	444	315	(67)	129
Unrealized gain (loss) on derivative instruments, net	625	(712)	(33)	1,337	(679)
Nuclear fuel amortization	(94)	(96)	(106)	2	10
Operating Revenues, net of Total Energy Expenses	\$ 2,005	\$ 111	\$ 1,007	\$ 1,894	\$ (896)
Electric Generation (thousands of MWh) (b)	36,259	35,650	30,548	609	5,102
Realized Energy Margin (\$/MWh)	\$ 30.25	\$ 13.32	\$ 27.20	\$ 16.93	\$ (13.88)
Capacity Factor	33.28 %	31.31 %	25.90 %	1.97	5.41
Equivalent Forced Outage Factor	2.32 %	5.33 %	7.11 %	(3.01)	(1.78)

(a) Includes the gain (loss) on non-derivative physical commodity transactions utilized for economic hedging purposes, where applicable.

(b) Generated MWhs sold after consumption for station use where applicable.

Realized Energy Margin by region for the years ended December 31, 2022 versus December 31, 2021:

	Realized Energy Margin				Electric Generation (MWh) (a)				Realized Energy Margin			
	2022	2021	change	%	2022	2021	change	%	2022	2021	change	%
PJM	\$ 963	\$ 415	\$ 548	132	31,683	31,533	150	—	\$ 30.39	\$ 13.16	\$ 17.23	131
ERCOT	77	28	49	175	2,933	2,635	298	11	26.25	10.63	15.62	147
Other Power Markets	57	32	25	78	1,643	1,482	161	11	34.69	21.59	13.10	61
Total	\$ 1,097	\$ 475	\$ 622	131 %	36,259	35,650	609	2 %	\$ 30.25	\$ 13.32	\$ 16.93	127 %

(a) Generated MWhs sold after consumption for station use where applicable.

PJM - \$548 million favorable change includes \$657 million increase due to the effects of: (i) higher around-the-clock power prices received at Susquehanna coupled with (ii) higher on-peak power prices received at our fossil-fueled generation portfolio and (iii) higher Capacity Factors at Brunner Island; partially offset by (iv) lower realized hedge results primarily due to the highest calendar average PJM West Hub day ahead on-peak power prices in twenty years resulting primarily from higher settled natural gas prices and (v) lower Capacity Factors of our coal-fueled generation portfolio primarily at Brandon Shores and Keystone and Conemaugh. The remaining \$(109) million decrease is due to the effects of (i) losses incurred on an existing commodity contract amendment; partially offset by (ii) gains realized on early terminated commodity contracts as a result of the Talen Bankruptcy.

ERCOT - \$49 million favorable change includes: (i) \$78 million increase due to the absence of the 2021 financial impacts resulting from Winter Storm Uri coupled with (ii) \$19 million due to higher realized energy margin associated with electric generation primarily due to three-year high calendar average realized Spark Spreads after excluding impacts from Winter Storm Uri; partially offset by (iii) lower realized hedge results. The remaining \$(48) million includes the effects of losses realized on early terminated commodity contracts as a result of the Talen Bankruptcy.

Other Power Markets - \$25 million favorable change was primarily due to: (i) increased margin associated electric generation in the WECC region as regional calendar average power prices have settled at the highest level in the past 20 years; partially offset by (ii) lower realized hedge results.

Realized Energy Margin by region for the years ended December 31, 2021 versus December 31, 2020:

	Realized Energy Margin				Electric Generation (MWh) (a)				Realized Energy Margin			
	2021	2020	change	%	2021	2020	change	%	2021	2020	change	%
PJM	\$ 415	\$ 693	\$ (278)	(40)	31,533	25,991	5,542	21	\$ 13.16	\$ 26.66	\$ (13.50)	(51)
ERCOT	28	102	(74)	(73)	2,635	2,545	90	4	10.63	40.08	(29.45)	(73)
Other markets	32	36	(4)	(11)	1,482	2,012	(530)	(26)	21.59	17.89	3.70	21
Total	\$ 475	\$ 831	\$ (356)	(43)%	35,650	30,548	5,102	17 %	\$ 13.32	\$ 27.20	\$ (13.88)	(51)%

(a) Generated MWhs sold after consumption for station use where applicable.

PJM - \$(278) million unfavorable change includes \$(303) million due to the effects of: (i) lower realized hedge results as the 2021 calendar year average PJM West Hub day ahead on-peak power prices increased from 2020 record lows due to higher settled natural gas prices and higher power demand in PJM; partially offset by (ii) higher around-the-clock power prices received at Susquehanna; (iii) higher Capacity Factors of our fossil-fueled generation portfolio in 2021; and (iv) higher operational availability in 2021 at Lower Mount Bethel. The remaining \$25 million increase is primarily due to lower contract amendment fees incurred in 2021. During 2020, fees were incurred to reduce contracted coal deliveries as Talen reached its storage capacity limits due to the effects of warmer weather and low Capacity Factors.

ERCOT - \$(74) million unfavorable change was primarily due to intermittent generation facility outages during Winter Storm Uri in the first quarter 2021 that resulted in Talen purchasing power at high ERCOT South Hub real-time prices to meet its delivery obligations. ERCOT Spark Spreads have settled higher following Winter Storm Uri and contributed to lower realized hedge results partially offset by margin associated with electric generation. During February 2021, Winter Storm Uri caused significant price volatility in ERCOT that was the result of a rapid increase in energy demand driven by historically cold temperatures and a simultaneous decrease in energy supply caused by unprecedented operational disruptions to the electric grid, natural gas production and distribution systems, water supplies, and other critical infrastructure throughout Texas. These factors resulted in real-time prices reaching the ERCOT high system-wide offer cap of \$9,000/MWh for certain intervals during the week of the winter event.

Other Power Markets - \$(4) million unfavorable change was primarily due to the absence of realized energy margin associated with NorthEast Gas Gen in 2021 due to its deconsolidation from Talen in the second quarter 2020 which was partially offset by increased margin associated with electric generation in the WECC region as the 2021 calendar average Mid-Columbia day ahead on-peak power prices increased from 2020. See Note 19 in Notes to the Consolidated Financial Statements for additional information on the deconsolidation of NorthEast Gas Gen.

Adjusted EBITDA and Adjusted Free Cash Flow

We use Adjusted EBITDA and Adjusted Free Cash Flow as measures to: (i) assist in comparing operating performance and readily view operating trends on a consistent basis from period to period; (ii) plan and forecast overall expectations and evaluate actual results against such expectations; and (iii) communicate with our Board of Directors, creditors, analysts and investors concerning our financial performance.

Adjusted EBITDA. Adjusted EBITDA, a key non-GAAP financial measure, is a useful metric utilized by our chief operating decision makers to efficiently evaluate operating results and trends without certain items that may distort financial results, a metric for planning and forecasting overall expectations, and for evaluating actual results against such expectations. Adjusted EBITDA is computed by net income (loss) adjusted for nonrecurring bankruptcy, liability management, and restructuring costs; certain non-cash items and other items that management believes are not indicative of ongoing operations, including: interest expense and other finance charges; income taxes; depreciation, amortization and accretion; nuclear fuel amortization; unrealized gains or losses on derivative instruments; unusual market events, which primarily includes Winter Storm Uri commercial losses, net and Winter Storm Elliott charges for capacity performance penalties, net ; charges related to termination of hedges resulting from modification to certain hedge agreements; environmental liability revisions; net periodic defined benefit cost; development expenses; gains or losses on sales, dispositions or retirements of assets; fuel supply legal settlements, liquidated damages, and obsolescence; gains or losses on the repurchase, modification or extinguishment of debt; gains and losses on securities in the nuclear decommissioning trust funds; gains or losses from the consolidation or deconsolidation of subsidiaries; non-cash compensation expense; legal and other professional fees related to certain litigation, and other activity. Cash expenditures for nuclear fuel are presented as "Capital expenditures" in the calculation of Adjusted Free Cash Flow in the below table.

In addition, we believe investors commonly adjust net income (loss) information to eliminate the effect of nonrecurring restructuring expenses, and other non-cash charges which vary widely from company to company, from period to period, and impair comparability. We believe Adjusted EBITDA is useful to investors and other users of the financial statements to evaluate our operating performance because it provides an additional tool to compare business performance across companies and across periods. Adjusted EBITDA is widely used by investors to measure a company's operating performance without regard to such items described above. These adjustments can vary substantially from company to company depending upon accounting policies, book value of assets, capital structure and the method by which assets were acquired.

Adjusted Free Cash Flow. Adjusted Free Cash Flow, a key non-GAAP financial measure, is a useful metric utilized by our chief operating decision makers to evaluate cash flow activities. Adjusted Free Cash Flow is computed by Adjusted EBITDA reduced by cash payments for interest and finance charges and capital expenditures, including nuclear fuel purchases adjusted for the related amortization, and adjusting for property casualty insurance proceeds and expenditures for development and growth.

In addition, we believe investors and other users of our financial statements commonly reduce Adjusted EBITDA by the amount of capital expenditures and cash interest and finance charges, to determine a company's ability to meet future obligations. We believe Adjusted Free Cash Flow is useful to investors and other users of our financial statements in evaluating our operating performance because it provides them with an additional tool to determine a company's ability to meet future obligations and to compare business performance across companies and across periods. Adjusted Free Cash Flow is widely used by investors to measure a company's levered cash flow without regard to items such as taxes; depreciation and amortization; impairment losses; ARO settlements; nonrecurring development and growth expenditures; gains or losses on sales, dispositions, or retirements of assets; unrealized gains and losses on derivative financial instruments; and stock-based compensation expense, which can vary substantially from company to company and period to period depending upon accounting methods and book value of assets, capital structure and the method by which assets were acquired.

Adjusted EBITDA and Adjusted Free Cash Flow are not intended to replace "Net Income (Loss)," which is the most comparable measure calculated and presented in accordance with GAAP.

The reconciliation from "Net Income (Loss)" presented on the Consolidated Statements of Operations to Adjusted EBITDA and Adjusted Free Cash Flow for the years ended December 31:

	2022	2021	2020
Net Income (Loss)	\$ (1,293)	\$ (977)	\$ (664)
Bankruptcy, liability management, and restructuring costs			
Hedge termination losses, net (a)	158	—	—
Reorganization (gain) loss, net (b)	812	—	—
Operational and other restructuring activities (c)	522	13	16
Liability management costs and other professional fees	46	29	—
Total Bankruptcy, liability management, and restructuring costs	\$ 1,538	\$ 42	\$ 16
Other Adjustments			
Interest expense and other finance charges	365	336	366
Income tax (benefit) expense	(35)	(300)	(181)
Depreciation, amortization and accretion	520	524	452
Nuclear fuel amortization	94	96	106
Unrealized (gain) loss on commodity derivative contracts	(625)	712	33
Nuclear decommissioning trust funds (gain) loss, net	184	(196)	(172)
Environmental and ARO revisions on fully depreciated property, plant and equipment (d)	18	(7)	(6)
Unusual market events (e)	33	78	—
Net periodic defined benefit cost (f)	12	36	31
Development expenses	17	8	—
Impairments, canceled projects, obsolescence, and receivables allowance (g)	(2)	17	753
(Gain) loss on non-core asset sales (h)	(3)	(3)	(141)
Liquidated damages	(2)	7	34
Legal settlements and litigation costs (i)	20	8	5
Consolidation of subsidiary (gain) loss (j)	170	—	—
Deconsolidation of subsidiary (gain) loss, net (j)	—	—	(71)
Lower Mt. Bethel casualty losses	—	—	6
Talen Montana closure related expenses	—	—	6
Other	1	6	3
Total Adjusted EBITDA	\$ 1,012	\$ 387	\$ 576
Capital expenditures, net	(163)	(182)	(127)
Interest and finance charge payments	(277)	(316)	(302)
Other	—	—	(2)
Total Adjusted Free Cash Flow	\$ 572	\$ (111)	\$ 145

(a) Nonrecurring charge on terminated power contracts. See Note 4 in Notes to the Consolidated Financial Statements for additional information.

(b) Represents (income) expense, net for amounts incurred directly related to Talen's bankruptcy. See Note 3 in Notes to the Consolidated Financial Statements for additional information.

(c) 2022 primarily includes non-cash charges for estimates of damages for contracts terminated in connection with Talen's bankruptcy. See Note 3 in Notes to the Consolidated Financial Statements for additional information.

(d) See Note 15 for additional information on accrued environmental costs and ARO revisions.

(e) 2022 primarily includes costs incurred for Winter Storm Elliott and 2021 represents net losses incurred related to Winter Storm Uri and is presented within "Energy Revenues" and "Fuel and energy purchases" on the Consolidated Statement of Operations.

(f) Consists of "Postretirement benefits service cost" and "Postretirement benefits gains (loss), net" presented on the Consolidated Statements of Operations.

(g) See Notes 4, 9 and 14 in Notes to the Consolidated Financial Statements for additional information.

(h) See Note 25 in Notes to the Consolidated Financial Statements for additional information.

(i) 2022 primarily relates expense incurred related to the Kinder Morgan litigation. See Note 12 in Notes to the Consolidated Financial Statements for additional information.

(j) See Note 12 in Notes to the Consolidated Financial Statements for additional information on the consolidation of Cumulus Digital Holdings in 2022 and see Note 19 in Notes to the Consolidated Financial Statements for additional information on the deconsolidation of NGG in 2020.

Risk Management

The forward-looking information presented below provides estimates of what may occur in the future, assuming certain adverse market conditions and model assumptions. Actual future results may differ materially from those presented. These disclosures are not precise indicators of expected future losses, but only indicators of possible losses under normal market conditions at a given confidence level.

Commodity Price Risk

Volatility in the wholesale power generation markets provides uncertainty in the future performance, realized energy margin, and cash flows of the business. The price risk Talen is exposed to includes the price variability associated with future sales and purchases of power, natural gas, coal, oil products, uranium, environmental products and other energy commodities in competitive wholesale markets. Several factors influence price volatility including macroeconomic changes to demand, such as a slowdown in the U.S. economy, seasonal changes in demand, weather conditions, available regional load-serving supply, regional transportation and (or) transmission availability, market liquidity, and federal, regional and state regulations.

Within the parameters of our risk policy, we generally utilize conventional exchange-traded and over-the-counter traded derivative instruments, and in certain instances, structured products, to economically hedge the commodity price risk of the forecasted future sales and purchases of commodities associated with our generation portfolio.

Margin Sensitivities

The table below displays sensitivities for changes in projected margins based upon changes in certain commodity prices. The sensitivities assume a consistent change in each specified commodity across our entire portfolio. Actual price changes may differ by market and commodity, which could result in different results than displayed.

The base case for these sensitivities incorporates market prices, our economic hedge position and expected generation (including cost inputs and planned outages) at December 31, 2022:

	Sensitivity Range		2023 Margin Effect (a)		2024 Margin Effect (a)	
	Low	High	Low \$	High \$	Low \$	High \$
Change in gas price per \$/MMBtu (b)	\$ (0.50)	\$ 0.50	(102)	111	(168)	172
Change in power price per \$/MWh (c)	\$ (5.00)	\$ 5.00	(133)	158	(212)	241
Change in market implied heat rate (d)	(1)	1	(123)	148	(232)	257

(a) Margin price sensitivities hold constant certain microeconomic and macroeconomic factors that may impact our margin and the impact of changes in prices.

(b) Natural gas price sensitivities assume that power prices move up or down at the current market heat rate.

(c) Power price sensitivities assume no change in natural gas prices.

(d) Heat rate sensitivities assume changes in power prices that are based on current market heat rates with no changes in natural gas prices.

Interest Rate Risk

Talen is exposed to interest rate risk from the possibility that changes in interest rates will affect future cash flows associated with existing floating rate debt issuances. To reduce interest rate risk, derivative instruments are utilized to economically hedge the interest rates for a predetermined contractual notional amount which results in a cash settlement between counterparties. Certain interest rate derivative instruments were required through December 2021 under the LMBE-MC Credit and Guaranty Agreement; others are entered into at the discretion of Talen.

The following table displays the net fair value of interest rate swaps (including accrued interest, if applicable) outstanding at December 31, 2022:

	Notional Exposure	Asset (Liability)	10% Adverse Movement (a)	Maturities Through
Interest rate swaps	\$ 289	\$ 9	\$ (1)	2023

(a) Effect of a 10% adverse interest rate movement decreases assets or increases liabilities, as applicable, which could result in an asset becoming a liability.

Additionally, we are exposed to a potential increase in interest expense and to changes in the fair value of debt. The estimated impact of a 10% adverse movement in interest rates at December 31, 2022 would have caused a non-material decrease in interest expense and a \$11 million increase in the fair value of debt compared with a non-material decrease in interest expense and a \$81 million increase in the fair value of the debt at December 31, 2021.

We are currently not accruing interest on certain indebtedness as a result of the Talen Bankruptcy. See Note 18 in Notes to the Consolidated Financial Statements for additional information on interest expense.

Credit Risk

Credit risk is the risk of financial loss if a customer, counterparty, or financial institution is unable to perform or pay amounts due causing a financial loss to Talen. Financial assets are considered credit-impaired when facts and circumstances reasonably indicate an event has occurred where the carrying value of the asset will not be recovered through cash settlement. Such events may include deterioration of a customer's or counterparty's financial health leading to a probable bankruptcy or reorganization, a breach of contract, or other economic reasons. Credit risk is inherent within cash and cash equivalents, restricted cash and cash equivalents, derivative instruments, and primarily within accounts receivable. The maximum amount of credit exposure associated with financial assets is equal to the carrying value. The carrying values of derivative instruments consider the probability that a counterparty will default when contracts are out of the money (from the counterparty's standpoint). Additionally, a credit impairment is recognized on receivables when facts indicate a high probability that amounts owed to Talen will not be paid. Such allowances are presented as "Accounts receivable, net" on the Consolidated Balance Sheets. For the years ended December 31, 2022 and 2021, there were no material credit impairments, other than amounts reserved during 2021 for amounts due from ERCOT that are subject of short payments. See Note 4 in Notes to the Consolidated Financial Statements for additional information on the ERCOT receivable reserve.

We maintain credit procedures with respect to counterparty credit (including requirements that counterparties maintain specified credit standards) and require other assurances in the form of credit support or collateral in certain circumstances in order to limit counterparty credit risk. However, we have concentrations of suppliers and customers among electric utilities, financial institutions, marketing and trading companies and the U.S. government. These concentrations may impact our overall exposure to credit risk, positively or negatively, as counterparties may be similarly affected by changes in economic, regulatory or other conditions.

See Note 4 in Notes to the Consolidated Financial Statements for additional information on credit risk and for additional information on credit risk.

Investment Price Risk

In accordance with certain NRC requirements, Susquehanna Nuclear maintains trust funds comprised of restricted assets that were established in order to fund its proportional share of Susquehanna Nuclear's future decommissioning obligations. At December 31, 2022, the NDT was invested primarily in domestic equity securities, fixed-rate, fixed-income securities and short-term cash-equivalent securities and is presented as fair value on the Consolidated Balance Sheets. The mix of securities is intended to provide returns sufficient to fund Susquehanna Nuclear's decommissioning and to compensate for inflationary increases in decommissioning costs. However, the equity securities included in the NDT are exposed to price fluctuation in equity markets, and the values of fixed-rate, fixed-income securities are primarily exposed to changes in interest rates. We actively monitor the investment performance and periodically review the asset allocation in accordance with our nuclear decommissioning trust investment policy statement.

At December 31, a hypothetical 10% increase in interest rates and a 10% decrease in equity values would have resulted in:

	2022	2021
Estimated increase (decrease) in the fair value of NDT assets	\$ (85)	\$ (93)

See Notes 13 and 20 in Notes to the Consolidated Financial Statements for additional information regarding the Susquehanna NDT.

Critical Accounting Policies

Financial statements prepared in conformity with GAAP inherently contain the application of appropriate accounting policies and require management to make judgements, estimates and assumptions that affect the carrying values of assets and liabilities, the reported amounts of revenues and expenses and the recognition and disclosures of commitments and contingencies. Relevant historical experience and other various assumptions that are believed to be reasonable form the basis for these judgements, estimates, and assumptions. Additionally, certain accounting policies involve judgments and uncertainties to such an extent that there is a reasonable likelihood that materially different amounts would have been reported under different conditions or if different assumptions had been used. We believe the following areas contain the most significant accounting judgments, the highest levels of subjectivity or relate to uncertain matters that are susceptible to changes in estimates. For a more complete discussion of our accounting policies, please see Note 2 in Notes to Financial Statements for more information regarding our accounting policies.

Derivative Instruments

Derivative instruments, which assist with commodity-price and interest-rate risk mitigation by our commercial and treasury functions, are presented on our consolidated balance sheet at fair value, either as an asset or liability, and are comprised primarily of commodity contracts and interest rate contracts. Derivative identification is challenging. While a conventional financially settled contract, such as swap or option, generally contains standard terms that facilitate its identification as a derivative instrument, judgement is required to determine whether contracts to buy or sell commodities with physical delivery or contracts which contain certain embedded settlement or fluctuating price features meet the definition of a derivative instrument. This judgment typically includes, among other things, an evaluation of the contract, its expected cash flows and the activity levels of its principal market. Additionally, judgment is required to determine if a commodity contract intended for physical delivery meets an allowable exemption prior to accounting for its income effects under the accrual accounting method rather than at fair value. This typically includes assumptions regarding the probability of physical delivery and the quantities used in normal business activities.

Many derivative contracts economically hedge commodity market prices or interest rates for borrowings, but they do not qualify for, or we do not elect, specialized "hedge accounting." In these instances, the income effect of a derivative instrument is presented on our consolidated statement of operations. The cumulative realized net gains or losses for commodity contract derivatives that are physical energy sales, hedge our generation and hedge other sale activities are presented within "operating revenues" on our consolidated statements of operations. The cumulative realized net gains or losses for commodity contract derivatives that are physical energy purchases, hedge our fuel costs and emissions costs, or other purchase activities are presented within "fuel expenses" on our consolidated statement of operations. Changes in fair value of commodity derivatives are presented as "unrealized gain (loss) on derivative instruments," as a component of either "operating revenues" or "fuel expenses," in a consistent manner with the presentation of its realized net gains or losses. The cumulative net gains or losses for interest rate contracts are presented within "interest expense and other finance charges" on our consolidated statements of operations.

Please see Notes 4 and 20 in Notes to the Financial Statements for more information on derivative instruments.

Asset Retirement Obligations

We have significant legal obligations associated with our generation fleet, which include activities such as structure removal, remediation of coal piles, water basins and ash basins and the restoration of certain operations sites back to their natural state. Our largest obligations are for Susquehanna Nuclear's decommissioning, whose Unit 1 and Unit 2 licenses expire in 2042 and 2044, respectively, and for Talen Montana's proportionate share of the remediation, closure and decommissioning costs for coal ash ponds at the Colstrip Units.

Estimating AROs is difficult as most of these obligations are not expected to be paid until several years, or decades, in the future. In certain instances, the regulations that created the legal obligation for the ARO can include ambiguous terms to describe the required decommissioning or remediation activities. In other instances, regulatory approval is required for the final scope-of-work for the activities and such approval has not yet been granted. Accordingly, significant judgment is required to make reasonable ARO assumptions regarding the range of likely outcomes, for cost estimates. Additionally, inflation rates and discount rates may be subject to revision until the ARO settlement date. As such, changes in assumptions to the range of likely outcomes could result in significantly different cash outlay for AROs at the settlement date than the current carrying value of the ARO on our consolidated balance sheets. We periodically review ARO carrying values and assess for updates by applying our experience, knowledge and professional judgment to the specific characteristics of the obligation.

AROs are recognized at fair value at the time of installation and as an increase to property, plant, and equipment. The income effect of AROs is generally presented as "Depreciation, amortization, and accretion" on our consolidated statements of operations through the expected ARO settlement date. However, for an asset that has a fully depreciated property, plant, and equipment carrying value, revisions in ARO estimates have an immediate effect in earnings. Revisions to the estimated ARO are presented as "Other operating income (expense), net" on our consolidated statements of operations.

Please see Note 15 in Notes to the Financial Statements for more information on AROs.

Recoverability of Long-Lived Assets

Property, plant, and equipment used in operations are assessed for impairment whenever changes in facts and circumstances indicate the carrying amount of the asset group may not be recoverable. Judgment exists in identifying these events. In certain instances, the events could be external to us and may include, among other events, changes in the economic environment, such as a decrease in the market price of an asset, significant changes to market rules and regulations in the power markets in which we operate and changes in federal or state environmental regulations that would materially affect the cash flows of our generation fleet. In other instances, the events result from negative financial trends, physical damage to assets or decisions of management regarding strategic initiatives, such as sales of assets, generation facility retirements or significant changes in planned capital expenditures or operating costs.

Individual assets are grouped for impairment purposes at the lowest level for which there are identifiable cash flows that are largely independent of the cash flows of other assets and liabilities. There is significant judgment in identifying the lowest level of independent cash flows in the merchant power market given certain groups of our generation facilities participate in the same market. In determining the appropriate level of aggregation, we considered the manner in which we make economic decisions regarding the revenue and commercial activities of the generation facilities and the manner in which we make operational and maintenance decisions. Accordingly, we generally aggregate assets for impairment at the reporting unit level, unless there are additional facts and circumstances present which indicate that an asset should be tested for recoverability on a standalone basis. Periodically, we evaluate whether conditions such as changes in market conditions, regulatory changes, or other events require a change in aggregation.

If there is an indication the carrying value of an asset group may not be recovered, we review the expected future cash flows of the asset group. If the sum of the undiscounted pre-tax cash flows is less than the carrying value of the asset group, the asset group is written down to its estimated fair value. Fair value for property, plant, and equipment may be determined by a variety of valuation methods including third-party appraisals, market prices of similar assets, and present value techniques. However, as there is generally a lack of quoted market prices for long-lived assets, the fair value of impaired assets is typically determined based on the present values of expected future cash flows using discount rates which are believed to be consistent with those used by principal market participants. The estimated cash flows and related fair value computations consider all available evidence at the date of the review such as estimated future generation volumes, capacity prices, energy prices, operating costs, and capital expenditures.

Impairment charges are presented as "other operating income (expense), net" in our consolidated statements of operations in the period in which the impairment determination is made.

See Note 14 in Notes to the Consolidated Financial Statements for information impairments recognized in 2020.

Postretirement Benefit Obligations

Our subsidiaries sponsor postemployment benefits that include defined benefit pension plans and health and welfare postretirement plans (other postretirement benefit plans). Accounting for defined benefit pensions and other postretirement benefits involves significant estimates to determine projected benefit obligations and company contribution requirements, which inherently require assumptions be made regarding many uncertainties. Such uncertainties include discount rates, expected return on assets, expected wages for participants at retirement, estimated retirement dates, mortality rates and future health care costs. Over a period of time, we are required to fund all vested benefits for postretirement defined benefit pension plans through plan assets, investment returns or contributions to the plans.

Actuarial assumptions required under GAAP to determine the projected benefit obligations and actuarial assumptions required under the Employee Retirement Income Security Act to determine contribution assumptions differ in their objectives. Actuarial assumptions regarding projected benefit obligations under GAAP affect the net periodic defined benefit cost presented within our consolidated statement of operations. Actuarial assumptions used in the computation to estimate required contributions to the plan affect funding requirements over a period of time.

We are responsible for the estimates regarding our postemployment benefits. However, we engage actuarial firms, who apply professional standards in the determination of the judgmental assumptions for plan contributions, to estimate both the contribution requirements for postemployment benefits and the associated projected benefit obligations under GAAP.

Projected benefit obligations are particularly sensitive to expected return on plan assets and the discount rate. The expected return on plan assets is the estimated long-term rates of return on plan assets that will be earned over the life of each plan. These projected returns reduce the net periodic defined benefit costs. The discount rate is used to compute the present value of benefits, which is based on projections of benefit payments to be made in the future. The objective in selecting the discount rate is to measure the single amount that, if invested at the measurement date in a portfolio of high-quality debt instruments, would provide the necessary future cash flows to pay the accumulated benefits when due. Please see Note 21 in Notes Financial Statements for the weighted-average assumptions used for discount rate and expected return on plan assets for all plans at December 31, 2022.

A variance in the discount rate or expected return on plan assets could have a significant impact on postretirement benefit obligations and annual net periodic pension costs. The following table displays the estimated increase / (decrease) of a 1% increase and a 1% decrease in the discount rate and expected return on plan assets on the postretirement benefit obligation and net periodic pension cost.

Actuarial Assumption	Sensitivity	
	1% Increase	1% Decrease
Discount rate		
Postretirement benefit obligation	\$ (127)	\$ 152
Net periodic pension cost	2	1
Expected return on plan assets		
Net periodic pension cost	\$ (12)	\$ 12

Recent Accounting Pronouncements

Please see Note 2 in Notes to the Financial Statements for a discussion of recently adopted and issued accounting pronouncements. Please also see "Critical Accounting Policies" above.

FORWARD-LOOKING STATEMENTS AND SIGNIFICANT BUSINESS RISKS

Forward-Looking Statements

Statements contained herein concerning expectations, beliefs, plans, objectives, goals, strategies, future events or performance and underlying assumptions, and other statements that are not statements of historical fact, are forward-looking statements. These statements often include words such as "believe," "expect," "anticipate," "intend," "plan," "estimate," "target," "project," "forecast," "seek," "will," "may," "should," "could," "would" or similar expressions. Although we believe that the expectations and assumptions presented in these statements are reasonable, there can be no assurance that these expectations will prove to be correct. Forward-looking statements are subject to many risks and uncertainties, and actual results may differ materially from the results discussed in forward-looking statements. New factors that could cause actual results, including financial performance, to differ materially from those described in forward-looking statements included herein emerge from time to time. You should consider these important factors in evaluating any statement made herein, as it is not possible for us to predict all such factors, or the extent to which any such factor or combination of factors may cause actual results to differ from those contained in any forward-looking statement. For the foregoing reasons, you are cautioned against relying on any forward-looking statement, which speaks only as of the date on which such statement is made, and we undertake no obligation to update the information contained in such statement to reflect subsequent developments or information.

Significant Business Risks

Talen is subject to business risks that could cause our future results to differ from historical results and include but are not limited to:

Bankruptcy Risks

- The ongoing Talen Bankruptcy and any unpredictable or adverse decision or outcome in such proceedings, which could have a material adverse effect on our financial condition, liquidity and (or) results of operations. Such decisions or outcomes could include, among other things: (i) the inability to settle prepetition claims through the Talen Bankruptcy; (ii) commercial counterparties and (or) vendors could terminate their relationship with the Company or require financial assurances or enhanced performance; (iii) unexpected delay in emergence from bankruptcy; (iv) uncertainty regarding the realization of assets and the liquidation of liabilities; and (v) negative impact to existing income tax attributes, including valuation allowances against deferred tax assets for interest expense and NOL utilization limits;
- Our ability to consummate the Plan of Reorganization that was approved by the Bankruptcy Court, which could be impacted by: (i) our ability to obtain exit financing as contemplated by the Plan of Reorganization due to market conditions, disruptions in the financial markets, or otherwise; and (ii) fluctuations in the energy market which may render the Rights Offering insufficient to consummate the Plan of Reorganization;
- Restrictions on our ability to pursue our business strategies during the Talen Bankruptcy, including limitations on our ability to transact business outside the ordinary course without obtaining Bankruptcy Court approval and limitations on our continued investments in our Cumulus Affiliates;
- Significant increases in costs incurred as a result of the Talen Bankruptcy, including the fees of legal, financial and professional advisors retained by Talen and by our creditors;
- Covenant restrictions included in the Talen DIP Credit Agreements that may limit our ability to transact business, including our ability to optimally capture the impact of positive price fluctuations in the power markets via our hedging strategy. See Note 17 for additional information on the Talen DIP Credit Agreements;
- Changes that may occur to Talen's business as a result of new equity ownership or capital structure upon emergence from the Talen Bankruptcy;
- The diversion of resources and management's attention to the Talen Bankruptcy;
- Potential increased difficulty in retaining and motivating our key employees through the process of reorganization, and potential increased difficulty in attracting new employees;
- When we emerge from Chapter 11, the amounts reported in subsequent consolidated financial statements may materially change relative to our historical consolidated financial statements. We also will be required to adopt fresh start accounting, in which case our assets and liabilities will be recorded at fair value as of the fresh start reporting date, which may differ materially from the recorded values of assets and liabilities on our historical consolidated balance sheets. Our financial results after the application of fresh start accounting may be different from historical trends;
- See Note 3 for additional information on the Talen Bankruptcy;

Market, Financial and Economic Risks

- Prices for power, nuclear fuel, natural gas, coal, fuel oil, Bitcoin and emission allowances are predominately impacted by supply and demand. Supply, which can vary by region, is impacted by generation and transmission capacity availability and governmental regulation. Demand can vary due to, among other things, weather, general economic conditions, and the COVID-19 pandemic;
- The differences between the price received for power and the fuel prices for natural gas, coal and uranium, which significantly influence our Realized Energy Margin;

- Changes in capacity revenues from annual and supplemental RTO and ISO capacity auctions, particularly the result for the uncleared capacity auctions;
- The price differences between the locations where we deliver power and liquid market hubs which may be impacted by, among other things, transmission constraints and congestion;
- Our ability to mitigate short-term and medium-term cash flow variability through the consummation of commercial hedging transactions;
- The effects of extreme natural gas, uranium, power, and coal price volatility on our energy margin and our hedging strategy;
- The availability of sufficient natural gas, uranium and coal fuel supplies at our generation facilities for electric generation;
- The effects of interest rate and equity security price volatility on the value of assets in, and potential cash funding requirements of, our NDT and our pension and other postretirement plans;
- The potential effects of the Ukraine and Russia conflict and attendant sanctions imposed on Russia, including supply chain disruptions, and disruptions in oil and natural gas production and the supply of nuclear fuel;
- Increases in the supply of electricity due to new power generation capacity, including new combined cycle gas and renewable power generation;
- Wholesale electric energy price volatility in the markets in which we operate due to increasing generation from intermittent renewable power generation;
- The effects of our reliance on the operations of, and financial results from, Susquehanna to fund our other operations and to satisfy our financial and liquidity requirements;
-
- Our ability to generate sufficient cash flow in order to fund our operations, debt service obligations and working capital requirements due to macroeconomic factors, such as a sustained period of low natural gas and (or) power prices in the markets in which we operate, decreases in demand for electricity, a slowdown in the U.S. economy, extended periods of moderate weather or broad increases in energy efficiency;
- The credit risk associated with the collection of shared operational expenses, capital expenditures, and other required jointly funded amounts due from the co-owners and (or) partners of jointly-owned facilities;
- The effects on our business resulting from the financial difficulties or creditworthiness of our hedging counterparties, contractors, fuel suppliers (including coal and nuclear fuel suppliers), and fuel transporters (including railroads and pipelines), and market operators;
-
- The risks associated with material payment defaults by other ISO and RTO market participants including: (i) the effects of such default on ISO and RTO market liquidity and the ability for the market operator to perform settlements in the ordinary course of business; (ii) the allocation by the market operator of settlement losses from defaulting market participants to non-defaulting market participants; and (iii) the lengthy recoverability period, if at all, of amounts owing to non-defaulting market participants due to disruptions in settlements;
- The effects of our stakeholders' increasing focus on environmental, social and governance issues on our ability to raise capital and access liquidity in the financial markets;
- Significant collateral requirements required by commodity exchanges and (or) hedging counterparties, due to, among other factors, unexpected volatility in the price for natural gas and wholesale power;
- The need to make cash contributions to defined benefit pension plans and other postretirement benefit plans, and the impact of volatility in interest rates, and prices of securities and their impact on the fair value of debt and equity securities in such plans, on the amount and timing of such required contributions;
- The financial effects of Capacity Performance penalties imposed by PJM due to operational issues at our power generation facilities or the failure of PJM to call on our generation in a timely manner;
- The effects of defaults and (or) cross-defaults that may occur under the terms of the Cumulus Digital Credit Agreement or other indebtedness relating to these projects due to delays or counterparty non-performance, which could result in a draw on LCs or other credit support provided by Talen, as well as a loss in value of Talen's investment in such projects;
- Market conditions of, and overall sentiment towards, crypto assets, including the negative impacts caused by the extreme price volatility and recent significant decline in value of cryptocurrencies and disruption caused by the recent bankruptcies in the industry;

Regulatory, Environmental and Legislative Risks

- Uncertainty around unknown future changes in the market construct of ISOs or RTOs, including but not limited to, changes in response to unusual events, such as Winter Storm Uri and Winter Storm Elliott;
- The influence of ESG based policies developed by regulators, legislatures, capital market participants and others that could materially affect Talen's operations and results of operations;
- The effects of rules, regulations, legislation and (or) international climate change treaty changes, including those that result from changes in political party control of the executive and legislative branches of the U.S. Government, on: (i) environmental and asset retirement obligations; (ii) market structure; (iii) ESG policies; and (iv) other matters applicable to our operations;
- Changes in state, federal and other laws and regulations, as well as interpretations thereof, applicable to our current and future cryptocurrency operations, including: (i) regulatory changes or actions that may alter the nature of an investment in us or restrict or prohibit the use of cryptocurrencies altogether or otherwise in a manner that adversely affects our business, prospects or operations; and (ii) future regulation over the environmental impact of both cryptocurrency mining and the manufacture of new miners, which could restrict or prohibit our mining activity altogether or otherwise affect the availability of new miners;
- Uncertainty of the rules and timing of PJM's capacity auction for subsequent delivery years and the pending implementation of any final FERC orders, appeals of such orders, and other actions that would impact the capacity market and (or) the prospects for our PJM generation facility portfolio to earn capacity revenues;
- Increasing scrutiny from investors, lenders, customers, and government regulators, related to the actual or perceived environmental impact of Bitcoin mining, including environmental concerns raised by private individuals and governmental actors related to the energy resources consumed in the Bitcoin mining process which may result in a significant reduction or complete halting of any Bitcoin mining activities;
- Uncertainty around the results from audits or other reviews by regulatory agencies of our business processes;
- Uncertainty around the effective date of Pennsylvania's entrance into the RGGI market;
- Future uncertainty related to our fossil fuel-fired power generation business and the associated environmental liabilities and asset retirement obligations, including estimates management has made related to the carrying value of such liabilities;
- Our ability to acquire the necessary permits for expansion of the data center and cryptocurrency mining facilities;

Operational Risks

- The effects of transmission congestion, generally due to line maintenance outages, on the realized margin earned by our generation fleet;
- Risks associated with our nuclear facility including: (i) the safe operation of, and unscheduled outages, at the facility; (ii) the availability and cost of nuclear fuel and fuel-related components; (iii) increased nuclear industry security, safety and regulatory requirements; and (iv) the substantial uncertainty regarding the temporary storage and permanent disposal of spent nuclear fuel;
- Operational risks associated with an aging fossil-fueled generation facility portfolio, including: (i) managing its useful lives; (ii) unscheduled outages and the effects of extreme weather, such as the freezing of operational plant and equipment components; (iii) potential disruptions in fuel supply for our generation facilities, including unavailable rail or pipeline capacity, and the unavailability of chemicals and (or) sorbents required for environmental regulation compliance; (iv) potential disruptions in our materials supply chains from regulations affecting the use of imported materials; and (v) increased state and federal regulation;
- The risk of disruption to our operations and energy marketing activities due to cyber-attacks on computer systems and networks on which our operations rely and the risk of damage to our generation facilities and (or) disruption to our operations due to attacks by terrorists, vandals or others;
- The ability of our generation units to: (i) be available in strong market conditions; (ii) achieve a reliable run-time; (iii) achieve safe low-cost operations; and (iv) complete planned outages on time and within budget;
- Our ability to operate and market power generated at our facilities during periods of planned and unplanned electric transmission outages;
- Our ability to exercise discipline in capital expenditures, which primarily include maintenance, safety, environmental and reliability projects, and effectively control operating expenses;
- The risk of disruption to our operations due to extreme weather conditions or other natural disasters and the risk of damage to generation facilities;

- Penalties incurred that are associated with non-performance of PJM Capacity Performance requirements and tariff non-compliance imposed by FERC or the PUCT;
- Our inability to obtain agreement on management decisions for joint owner and (or) joint venture projects, which could result in construction delays, increased costs and (or) abandonment of the affected projects;
- Our aging workforce, including the difficulty in replacing retiring workers and the cost of funding legacy postretirement benefit obligations;
- The expiration or termination of commodity contracts and our inability to replace such contracts on favorable terms, or at all;
- The effect of future pandemics (and any governmental responses thereto) on Talen's business, which effects are presently unknown and may also amplify many of the risks otherwise described herein;

Growth Project and Energy Transition Risks

- The ability to fund and otherwise successfully execute on our energy infrastructure transition plan, including our renewable energy, battery storage, and digital infrastructure growth projects, and our efforts to repower facilities to run on alternate fuel sources;
- Delays in performance and (or) non-performance by third-party contractors on whom we are reliant for the development and construction of our energy transition projects; and
- Our ability to find tenants to occupy our new data center projects on reasonable business terms.

GLOSSARY OF TERMS AND ABBREVIATIONS (Unaudited)

Legal Entities and Certain Generation Facilities

Athens. New Athens Generating Company, LLC, a direct subsidiary of NorthEast Gas Gen that owns a generation facility in Athens, New York. Athens was deconsolidated by Talen in April 2020. Ownership of Athens was transferred by Talen in December 2020 in connection with NorthEast Gas Gen's emergence from bankruptcy.

Barney Davis. Barney Davis, LLC, a direct subsidiary of Talen Texas that owns and operates a generation facility in Corpus Christi, Texas.

Brandon Shores. Brandon Shores LLC, an indirect subsidiary of Talen Generation that owns and operates a generation facility in Curtis Bay, Maryland.

Brunner Island. Brunner Island, LLC, a direct subsidiary of Talen Generation that owns and operates a generation facility in York Haven, Pennsylvania.

Camden. Camden Plant Holding, LLC, an indirect subsidiary of Talen Generation that owns and operates a generation facility in Camden, New Jersey.

Colstrip. Four coal-fired generation units located in Colstrip, Montana, collectively, "Colstrip Units." Talen Montana operates the Colstrip Units, owns an undivided interest in Colstrip Unit 3, and has an economic interest in Unit 4. Colstrip Units 1 and 2 were permanently retired in January 2020. See Note 14 in Notes to the Consolidated Financial Statements for additional information on jointly owned facilities and Talen Montana's ownership interests in the Colstrip units and Note 25 or information on a pending acquisition by Talen Montana of additional interests in Colstrip Units 3 and 4.

Conemaugh. A generation facility located in New Florence, Pennsylvania in which Talen Generation, through a direct subsidiary, owns a 22.22% undivided interest, that is operated by an unaffiliated party. See Note 14 in Notes to the Talen 2021 Consolidated Financial Statements for additional information on jointly owned facilities.

Conemaugh Fuels. Conemaugh Fuels, LLC, an entity in which Talen Generation owns a 22.22% equity interest, that engages in the purchase of coal, subsequent sale of coal to Conemaugh, and other fuel-related activities

Cumulus Battery Storage Holdings. Cumulus Battery Storage Holdings LLC, a direct subsidiary of Cumulus Growth. Talen Energy Supply currently consolidates this company and its subsidiaries in accordance with accounting rules. Talen Energy Supply receives voting-convertible preferred equity units for investments made into this company.

Cumulus Coin. Cumulus Coin LLC, a direct subsidiary of Cumulus Coin Holdings that owns a 75% equity interest in Nautilus at December 31, 2022. See Note 12 in Notes to the Consolidated Financial Statements for additional information.

Cumulus Coin Holdings. Cumulus Coin Holdings LLC, a direct subsidiary of Cumulus Digital and the parent of Cumulus Coin that, through its subsidiary, Cumulus Coin, owns an equity interest in Nautilus. Talen Energy Supply and Talen Growth previously held voting-convertible preferred equity interests in this company. In September 2022, in connection with the Cumulus Digital Equity Conversion, the preferred equity interests were converted to common equity interests in Cumulus Digital Holdings. See Note 12 in Notes to the Consolidated Financial Statements for additional information.

Cumulus Compute Holdings. Cumulus Compute Holdings, LLC formerly Cumulus Crypto Holdings LLC and Cumulus Barney Davis Coin Holdings LLC, a direct subsidiary of Cumulus Growth that is exploring potential currency mining projects at or near Talen locations other than Susquehanna. The name changes occurred in Jun 2022 and October 2021. Talen Energy Supply currently consolidates this company and its subsidiaries in accordance with accounting rules. Talen Energy Supply receives voting-convertible preferred equity units for investments made into this company.

Cumulus Data. Cumulus Data LLC, formerly Susquehanna Data LLC, currently an indirect subsidiary of Talen Energy Corporation and Cumulus Growth and an indirect subsidiary of Talen Growth until August 31, 2021. The company's name was changed in October 2021.

Cumulus Data Holdings. Cumulus Data Holdings LLC, an indirect subsidiary of Cumulus Growth, and parent of Cumulus Data. Talen Energy Supply and Talen Growth previously held voting-convertible preferred equity interests in this company. In September 2022, in connection with the Cumulus Digital Equity Conversion, the preferred equity interests were converted to common equity interests in Cumulus Digital Holdings. See Note 12 in Notes to the Consolidated Financial Statements for additional information.

Cumulus Digital. Cumulus Digital LLC, a subsidiary of Cumulus Digital Holdings that owns Cumulus Data Holdings and Cumulus Coin Holdings.

Cumulus Digital Holdings. Cumulus Digital Holdings, LLC, a subsidiary of Talen Energy Supply that owns Cumulus Digital. Prior to September 2022, Cumulus Digital Holdings was a subsidiary of Cumulus Growth. As a result of the Cumulus Digital Equity Conversion, Cumulus Digital Holdings became majority-owned by Talen Energy Supply, with the minority interests held by affiliates of Riverstone and Orion. See Note 12 in Notes to the Consolidated Financial Statements for additional information.

Cumulus Growth. Cumulus Growth Holdings LLC, a direct subsidiary of Talen Energy Corporation that prior to September 2022, owned common equity interests in Cumulus Digital Holdings and that as of December 31, 2022, owns 100% of the common equity interests in Cumulus Renewables Holdings, Cumulus Battery Storage Holdings, Cumulus Compute Holdings, Cumulus Real Estate Holdings and Cumulus PT Energy Transitions Holdings. As a result of the preferred equity interests held by Talen Energy Supply as of December 31, 2022, these entities are controlled by Talen Energy Supply and consolidated with Talen Energy Supply for financial statement reporting purposes. On an as-converted basis, Talen Energy Supply owns a majority of the common equity interests of these entities.

Cumulus PT Energy Transitions Holdings. Cumulus PT Energy Transitions Holdings LLC, a direct subsidiary of Cumulus Growth that owns a 50% interest in a joint venture entity with Pattern that is intended to hold early-stage development assets prior to the formation of project-specific joint venture entity. Talen Energy Supply currently consolidates Cumulus PT Energy Transitions Holdings in accordance with accounting rules. Talen Energy Supply receives voting-convertible preferred equity units for investments made into this company.

Cumulus Real Estate Holdings. Cumulus Real Estate Holdings LLC, a direct subsidiary of Cumulus Growth. Talen Energy Supply currently consolidates this company in accordance with accounting rules. Talen Energy Supply receives voting-convertible preferred equity units for investments made into this company.

Cumulus Renewables Holdings. Cumulus Renewables Holdings LLC, a direct subsidiary of Cumulus Growth. Talen Energy Supply currently consolidates this company and its subsidiaries in accordance with accounting rules. Talen Energy Supply receives voting-convertible preferred equity units for investments made into this company.

Dartmouth. Dartmouth Power Holding Company, LLC, an indirect subsidiary of Talen NE LLC that owns and operates a generation facility in Dartmouth, Massachusetts.

H.A. Wagner. H.A. Wagner LLC, an indirect subsidiary of Talen Generation that owns and operates a generation facility in Curtis Bay, Maryland.

IEC. Interstate Energy Company LLC, a former direct subsidiary of Talen Generation that owned and operated an 84-mile pipeline in Pennsylvania. IEC was sold and merged into an unaffiliated third party in January 2020.

Keystone. A generation facility located in Shelocta, Pennsylvania in which Talen Generation, through a direct subsidiary, owns a 12.34% undivided interest that is operated by an unaffiliated party. See Note 14 in Notes to the Talen 2021 Consolidated Financial Statements for additional information on jointly owned facilities.

Keystone Fuels. Keystone Fuels, LLC, an entity in which Talen Generation owns a 12.34% equity interest, that engages in the purchase of coal, subsequent sale of coal to Keystone, and other fuel-related activities.

Laredo. Laredo, LLC, a direct subsidiary of Talen Texas that owns and operates a generation facility in Laredo, Texas.

LMBE-MC. LMBE-MC HoldCo II LLC, a direct subsidiary of LMBE-MC HC that, through its subsidiaries, owns generation facility operations in Pennsylvania and holds outstanding indebtedness that is non-recourse to Talen.

LMBE-MC HC. LMBE-MC HoldCo I LLC, a direct subsidiary of Talen Generation and the parent of LMBE-MC that, through its subsidiaries, owns generation facility operations in Pennsylvania.

Lower Mt. Bethel. LMBE Project Company LLC, a direct subsidiary of LMBE-MC that owns and operates a generation facility in Bangor, Pennsylvania.

Martins Creek. MC Project Company LLC, a direct subsidiary of LMBE-MC that owns and operates a generation facility in Bangor, Pennsylvania.

Montour. Montour, LLC, a direct subsidiary of Talen Generation that owns and operates a generation facility in Washingtonville, Pennsylvania.

Nautilus. Nautilus Cryptomine LLC, a joint venture owned, as of December 31, 2022, 75% by Cumulus Coin and 25% by TeraWulf, which was formed for purposes of developing and constructing a cryptomining project. See Note 12 in Notes to the Consolidated Financial Statements for more information.

Newark Bay. Newark Bay Cogeneration Partnership, L.P., an indirect subsidiary of Talen Generation that owned and operated a generation facility in Newark, New Jersey that was retired in 2022.

NorthEast Gas Gen. NorthEast Gas Generation, LLC, the former direct subsidiary of NorthEast Gas Gen Holdco that, through its subsidiaries, owned and operated generation facilities in Massachusetts and New York and held outstanding indebtedness that was non-recourse to Talen. NorthEast Gas Gen and its subsidiaries were deconsolidated by Talen in April 2020. Ownership of NorthEast Gas Gen was transferred by Talen in December 2020 in connection with NorthEast Gas Gen's emergence from bankruptcy.

NorthEast Gas Gen Holdco. NorthEast Gas Generation Holdings, LLC, a direct subsidiary of Talen NE LLC and the former parent of NorthEast Gas Gen.

Nueces Bay. Nueces Bay, LLC, a direct subsidiary of Talen Texas that owns and operates a generation facility in Corpus Christi, Texas.

PA Mines. Pennsylvania Mines, LLC, a subsidiary of Talen Generation.

Pedricktown. Pedricktown Cogeneration Company, LP, an indirect subsidiary of Talen Generation that owned and operated a generation facility in Pedricktown, New Jersey that was retired in 2022.

Riverstone. Riverstone Holdings LLC.

Riverstone Entities. Riverstone V Coin Holdings, L.P., Raven Power Holdings LLC, C/R Energy Jade, LLC, and Sapphire Power Holdings, LLC.

Sponsor Entities. Raven Power Holdings LLC, C/R Energy Jade, LLC and Sapphire Power Holdings LLC, affiliates of Riverstone that collectively control 100% of Talen Energy Corporation's common stock.

Susquehanna. A nuclear-powered generation facility located in Berwick, Pennsylvania. Susquehanna Nuclear operates and owns a 90% undivided interest in Susquehanna.

Susquehanna Nuclear. Susquehanna Nuclear, LLC, a direct subsidiary of Talen Energy Supply that operates and holds an undivided interest in Susquehanna.

Talen or Talen Energy Supply. Talen Energy Supply, LLC, a direct subsidiary of Talen Energy Corporation and the parent company of Talen Generation, Susquehanna Nuclear, Talen Montana Holdings, LLC, Talen Energy Marketing, Talen Texas, Talen NE, and Talen Growth.

Talen Energy Corporation. Talen Energy Corporation, the parent company of Talen Energy Supply and Cumulus Growth and their consolidated subsidiaries.

Talen Energy Marketing. Talen Energy Marketing, LLC, a direct subsidiary of Talen Energy Supply that provides energy management services to Talen-owned and operated generation facilities and engages in wholesale commodity marketing activities.

Talen Generation. Talen Generation, LLC, a direct subsidiary of Talen Energy Supply that through its subsidiaries, owns and operates generation facilities and holds certain undivided interests in generation facilities that are operated by unaffiliated parties in Pennsylvania, New Jersey, and Maryland.

Talen Growth. Talen II Growth Holdings LLC, an indirect subsidiary of Talen Energy Supply that through its subsidiaries previously owned interests in proposed digital infrastructure, renewable energy and battery storage projects that are currently in the development stage. Talen Growth sold its interests in the proposed projects to then-subsiaries of Cumulus Growth in September 2021.

Talen Montana. Talen Montana, LLC, a direct subsidiary of Talen Montana Holdings, LLC that owns an undivided interest and operates the Colstrip Units.

Talen NE. Talen NE LLC, a direct subsidiary of Talen Energy Supply that through a subsidiary owns and operates a generation facility in Massachusetts.

TRF. Talen Receivables Funding, LLC, a direct subsidiary of Talen Energy Marketing that, prior to the Talen Bankruptcy, purchased certain receivables from Talen Energy Marketing and sold them to an unaffiliated financial institution. The agreement was terminated during the second quarter 2022 as a result of the Talen Bankruptcy. See Note 11 in Notes to the Consolidated Financial Statements for additional information on TRF activities.

Talen Texas. Talen Texas, LLC, a direct subsidiary of Talen Energy Supply that through its subsidiaries, owns and operates generation facilities in Texas.

Other Terms and Abbreviations

Accelerated Indebtedness. Obligations outstanding that had an event of default or termination event, which resulted in an automatic and immediate acceleration of principal as result of the Talen Bankruptcy. Material obligations primarily include the prepetition Talen Commodity Accordion RCF and all of Talen Energy Supply's prepetition recourse long-term debt, except for Talen 2038 PEDFA Series 2009B and Talen 2037 PEDFA Series 2009C.

ACE Rule. Affordable Clean Energy rule.

ACR. Avoidable cost rate as it relates to PJM's Market Seller Offer Cap.

Adjusted EBITDA. Net income (loss) adjusted for certain non-cash items and other items that management believes are not indicative of ongoing operations, including: interest expense and other finance charges; income taxes; depreciation, amortization and accretion; unrealized gains or losses on derivative instruments; nuclear fuel amortization; ERCOT winter weather impacts in 2021 from Winter Storm Uri; net periodic defined benefit cost; development expenses; restructuring costs; impairments, canceled projects, obsolescence, and certain receivable allowances; gains or losses on sales, dispositions or retirements of assets; fuel supply legal settlements and liquidated damages; gains or losses on the repurchase, modification or extinguishment of debt; gains and losses on securities in the nuclear decommissioning trust funds; gains or loss from the deconsolidation of subsidiaries; non-cash compensation expense; and certain other activity.

Allowed. With respect to any claim of a creditor in the Talen Bankruptcy, that there is no objection to the claim or if the claim has been allowed by a Bankruptcy Court final order.

Administrative Claim. A claim for costs and expenses of administration of the Talen Bankruptcy.

American Nuclear Insurers. A joint underwriting association that acts on behalf of member companies that writes nuclear liability insurance policies.

American Rescue Plan Act. A federal stimulus bill passed in 2021 to accelerate recovery from the economic and health effects of the COVID-19 pandemic.

AOCl. Accumulated other comprehensive income or loss, which is a component of stockholder's equity on the Consolidated Balance Sheets.

ARO. Asset retirement obligation.

ASAs. Affiliate services agreements executed in May 2022 between Talen Energy Supply and each of Cumulus Battery Storage Holdings, Cumulus Compute Holdings, Cumulus Real Estate Holdings and Cumulus Renewables Holdings. See Note 12 in Notes to the Consolidated Financial Statements for additional information.

ASC. Accounting standards Codification.

ASU. Accounting standards update.

Backstop Commitment Letter. The Backstop Commitment Letter, dated as of May 31, 2022, by and among the Talen Filing Parties and the Backstop Parties, as amended, as amended and restated, or otherwise modified from time to time.

Backstop Parties. Those certain Consenting Noteholders party to the Backstop Commitment Letter.

Backstop Periodic Premium. A periodic premium, paid monthly, at a rate equal to 10% per annum of each Backstop Party's portion of the backstop commitment and fully credited against the Backstop Premium.

Backstop Put Premium. Collectively, the Backstop Premium and Backstop Periodic Premium.

Backstop Premium. A premium equal to 20% of each Backstop Party's portion of the aggregate backstop commitment, payable upon the consummation of the Plan of Reorganization (as reduced by the amount of Backstop Periodic Premium paid prior thereto).

Bankruptcy Code. Title 11 of the United States Code, 11 U.S.C. §§ 101–1532, as amended.

Bankruptcy Court. The United States Bankruptcy Court for the Southern District of Texas, Houston Division.

Bar Date. August 1, 2022, except for governmental entities where the date is November 7, 2022.

Beowulf E&D. Beowulf Electricity & Data Inc., an affiliate of TeraWulf.

Beowulf FOA. Facility Operations Agreement executed in May 2021 between Nautilus and Beowulf E&D to provide, or arrange for Nautilus, certain infrastructure, construction, operations and maintenance and administrative services necessary to build out and operate the Nautilus facility and support Nautilus' ongoing business at the facility at an annual rate of \$750 thousand and reimbursement of direct costs. Agreement was terminated in December 2022.

Bitcoin. A virtual digital currency, with no central issuing authority, used in peer-to-peer online transactions.

Black Lung Act. Federal Black Lung Benefits Act of 1972.

BQ Energy. BQ Energy Development, LLC.

CAA. Clean Air Act of 1963.

CAF. Commodity Accordion Facility.

CAF Claim Objection. The *Objection of the Official Committee of Unsecured Creditors to Proof of Claim by Alter Domus (US) LLC, as Administrative Agent* [Docket No. 1088], pursuant to which the Creditors' Committee objected to Proof of Claim No. 1616 filed by Alter Domus (US) LLC in its capacity as the administrative agent under the Prepetition CAF Agreement.

CAF Settlement. The settlement of all claims, interests, and controversies among the Talen Energy Supply Filing Parties, the Consenting Noteholders, and the Consenting CAF Parties, the terms of which are set out in the third amendment to the Talen RSA.

CAF Standing Motion. The *Motion of the Official Committee of Unsecured Creditors for Leave, Standing, and Authority to Prosecute Certain Claims on Behalf of the Debtors' Estates and for Related Relief* [Docket No. 1085], pursuant to which the Creditors' Committee sought standing to, among other things, avoid the obligations under the Prepetition CAF Agreement as fraudulent and preferential transfers.

Capacity Factor. The ratio of electricity generated during a given period to the energy that could have been generated at continuous full-power operation during the same period.

Capacity Performance. Revenue opportunity for electricity providers within PJM related to commitments to satisfy PJM's capacity obligation. Auctions for this opportunity, generally referred to as capacity auctions, primarily occur in May for delivery three years from the date of the auction. Created to further ensure market reliability, providers assume higher performance requirements during system emergencies. Began in 2016 and initially was phased in during the auction process, capacity performance became the only capacity product procured in the 2020/2021 PJM Capacity Year delivery year. Capacity Performance carries an increased penalty associated with non-performance.

CCR. Coal combustion residuals including, but not limited to fly ash, bottom ash, and gypsum, that are produced from coal-fired electric generation facilities.

CCR Rule. National regulatory standards required by the EPA for the management of CCRs in landfills and surface impoundments.

CD&O. A non-segment grouping called Corporate, Development and Other. It consists of a non-segment grouping that includes corporate activities and other expenses incurred by our corporate and commercial functions that are not allocated to our above groupings, business units that do not fall under the prior definitions, and intercompany eliminations. The primary grouping of other business units includes: (i) the development activities of Cumulus Growth Holdings that includes subsidiaries that focus on battery storage, solar and wind, cryptocurrency projects and to hold real estate to house these projects; and (ii) subsidiaries of Cumulus Digital Holdings that includes subsidiaries involved in a Bitcoin mining joint venture (i.e. Nautilus) and the formation of data center, with both projects located on land adjacent to Susquehanna. This grouping is presented to reconcile the other above groupings to consolidated results.

Chapter 11. Title 11 of the United States Code, 11 U.S.C. §§ 101–1532, as amended.

Coal Act. Coal Industry Retiree Health Benefit Act of 1992.

Confirmation Order. The order by the Bankruptcy Court confirming the Plan of Reorganization entered on December 15, 2022.

Colstrip AOC. "Administrative Order on Consent" entered into in 2012 (with minor amendments in 2017) between: (i) Talen Montana, on behalf of the co-owners of the Colstrip Units and in its capacity as the operator of Colstrip; and (ii) the MDEQ.

Consenting CAF Parties. The holders of claims under the Talen Commodity Accordion RCF that are party to the third amendment to the Talen RSA.

Consenting Noteholders. The holders of Talen Energy Supply's unsecured notes that are party to the Talen RSA.

Consenting Non-CAF Parties. The holders of claims under the Talen Senior Secured Term Loans and the Talen Senior Secured Notes that are party to the fourth amendment to the Talen RSA.

Consenting TEC Parties. Talen Energy Corporation and the Riverstone Entities, as parties to the fifth amendment to the Talen RSA.

COVID-19. The infectious coronavirus disease caused by the "severe acute respiratory syndrome coronavirus 2" (SARS-CoV-2) virus.

CPP Rule. Clean Power Plan rule.

Creditors' Committee. The official committee of unsecured creditors of the Debtors, appointed by the U.S. Trustee pursuant to section 1102 of the Bankruptcy Code on May 23, 2022 [Docket No. 264], the membership of which may be reconstituted from time to time

CSAPR. Cross-State Air Pollution Rule.

Cumulus Affiliates. Collectively includes Cumulus Real Estate Holdings, Cumulus Battery Storage Holdings, Cumulus Renewables Holdings, Cumulus Compute Holdings, Cumulus PT Energy Transitions Holdings and Cumulus Digital Holdings (which Talen Energy Supply began to consolidate in September 2022) and their respective subsidiaries. These affiliates are required by GAAP to be consolidated by Talen Energy Supply at December 31, 2022.

Cumulus Digital 2027 TLF. Cumulus Digital Term Loan Facility due September 2027 entered into by Cumulus Digital and affiliates of Orion that provides for up to \$175 million to support Cumulus Coin's required contributions to Nautilus, and Cumulus Data's construction of certain shared infrastructure that will support both Nautilus and the Cumulus Data Center Campus. The loan was fully drawn in September 2022.

Cumulus Data Center Campus. A data center campus under development by Cumulus Data, which is planned to be a zero-carbon data center campus adjacent to Susquehanna. The first data center building is initially expected to support 48 MW capacity and is scalable to 164 MW through the construction of two additional buildings. Cumulus Data has an option agreement with subsidiaries of Talen Energy Supply to purchase electricity which would in turn be submetered to tenants of the data center campus pursuant to data center lease supply agreements.

Cumulus Digital ASA. Affiliate services agreement executed in May 2022 between Talen Energy Supply and Cumulus Digital LLC and certain of its subsidiaries. This agreement was terminated in September 2022 in connection with the amendment and restatement of the Cumulus Digital COSA. See Note 12 in Notes to the Consolidated Financial Statements for additional information.

Cumulus Digital COSA. Corporate and Operational Services Agreement, dated September 20, 2021, between Talen Energy Supply and Cumulus Digital, pursuant to which Talen Energy Supply provides corporate, administrative and operational services to Cumulus Digital and its subsidiaries. This agreement was amended and restated in September 2022. See Note 12 in Notes to the Consolidated Financial Statements for additional information.

Cumulus Digital Credit Agreement. Credit Agreement dated as of September 20, 2021, by and among Cumulus Digital and its subsidiaries, Cumulus Digital Holdings, and affiliates of Orion implementing the Cumulus Digital 2027 TLF.

Cumulus Digital Equity Conversion. The conversion of Talen's and Riverstone V Coin Holdings L.P.'s preferred equity in Cumulus Coin Holdings and Cumulus Data Holdings, and the conversion of class B units of Cumulus Digital Holdings held by Orion affiliates, in each case into common equity of Cumulus Digital Holdings as contemplated by the Cumulus Term Sheet. See Note 12 in Notes to the Consolidated Financial Statements for additional information.

Cumulus Intercompany Claims. Any claim against a Debtor held by a Consolidated Cumulus Affiliate.

Cumulus Settlement. The settlement of all claims, interests, and controversies among the parties to the Cumulus Term Sheet, the terms of which are set out in the Cumulus Term Sheet.

Cumulus Term Sheet. That certain *Cumulus Term Sheet* dated as of August 29, 2022, by and among Talen, Talen Energy Corporation, Cumulus Digital, Orion Energy Partners Investment Agent, LLC, and the Riverstone Entities, and certain of each of their affiliates. The Cumulus Term Sheet is an attachment to the TEC Term Sheet. See Note 12 in Notes to the Consolidated Financial Statements for more information.

Debtors. The Talen Filing Parties.

DEP. Department of Environmental Protection.

Digital Asset Joint Venture. A joint venture, Nautilus, formed in May 2021, by Cumulus Coin and TeraWulf, an unaffiliated third party, to develop, construct, own and operate a zero-carbon cryptocurrency mining project on land adjacent to Susquehanna that is owned by Cumulus Data. Phase I of the project is for the construction of an up to 200 MW capacity cryptocurrency mining facility. Phase II, which may commence at the agreement by TeraWulf, could further expand the facility to a total capacity of 300 MW. See Note 12 in Notes to the Consolidated Financial Statements for additional information.

DIP. Debtor in possession.

DIP Claims. All claims held by the lenders or the agent under the Talen DIP Credit Agreements on account of, arising under, or relating to the Talen DIP Credit Agreements, the facilities thereunder, or the DIP Order, including claims for all principal amounts outstanding, and any and all fees, interest, expenses, indemnification obligations, reimbursement obligations, and other amounts due under the DIP Documents (as defined in the DIP Order), which, for the avoidance of doubt, shall include all "DIP Obligations" as such term is defined in the DIP Order.

DIP Order. As applicable, the Final Order: (i) authorizing the Debtors to obtain postpetition financing; (ii) authorizing the Debtors to use cash collateral; (iii) granting liens and providing claims with superpriority administrative expense status; (iv) granting adequate protection to the prepetition first lien secured parties; (v) modifying the automatic stay; and (vi) granting related relief (Docket No. 588) or the interim order: (i) authorizing the Debtors to obtain postpetition financing; (ii) authorizing the Debtors to use cash collateral; (iii) granting liens and providing claims with superpriority administrative expense status; (iv) granting adequate protection to the prepetition first lien secured parties; (v) modifying the automatic stay; and (vi) granting related relief (Docket No. 127), authorizing the Debtors to enter into the Talen DIP Credit Agreements, as may be amended, supplemented or modified from time to time.

Disclosure Statement. *Disclosure Statement for Joint Chapter 11 Plan of Talen Energy Supply, LLC and Its Affiliated Debtors* (Docket No. 1207), as may be amended from time to time, and any exhibits or schedules thereto.

EBITDA. Net income (loss) before interest expense and other finance charges, income taxes, depreciation and certain amortization.

Effective Date. The date that the Bankruptcy Court approved Plan of Reorganization becomes effective.

EIS. Environmental Impact Statement related to mining permits.

ELG Rule. Effluent limitation guidelines, which are national regulatory standards required by the EPA for wastewater discharged from specific industrial categories, including but not limited to coal-fired electric generation facilities, to surface waters and municipal sewage treatment plants.

ENGOS. Environmental non-governmental organizations.

EPA. U.S. Environmental Protection Agency.

ERCOT. The Electric Reliability Council of Texas, operator of the electricity transmission network and electricity energy market in most of Texas, is responsible for, among other things, scheduling electric deliveries and performing financial settlements for the competitive wholesale bulk-power market.

ERCOT QSE. ERCOT Qualified Scheduling Entity, which is responsible for offering and bidding energy in the ERCOT day-ahead and real-time market and settling financially with ERCOT.

ESG. Environmental, social and corporate governance.

Existing Equity Interests. Interests in Talen Energy Supply.

Federal Quiet Title Act. A federal statute that provides for legal proceeding to determine ownership of real property.

FERC. U.S. Federal Energy Regulatory Commission.

FIPS. EPA's federal Implementation plans.

GAAP. Generally Accepted Accounting Principles in the United States.

General Unsecured Claim(s). Any Unsecured Claim, other than (i) Administrative Claims; (ii) DIP Claims; (iii) Professional Fee Claims; (iv) Priority Tax Claims; (v) Other Priority Claims; (vi) Section 510(b) Claims; (vii) Intercompany Claims; (viii) Postpetition Other Hedge Claims; (ix) Postpetition Hedge Claims; (x) Unsecured Notes Claims; (xi) General Unsecured Convenience Claim; (xii) Cumulus Intercompany Claims, (xiii) Uri Claims; or (xiv) Talen Energy Corporation Creditor Claims (each as defined in the Plan of Reorganization).

General Unsecured Convenience Claim. a Claim that would otherwise be an Allowed General Unsecured Claim that is Allowed in the amount of \$2,000 or less; provided, however, that any General Unsecured Claim that was originally allowed in excess of \$2,000 may not be subdivided into multiple General Unsecured Claims of \$2,000 or less for purposes of receiving treatment as a General Unsecured Convenience Claim.

Global Plan Settlement. The settlement of all Claims, Interests, and controversies among the Debtors, the Consenting Parties, the CAF Consenting Parties, the First Lien Non-CAF Consenting Parties, the Talen Energy Corporation Consenting Parties, the DIP Agent and the DIP Lenders, and the Creditors' Committee and the consideration given or received, as applicable, by each as set forth in the Plan of Reorganization.

Ground Lease Agreement. Agreement executed in May 2021 between Nautilus and Cumulus Data (as amended, amended and restated or otherwise modified from time to time) for land on which the Nautilus facility is being constructed, which also provides for sub-metering of electricity by Cumulus Data to Nautilus. In September 2022, Cumulus Data and Nautilus became subsidiaries of Talen Energy Supply as a result of the Cumulus Digital Equity Conversion. See Note 12 in Notes to the Consolidated Financial Statements for additional information.

GW. Gigawatt, one million kilowatts of electric power.

HSR Act. The Hart-Scott-Rodino Antitrust Improvements Act of 1976, as amended.

IBEW. International Brotherhood of Electrical Workers, a labor union.

Intercompany Claim. Any claim against a Debtor held by another Debtor or a non-Debtor affiliate, other than Cumulus Intercompany Claims.

Intercompany Interest. An Interest in a Debtor held by another Debtor or a non-Debtor affiliate, except for Existing Equity Interests.

IMM. Independent Market Monitor.

ISO. Independent System Operator.

ISO-NE. ISO New England Inc., which oversees the bulk power generation and transmission system that serves Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island and Vermont.

Kilowatt. One thousand watts of electric power.

Kinder Morgan. Kinder Morgan Tejas Pipeline LLC.

KWh. Kilowatts of electric power per hour.

LC. Letter of credit.

LIBOR. London Interbank Offered Rate.

LMBE-MC 2025 TLB. LMBE-MC Term Loan B established under the LMBE-MC Credit and Guaranty Agreement due December 2025.

LMBE-MC Credit and Guaranty Agreement. The Credit and Guaranty Agreement, dated as of December 3, 2018, among LMBE-MC, as borrower, the guarantors named therein, MUFG Union Bank, N.A., as initial issuing bank and MUFG Bank, LTD, as administrative agent, as amended, amended and restated or otherwise modified from time to time.

LMBE-MC RCF. Revolving credit facility established under the LMBE-MC Credit and Guaranty Agreement.

Maximum Emergency Action. The purpose of the Maximum Generation Emergency Action is to increase the PJM RTO generation above the maximum economic level. It is implemented whenever generation is needed over what can be economically procured. Following issuance of a Maximum Generation Emergency Action, PJM may purchase available generation from any PJM member (as emergency) that is available up to the amount required or until generation is depleted.

MBER. Montana Board of Environmental Review. A state-level government agency responsible for administering environmental regulatory, clean up, monitoring, pollution prevention and energy conservation laws.

MDEQ. Montana Department of Environmental Quality.

MEIC. Montana Environmental Information Center.

MMBtu. One million British Thermal Units.

MOPR. Minimum Offer Price Rule.

MW. Megawatt, one thousand kilowatts of electric power.

MWh. Megawatts of electric power per hour.

NAAQS. National Ambient Air Quality Standards.

Nautilus CSA. Corporate Services Agreement dated May 13, 2021 between Talen Energy Supply and Nautilus whereby Talen Energy Supply is to provide corporate and administrative services. In September 2021, Talen Energy Supply assigned this agreement to Cumulus Digital to provide these services.

NAV. Net asset value.

NDT. Nuclear facility decommissioning trust for Susquehanna Nuclear.

NEIL. Nuclear Electric Insurance Limited.

NEPA. National Environmental Policy Act.

NERC. North American Electric Reliability Corporation.

New Parent. The entity to be the ultimate direct and indirect parent of the Talen Filing Parties. Under the terms of the Plan of Reorganization, New Parent will be Talen Energy Corporation.

New Parent Equity. New common equity of New Parent to be authorized, issued, and outstanding on and after the date the Plan of Reorganization is declared effective.

New Warrants. Warrants to purchase up to 5.00% of the New Parent Equity, after giving effect to the Rights Offering and the Backstop Put Premium, with: (i) a tenor of five years; (ii) a strike price set at the Effective Date based on a \$3.5 billion equity value, assuming pro forma net debt as of the Effective Date of the Plan of Reorganization as set forth in Schedule II to the Backstop Commitment Letter plus any Permitted Indebtedness Upsize (as defined in the Restructuring Term Sheet); and (iii) Black-Scholes protection (determined using the standard Black-Scholes pricing model, assuming 27.5% volatility for the remaining tenor).

NOL. Net operating loss.

Non-CAF Settlement. The settlement of all claims, interests, and controversies among the Talen Energy Supply Filing Parties, the Consenting Noteholders, and the Consenting Non-CAF Parties, the terms of which are set out in the fourth amendment to the Talen RSA.

NorthWestern. NorthWestern Corporation d/b/a NorthWestern Energy.

NRC. U.S. Nuclear Regulatory Commission.

NSPS. New Source Performance Standard.

OCI. Other comprehensive income or loss.

Orion. Orion Energy Partners, whose affiliates are third-party lenders involved in the Cumulus Digital Credit 2027 TLF.

Other Priority Claim. Any claim against any Debtor entitled to priority in right of payment under section 507(a) of the Bankruptcy Code, other than (i) an Administrative Claim; (ii) a Priority Tax Claim; (iii) a DIP Claim; (iv) a Professional Fee Claim; (v) a Postpetition Hedge Claim; and (vi) a Postpetition Other Hedge Claim.

Other Secured Claim. Any Secured Claim against any Debtor, including any Secured Tax Claim, other than a (i) Prepetition First Lien Secured Claim and (ii) DIP Claim.

OSHA. Occupational Safety and Health Administration.

OSM. The U.S. Office of Surface Mining Reclamation and Enforcement.

Ozone Season. A period of time in which ground-level ozone reaches its highest concentrations in the air.

Ozone Transport Commission. A multi-state organization created under the Clean Air Act responsible for advising the EPA and implementing regional solutions to ground-level ozone issues.

PA Mines UMWA Plan VEBA. A VEBA holding assets for a health plan sponsored by PA Mines for the benefit of retired employees who were members of the UMWA to meet certain requirements under the Coal Act of 1992.

Paris Agreement on Climate Change. An internationally adopted treaty developed to limit global warming and reduce greenhouse gas emissions that was adopted in December 2015 that went into effect in November 2016.

Pattern. Pattern Renewables 2 LP, an affiliate of Riverstone.

PCM. "Performance Market Mechanism," a market mechanism adopted by the PUCT in 2023.

PEDFA. Pennsylvania Economic Development Financing Authority.

Petition Date. With respect to a Debtor, the date on which such Debtor commenced its Chapter 11 Case, either May 9, 2022 or May 10, 2022.

PIK. Paid-in-kind.

PJM. PJM Interconnection, L.L.C., operator of the electricity transmission network and electricity market 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.

PJM Capacity Year. PJM capacity revenues delivery years cover the period from June 1 to May 31.

Plan of Reorganization. The Joint Chapter 11 Plan of Reorganization of Talen Energy Supply, LLC and Its Affiliated Debtors (Docket No. 1206), as may be amended from time to time, and any exhibits or schedules thereto.

PP&E. Property, plant and equipment.

PPL. PPL Corporation, the former indirect parent holding company of Talen Energy Supply and Talen Energy Corporation until the Talen Formation Transactions in 2015.

Prepetition CAF Claims. All claims against any Debtor arising from or based upon the Talen Commodity Accordion RCF or any of the other related agreements and documents executed by any of the Debtors in connection with the Talen Commodity Accordion RCF, including accrued but unpaid interest, costs, fees, premiums, and indemnities.

Prepetition First Lien Non-CAF Claims. The prepetition first lien secured claims, other than the Prepetition CAF Claims.

Prepetition First Lien Non-CAF Claim Amount. An amount equal to \$2,048.00 million, comprising (i) \$470 million of Prepetition 6.625% Senior Secured Notes Debt (as defined in the DIP Order), (ii) \$750 million of Prepetition 7.250% Senior Secured Notes Debt (as defined in the DIP Order), (iii) \$400 million of Prepetition 7.625% Senior Secured Notes Debt (as defined in the DIP Order), and (iv) \$428 million of Prepetition Term Loan Debt (as defined in the DIP Order).

Priority Tax Claim. Any claim of a governmental unit of the kind specified in section 507(a)(8) of the Bankruptcy Code.

Professional Fee Claims. All claims for fees and expenses (including transaction and success fees) incurred by a professional on or after the Petition Date and before or on the Effective Date to the extent such fees and expenses have not been paid pursuant to an order of the Bankruptcy Court other than restructuring expenses.

Price-Anderson Act. A federal law governing liability related issues and that ensures the availability of funds for public liability claims arising from an incident at any United States licensed nuclear facility.

PUCT. Public Utility Commission of Texas.

RACT. Reasonably Available Control Technology. These rules have been issued in Pennsylvania and includes RACT 2 and RACT 3.

RCF. Revolving Credit Facility.

RECs. Renewable Energy Credits. RECs represent energy produced from renewable energy sources and are purchased to meet renewable energy compliance requirements set by certain state legislatures.

Retail PPA Incentive Equity. Means New Parent Equity equal to 25.00% of the Discounting Date NPV (as defined in the TEC Global Settlement Term Sheet) of Projected Retail PPA Net Savings at a \$4.5 billion total enterprise value for New Parent, to be issued in accordance with the TEC Global Settlement and the Plan of Reorganization.

RGGI. The Regional Greenhouse Gas Initiative. A mandatory market based program among certain states, including Maryland and Massachusetts, to cap and reduce carbon dioxide emissions from the power sector. RGGI requires certain electric power generators to hold allowances equal to their carbon dioxide emissions over a three-year control period. RGGI allowances, as issued by each participating state, represents an authorization for a power generation facility to emit one short ton of carbon dioxide. Allowances may be acquired by auction or through secondary markets. Pennsylvania has proposed joining this market-based program.

Rights Offering. The equity rights offering to be conducted in accordance with the Talen RSA.

Riverstone Standing Motion. The Motion of the Official Committee of Unsecured Creditors for Leave, Standing, and Authority to Prosecute Certain Claims on Behalf of the Debtors' Estates and for Related Relief [Docket No. 1040], pursuant to which the Creditors' Committee sought standing to assert and litigate certain causes of action on behalf of the Debtors' Estates related to a 2017 cash dividend payment and certain expense reimbursements paid to Riverstone.

Rosebud Mine. A coal mine in Montana owned by Rosebud Mining that supplies coal to the Colstrip Units.

RSA. Restructuring Support Agreement.

RSA Parties. Collectively, the Consenting Noteholders, the Consenting CAF Parties, the Consenting Non-CAF Parties, and the Consenting TEC Parties.

RTO. Regional transmission organization.

Section 510(b) Claims. Any claim against any Debtor that is subject to subordination in accordance with sections 510(b) of the Bankruptcy Code or otherwise.

Settled CAF Claim Amount. An amount equal to the sum of (i) the Settled CAF Prepetition Claim Amount; (ii) postpetition interest pursuant to section 506(b) of the Bankruptcy Code on the full amount of the Settled CAF Prepetition Claim Amount at a rate based on the 1-month LIBOR rate as set forth in the Talen Commodity Accordion RCF, plus fixed 8.00% interest, plus 2.00% (constituting default interest), from the Petition Date through the Effective Date; and (iii) postpetition interest on a monthly basis on any accrued and unpaid amounts set forth in (ii) above at a rate based on the 1-month LIBOR rate as set forth in the Talen Commodity Accordion RCF, plus fixed 8.00% interest, plus 2.00% (constituting default interest).

Settled CAF Prepetition Claim Amount. \$986 million, which is the sum of: (i) \$848 million principal; (ii) \$133 million on account of any and all premiums asserted or assertable under the Talen Commodity Accordion RCF as of the Petition Date (including, for the avoidance of doubt, any amounts attributable to the MOIC Amount and (or) the Make Whole Amount, each as defined in the Talen Commodity Accordion RCF); and (iii) accrued and unpaid prepetition interest in the amount of \$5 million.

Settled First Lien Non-CAF Claim Amount. An amount equal to the sum of (i) the Prepetition First Lien Non-CAF Claim Amount, plus (ii) accrued and unpaid prepetition interest and postpetition interest at the applicable contract rate (each as increased due to the Debtors' default), plus (iii) the lesser of (x) \$20 million in the aggregate and (y) an amount equal to forty percent (40%) of the "Applicable Premium" or redemption price premium in excess of principal amounts, as applicable, that would be due and owing under the respective Secured Notes Indentures, as if such notes were optionally redeemed pursuant to section 3.07 of such indenture on the Effective Date.

SIP. Pennsylvania's state implementation plan.

SOFR. Secured Overnight Financing Rate.

Standing Motions. Collectively, the CAF Standing Motion and the Riverstone Standing Motion.

Talen 2026 TLB. Talen Energy Supply's senior secured Term Loan B issued in July 2019.

Talen Bankruptcy. The voluntary cases commenced by the Talen Filing Parties under Chapter 11 of the Bankruptcy Code in the Bankruptcy Court.

Talen Commodity Accordion RCF or Talen CAF. The Credit Agreement, dated as of December 14, 2021, among Talen Energy Supply, as parent, Talen Energy Marketing and Susquehanna, as borrowers, the lenders party thereto and Alter Domus (US) LLC, as administrative agent. Obligations under the Talen Commodity Accordion RCF are guaranteed by the Subsidiary Guarantors and secured by a lien and security interest in substantially all of the assets of Talen Energy Supply and the Subsidiary Guarantors. See Note 17 in Notes to the Consolidated Financial Statements for additional information.

Talen Deferred Capacity Obligations. Obligations arising under an auction specific MW transaction confirmation executed in March 2021 between Talen and an unaffiliated third party, which was fully performed in June 2022. See Note 5 in Notes to the Consolidated Financial Statements for additional information.

Talen Defaulted Credit Agreements. Collectively, the Talen RCF, Talen Commodity Accordion RCF, Talen Unsecured LCF-1, Talen Unsecured LCF-2, Talen Senior Secured Term Loans, Talen Senior Secured Notes, Talen Senior Unsecured Notes and the Talen 2038 PEDFA Series 2009A whereby Talen is in default under these agreements as a result of the Talen Bankruptcy.

Talen DIP Continuing LC Agreement. That certain superpriority secured debtor-in-possession letter of credit facility agreement, dated as of May 11, 2022 that provides for LCs that existed under the Talen RCF as of the Petition Date, to remain outstanding, as such agreement may be amended, restated, amended and restated, supplemented or otherwise modified from time to time. These existing LCs that were issued under the Talen RCF do not receive superpriority status as the other Talen DIP Credit Agreement facilities until the LC is up for renewal.

Talen DIP Credit Agreements. Collectively, the Talen DIP New Money Agreement and Talen DIP LC Agreement.

Talen DIP LC Agreement. That certain superpriority secured DIP letter of credit facility agreement dated as of May 11, 2022.

Talen DIP New Money Agreement. That certain superpriority secured debtor-in-possession credit agreement, dated as of May 11, 2022, which consists of the Talen DIP Revolver and Talen DIP Term Loan, as such agreement may be amended, restated, amended and restated, supplemented or otherwise modified from time to time.

Talen DIP Obligations. Obligations that arise under the Talen DIP Credit Agreements.

Talen DIP Revolver. A new money revolving credit facility with aggregate commitments of \$300 million, including a letter of credit sub-facility in an aggregate amount of up to \$75 million to issue new letters of credit.

Talen DIP Term Loan or Talen 2023 DIP TLB. A new money term loan facility that provides an aggregate principal amount of \$1 billion under the Talen DIP New Money Agreement.

Talen Filing Parties. Includes Talen Energy Supply and all of its direct and indirect subsidiaries, other than: (i) LMBE-MC HC and its subsidiaries; (ii) TRF; and (iii) the Cumulus Affiliates. As of December 12, 2022, also includes Talen Energy Corporation. See Note 3 in Notes to the Consolidated Financial Statements for additional information.

Talen Formation Transactions. In 2015, the spinoff of Talen Energy Corporation from PPL and, simultaneously, the contribution of certain entities by the Sponsor Entities creating, at that time, an independent, publicly traded company.

Talen Inventory Repurchase Obligations. Obligations arising under a product purchase and sale agreement executed in December 2019 between certain Subsidiary Guarantors and an unaffiliated party and which was terminated in May 2022. See Note 9 in Notes to the Consolidated Financial Statements for additional information.

Talen ISDAs. Certain bilateral secured International Swaps and Derivatives Association (ISDA) agreements and Base Contracts for Sale and Purchase of Natural Gas as published by the North American Energy Standards Board (NAESB) of Talen Energy Marketing, the obligations under which are secured by a lien and security interest in substantially all of the assets of Talen Energy Supply and the Subsidiary Guarantors.

Talen PEDFA Bonds. PEDFA Exempt Facilities Revenue Refunding Bonds, Series 2009A due December 2038 (Talen 2038 PEDFA Series 2009A), Series 2009B due December 2038 (Talen 2038 PEDFA Series 2009B) and Series 2009C due December 2037 (Talen 2037 PEDFA Series 2009C). Obligations under the Talen PEDFA Bonds are guaranteed by the Subsidiary Guarantors. The Talen 2038 PEDFA Series 2009B and Talen 2037 PEDFA Series 2009C were remarketed in February 2021.

Talen Postpetition ISDAs. Certain bilateral secured International Swaps and Derivatives Association (ISDA) agreements of Talen Energy Marketing, the obligations under which are secured by a super priority lien and security interest in substantially all of the assets of Talen Energy Supply and the Talen Postpetition Subsidiary Guarantors.

Talen Postpetition Subsidiary Guarantors. All Debtor subsidiaries of Talen Energy Supply.

Talen RCF. The Credit Agreement dated as of June 1, 2015 (as amended), among Talen Energy Supply, as borrower, the guarantors party thereto, the lenders party thereto and Citibank, N.A., as administrative agent. Obligations under the Talen RCF are guaranteed by the Subsidiary Guarantors and secured by a lien and security interest in substantially all of the assets of Talen Energy Supply and the Subsidiary Guarantors. In connection with the Talen Bankruptcy, LCs issued under the Talen RCF are allowed to continue until maturity under the Talen DIP Continuing LC Facility.

Talen RSA. The Restructuring Support Agreement (and all exhibits and schedules thereto) dated as of May 9, 2022, by and between the Company and the Consenting Noteholders, as amended, amended and restated, or supplemented from time-to-time.

Talen RSA Term Sheet. Restructuring term sheet attached as an exhibit to the Talen RSA, as may be amended, supplemented, or otherwise modified from time to time.

Talen Senior Secured Notes. Secured notes issued by Talen Energy Supply which are guaranteed by the Subsidiary Guarantors and secured by a lien and security interest in substantially all of the assets of Talen Energy Supply and the Subsidiary Guarantors, comprised of the: (i) 7.25% Senior Secured Notes due 2027 (Talen 2027 Secured Notes); (ii) 6.625% Senior Secured Notes due 2028 (Talen 6.625% 2028 Secured Notes); and (iii) 7.625% Senior Secured Notes due 2028 (Talen 7.625% 2028 Secured Notes).

Talen Senior Secured Term Loans. Secured term loans issued by Talen Energy Supply which are guaranteed by the Subsidiary Guarantors and secured by a lien and security interest in substantially all of the assets of Talen Energy Supply and the Subsidiary Guarantors, comprised of the Talen 2026 TLB.

Talen Senior Unsecured Notes. Senior unsecured notes issued by Talen Energy Supply which are guaranteed by the Subsidiary Guarantors, comprised of the: (i) 4.6% Senior Notes due December 2021 (Talen 2021 Notes); (ii) 9.5% Senior Notes due July 2022 (Talen 2022 Notes); (iii) 6.5% Senior Notes due September 2024 (Talen 2024 Notes); (iv) 6.5% Senior Notes due June 2025 (Talen 2025 Notes); (v) 10.5% Senior Notes due January 2026 (Talen 2026 Notes); (vi) 7.0% Senior Notes due October 2027 (Talen Unsecured 2027 Notes); and (vii) 6.0% Senior Notes due December 2036 (Talen 2036 Notes).

Subsidiary Guarantors. Certain wholly owned subsidiaries of Talen Energy Supply that guarantee obligations under the Talen RCF, Talen Commodity Accordion RCF, Talen Senior Secured Term Loans, Talen Senior Secured Notes, Talen Senior Unsecured Notes, Talen PEDFA Bonds, Talen Unsecured LCFs, and Talen ISDAs. In January 2022, in connection with the execution of the Talen Commodity Accordion RCF and the Talen RCF Amendments and Waivers, all of the subsidiaries of Talen Energy Supply that were not already Subsidiary Guarantors became Subsidiary Guarantors with respect to obligations under the Talen RCF, Talen Commodity Accordion RCF, Talen Senior Secured Term Loans, Talen Senior Secured Notes and Talen ISDAs, with the exception of LMBE-MC and its subsidiaries, Talen Receivables Funding, Talen Growth, and the Cumulus Affiliates.

Talen Unsecured LCF-1. Talen Energy Supply's unsecured LC agreement executed in April 2019 that expires in June 2023. Obligations under the Talen Unsecured LCF-1 Facility are guaranteed by the Subsidiary Guarantors.

Talen Unsecured LCF-2. Talen Energy Supply's unsecured LC agreement executed in August 2019 that expires in December 2023. Obligations under the Talen Unsecured LCF-2 Facility are guaranteed by the Subsidiary Guarantors.

Talen Unsecured LCFs. Collectively, the Talen Unsecured LCF-1 and the Talen Unsecured LCF-2.

TEC Global Settlement. The settlement of all claims, interests, and controversies among the Talen Energy Supply Filing Parties, the Consenting Noteholders, and the Consenting TEC Parties, the terms of which are set out in the fifth amendment to the Talen RSA and the TEC Term Sheet attached thereto.

TEC Term Sheet. The term sheet for the TEC Global Settlement attached as [Exhibit A](#) to the fifth amendment to the Talen RSA.

TeraWulf. TeraWulf (Thales) LLC, a Beowulf Energy LLC subsidiary, an unaffiliated third party.

TERP. The Talen Energy Retirement Plan, which is Talen's principal defined-benefit pension plan.

UCC Settlement. Agreement reached in November 2022 between the Debtors and the unsecured creditor's committee.

UMWA. United Mine Workers of America.

Unsecured Notes Claims. All claims against any Debtor arising from or based upon the Talen Senior Unsecured Notes or any related agreements and documents executed by any of the Debtors in connection with the Talen Senior Unsecured Notes, including accrued but unpaid interest, costs, fees, and indemnities.

Uri Claim. A timely asserted claim that asserts a claim for damage caused directly or indirectly by Winter Storm Uri.

VEBA. Voluntary Employee Benefit Association, a trust vehicle holding assets dedicated to payment of benefits under designated health and welfare plans (or successor plans) for future benefit payments to employees, retirees or their beneficiaries.

VIE. Variable interest entity.

WECC. The Western Electricity Coordinating Council, a not-for-profit entity that ensures the reliability of the electricity transmission network and energy market in all or parts of Arizona, California, Idaho, Montana, Nevada, New Mexico, Oregon, South Dakota, Texas, Utah, Washington, and the Canadian provinces of Alberta and British Columbia and the northern portion of the Mexican state of Baja California.

Western Gas Book. Certain contracts relating to transportation of natural gas in the Southwestern United States.

Winter Storm Elliott. An extra tropical cyclone that created a storm of snow, rain and wind across the country occurring in December 2022 that had widespread impacts across the United States, that included PJM declaring a Maximum Emergency Action.

Winter Storm Uri. A major winter and ice storm occurring in February 2021 that had widespread that had widespread impacts across the United States, including systemic energy market disruptions and price volatility throughout ERCOT.

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TALEN ENERGY 