United States
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM 10-Q

☒ **QUARTERLY REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the quarterly period ended September 30, 2019
or

☐ **TRANSITION REPORT PURSUANT TO 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the transition period from to

Commission File Number: 001-37822

Advanced Emissions Solutions, Inc.
(Exact name of registrant as specified in its charter)

Delaware	27-5472457
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification No.)
640 Plaza Drive, Suite 270, Highlands Ranch, CO	80129
(Address of principal executive offices)	(Zip Code)

(720) 598-3500
(Registrant's telephone number, including area code)

Not Applicable
(Former name, former address and former fiscal year, if changed since last report)

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

Indicate by check mark whether the registrant has submitted electronically and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files). Yes ☒ No ☐

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

Large accelerated filer	☐	Accelerated filer	☒
Non-accelerated filer	☐	Smaller reporting company	☒
		Emerging growth company	☐

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

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act).

Yes ☐ No ☒

Securities registered pursuant to Section 12(b) of the Act:

Class	Trading Symbol	Name of each exchange on which registered
Common stock, par value $0.001 per share	ADES	NASDAQ Global Market

As of November 6, 2019, there were 18,588,896 outstanding shares of Advanced Emissions Solutions, Inc. common stock, par value $0.001 per share.

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Part I. – FINANCIAL INFORMATION

Item 1. Consolidated Financial Statements

Advanced Emissions Solutions, Inc. and Subsidiaries
Condensed Consolidated Balance Sheets
(Unaudited)

(in thousands, except share data)	As of September 30, 2019	As of December 31, 2018
ASSETS		
Current assets:		
Cash, cash equivalents and restricted cash	$ 15,155	$ 18,577
Receivables, net	6,771	9,554
Receivables, related parties	4,382	4,284
Inventories, net	16,917	21,791
Prepaid expenses and other assets	6,070	5,570
Total current assets	49,295	59,776
Restricted cash, long-term	5,000	5,195
Property, plant and equipment, net of accumulated depreciation of $5,651 and $1,499, respectively	44,168	42,697
Intangible assets, net	4,300	4,830
Equity method investments	44,111	6,634
Deferred tax assets, net	13,491	32,539
Other long-term assets, net	18,363	7,993
Total Assets	$ 178,728	$ 159,664
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Accounts payable	$ 6,838	$ 6,235
Accrued payroll and related liabilities	3,893	8,279
Current portion of long-term debt	24,072	24,067
Other current liabilities	4,287	2,138
Total current liabilities	39,090	40,719
Long-term debt	26,276	50,058
Other long-term liabilities	6,062	940
Total Liabilities	71,428	91,717
Commitments and contingencies (Note 8)		
Stockholders' equity:		
Preferred stock: par value of $.001 per share, 50,000,000 shares authorized, none outstanding	—	—
Common stock: par value of $.001 per share, 100,000,000 shares authorized, 22,915,429 and 22,640,677 shares issued, and 18,594,498 and 18,576,489 shares outstanding at September 30, 2019 and December 31, 2018, respectively	23	23
Treasury stock, at cost: 4,320,931 and 4,064,188 shares as of September 30, 2019 and December 31, 2018, respectively	(44,666)	(41,740)
Additional paid-in capital	97,706	96,750
Retained earnings	54,237	12,914
Total stockholders' equity	107,300	67,947
Total Liabilities and Stockholders' Equity	$ 178,728	$ 159,664

See Notes to the Condensed Consolidated Financial Statements.

Advanced Emissions Solutions, Inc. and Subsidiaries
Condensed Consolidated Statements of Operations
(Unaudited)

(in thousands, except per share data)	Three Months Ended September 30, 2019	Three Months Ended September 30, 2018	Nine Months Ended September 30, 2019	Nine Months Ended September 30, 2018
Revenues:				
Consumables	$ 14,748	$ 1,043	$ 41,243	$ 2,390
License royalties, related party	4,385	4,104	12,796	10,857
Other	—	—	—	72
Total revenues	19,133	5,147	54,039	13,319
Operating expenses:				
Consumables cost of revenue, exclusive of depreciation and amortization	11,939	954	38,339	2,567
Other sales cost of revenue, exclusive of depreciation and amortization	—	—	—	(346)
Payroll and benefits	2,651	2,555	8,005	7,528
Legal and professional fees	1,755	698	5,300	3,459
General and administrative	3,136	834	7,699	3,098
Depreciation, amortization, depletion and accretion	2,043	74	4,902	262
Total operating expenses	21,524	5,115	64,245	16,568
Operating (loss) income	(2,391)	32	(10,206)	(3,249)
Other income (expense):				
Earnings from equity method investments	14,426	9,715	57,051	37,857
Interest expense	(1,729)	(399)	(5,820)	(1,147)
Other	212	86	342	146
Total other income	12,909	9,402	51,573	36,856
Income before income tax expense	10,518	9,434	41,367	33,607
Income tax expense	6,595	3,931	14,928	5,151
Net income	$ 3,923	$ 5,503	$ 26,439	$ 28,456
Earnings per common share (Note 1):				
Basic	$ 0.22	$ 0.28	$ 1.45	$ 1.41
Diluted	$ 0.21	$ 0.28	$ 1.44	$ 1.40
Weighted-average number of common shares outstanding:				
Basic	18,112	19,726	18,184	20,090
Diluted	18,339	19,876	18,394	20,228

See Notes to the Condensed Consolidated Financial Statements.

Advanced Emissions Solutions, Inc. and Subsidiaries
Condensed Consolidated Statements of Changes in Stockholders' Equity
(Unaudited)

(Amounts in thousands, except share data)	Common Stock Shares	Common Stock Amount	Treasury Stock Shares	Treasury Stock Amount	Additional Paid-in Capital	Retained Earnings	Total Stockholders' Equity
Balances, January 1, 2019	22,640,677	$ 23	(4,064,188)	$(41,740)	$ 96,750	$ 12,914	$ 67,947
Cumulative effect of change in accounting principle (Note 1)	—	—	—	—	—	28,817	28,817
Stock-based compensation	218,465	—	—	—	317	—	317
Repurchase of common shares to satisfy minimum tax withholdings	(22,707)	—	—	—	(245)	—	(245)
Cash dividends declared on common stock, $0.25 per share	—	—	—	—	—	(4,629)	(4,629)
Repurchase of common shares	—	—	(63,876)	(693)	—	—	(693)
Net income	—	—	—	—	—	14,402	14,402
Balances, March 31, 2019	22,836,435	23	(4,128,064)	(42,433)	96,822	51,504	105,916
Stock-based compensation	31,715	—	—	—	541	—	541
Repurchase of common shares to satisfy minimum tax withholdings	(745)	—	—	—	(9)	—	(9)
Cash dividends declared on common stock, $0.25 per share	—	—	—	—	—	(4,663)	(4,663)
Repurchase of common shares	—	—	(184,715)	(2,138)	—	—	(2,138)
Net income	—	—	—	—	—	8,114	8,114
Balances, June 30, 2019	22,867,405	23	(4,312,779)	(44,571)	97,354	54,955	107,761
Stock-based compensation	22,305	—	—	—	468	—	468
Stock issued from exercise of stock options	25,820	—	—	—	—	—	—
Repurchase of common shares to satisfy minimum tax withholdings	(101)	—	—	—	(116)	—	(116)
Cash dividends declared on common stock, $0.25 per share	—	—	—	—	—	(4,641)	(4,641)
Repurchase of common shares	—	—	(8,152)	(95)	—	—	(95)
Net income	—	—	—	—	—	3,923	3,923
Balances, September 30, 2019	22,915,429	$ 23	(4,320,931)	$(44,666)	$ 97,706	$ 54,237	$ 107,300

See Notes to the Condensed Consolidated Financial Statements.

Advanced Emissions Solutions, Inc. and Subsidiaries
Condensed Consolidated Statements of Changes in Stockholders' Equity
(Unaudited)

	Common Stock		Treasury Stock				
(Amounts in thousands, except share data)	**Shares**	**Amount**	**Shares**	**Amount**	**Additional Paid-in Capital**	**Retained Earnings (Deficit)**	**Total Stockholders' Equity**
Balances, January 1, 2018	22,465,821	$ 22	(1,713,766)	$(16,397)	$ 105,308	$ (15,478)	$ 73,455
Cumulative effect from adoption of ASC 606	—	—	—	—	—	2,950	2,950
Stock-based compensation	193,583	1	—	—	335	—	336
Repurchase of common shares to satisfy minimum tax withholdings	(22,375)	—	—	—	(267)	—	(267)
Cash dividends declared on common stock, $0.25 per share	—	—	—	—	(5,189)	—	(5,189)
Repurchase of common shares	—	—	(149,217)	(1,642)	—	—	(1,642)
Net income	—	—	—	—	—	7,662	7,662
Balances, March 31, 2018	22,637,029	23	(1,862,983)	(18,039)	100,187	(4,866)	77,305
Stock-based compensation	(1,135)	—	—	—	675	—	675
Repurchase of common shares to satisfy minimum tax withholdings	(8,259)	—	—	—	(92)	—	(92)
Cash dividends declared on common stock, $0.25 per share	—	—	—	—	(5,090)	—	(5,090)
Repurchase of common shares	—	—	(676,201)	(7,469)	—	—	(7,469)
Net income	—	—	—	—	—	15,291	15,291
Balances, June 30, 2018	22,627,635	$ 23	(2,539,184)	$(25,508)	$ 95,680	$ 10,425	$ 80,620
Stock-based compensation	24,726	—	—	—	919	—	919
Stock issued from exercise of stock options	18,667	—	—	—	—	—	—
Repurchase of common shares to satisfy minimum tax withholdings	(24,504)	—	—	—	(348)	—	(348)
Cash dividends declared on common stock, $0.25 per share	—	—	—	—	—	(5,032)	(5,032)
Repurchase of common shares	—	—	(186,212)	(2,058)	—	—	(2,058)
Net income	—	—	—	—	—	5,503	5,503
Balances, September 30, 2018	22,646,524	$ 23	(2,725,396)	$(27,566)	$ 96,251	$ 10,896	$ 79,604

See Notes to the Condensed Consolidated Financial Statements.

Advanced Emissions Solutions, Inc. and Subsidiaries
Condensed Consolidated Statements of Cash Flows
(Unaudited)

		Nine Months Ended September 30,		
(in thousands)		**2019**		**2018**
Cash flows from operating activities				
Net income	$	26,439	$	28,456
Adjustments to reconcile net income to net cash provided by operating activities:				
Increase in valuation allowance on deferred tax assets		3,822		2,731
Depreciation, amortization, depletion and accretion		4,902		262
Operating lease expense		2,371		—
Amortization of debt discount and debt issuance costs		1,324		—
Stock-based compensation expense		1,326		1,929
Earnings from equity method investments		(57,051)		(37,857)
Other non-cash items, net		697		190
Changes in operating assets and liabilities:				
Receivables and related party receivables		2,685		(375)
Prepaid expenses and other assets		(440)		(797)
Costs incurred on uncompleted contracts		—		15,945
Inventories		4,566		—
Deferred tax assets, net		6,812		(966)
Other long-term assets		(43)		—
Accounts payable		1,010		(340)
Accrued payroll and related liabilities		(4,386)		587
Other current liabilities		(278)		(1,974)
Billings on uncompleted contracts		—		(15,945)
Operating lease liabilities		(2,435)		—
Other long-term liabilities		(529)		(157)
Distributions from equity method investees, return on investment		56,806		4,000
Net cash provided by (used in) operating activities		47,598		(4,311)
Cash flows from investing activities				
Distributions from equity method investees in excess of cumulative earnings		—		33,575
Acquisition of business		(661)		—
Acquisition of property, plant, equipment, and intangible assets, net		(6,430)		(191)
Mine development costs		(2,083)		—
Contributions to equity method investees		—		(750)
Net cash (used in) provided by investing activities		(9,174)		32,634
Cash flows from financing activities				
Principal payments on term loan		(24,000)		—
Principal payments on finance lease obligations		(1,016)		—
Dividends paid		(13,729)		(15,226)
Repurchase of common shares		(2,926)		(11,169)
Repurchase of common shares to satisfy tax withholdings		(370)		(707)
Net cash used in financing activities		(42,041)		(27,102)
(Decrease) increase in Cash and Cash Equivalents and Restricted Cash		(3,617)		1,221
Cash and Cash Equivalents and Restricted Cash, beginning of period		23,772		30,693
Cash and Cash Equivalents and Restricted Cash, end of period	$	20,155	$	31,914
Supplemental disclosure of non-cash investing and financing activities:				
Dividends declared, not paid	$	204	$	85

See Notes to the Condensed Consolidated Financial Statements.

Note 1 - Basis of Presentation

Nature of Operations

Advanced Emissions Solutions, Inc. ("ADES" or the "Company") is a Delaware corporation with its principal office located in Highlands Ranch, Colorado and operations located in Louisiana. The Company is principally engaged in consumable mercury control options including powdered activated carbon ("PAC") and chemical technologies. The Company's proprietary environmental technologies in the power generation and industrial ("PGI") market enable customers to reduce emissions of mercury and other pollutants, maximize utilization levels and improve operating efficiencies to meet the challenges of existing and pending emission control regulations. The Company generates substantial earnings and tax credits under Section 45 ("Section 45 tax credits") of the Internal Revenue Code ("IRC") from its equity investments in certain entities and earns royalties for technologies that are licensed to Tinuum Group, LLC, a Colorado limited liability company ("Tinuum Group"). Such technologies allow Tinuum Group to provide their customers with various solutions to enhance combustion and reduced emissions of nitrogen oxide ("NOx") and mercury from coal burned to generate electrical power. The Company’s sales occur principally throughout the United States. See Note 13 for additional information regarding the Company's operating segments.

On December 7, 2018 (the "Acquisition Date"), the Company acquired (the "Carbon Solutions Acquisition") 100% of the equity interests of ADA Carbon Solutions, LLC (“Carbon Solutions”). Carbon Solutions is a manufacturer and seller of activated carbon ("AC") used in mercury capture for the coal-fired power plant, industrial and water treatment markets. Carbon Solutions also owns an associated lignite mine that supplies the primary raw material for manufacturing PAC. Carbon Solutions was formed in 2008 as a 50/50 joint venture by the Company and Energy Capital Partners LLC. The Company relinquished its ownership in 2011 as part of a legal settlement agreement as described in the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 2017. The Company acquired Carbon Solutions primarily to expand the Company's product offerings within the mercury control industry and other complementary PAC markets.

Basis of Presentation

The accompanying Condensed Consolidated Financial Statements of ADES are unaudited and have been prepared in conformity with accounting principles generally accepted in the United States ("U.S. GAAP") and with Article 10 of Regulation S-X of the Securities and Exchange Commission. In compliance with those instructions, certain information and footnote disclosures normally included in annual consolidated financial statements prepared in accordance with U.S. GAAP have been condensed or omitted.

The unaudited Condensed Consolidated Financial Statements of ADES in this quarterly report ("Quarterly Report") are presented on a consolidated basis and include ADES and its wholly-owned subsidiaries (collectively, the "Company"). Also included within the unaudited Condensed Consolidated Financial Statements are the Company's unconsolidated equity investments; Tinuum Group, Tinuum Services, LLC ("Tinuum Services"), and GWN Manager, LLC ("GWN Manager"), which are accounted for under the equity method of accounting, and Highview Enterprises Limited (the "Highview Investment"), which is accounted for in accordance with U.S. GAAP applicable to equity investments that do not qualify for the equity method of accounting.

Results of operations and cash flows for the interim periods are not necessarily indicative of the results that may be expected for the entire year. All significant intercompany transactions and accounts were eliminated for all periods presented in this Quarterly Report.

In the opinion of management, these Condensed Consolidated Financial Statements include all normal and recurring adjustments considered necessary for a fair presentation of the results of operations, financial position, stockholders' equity and cash flows for the interim periods presented. These Condensed Consolidated Financial Statements of ADES should be read in conjunction with the Company’s Annual Report on Form 10-K for the year ended December 31, 2018 (the "2018 Form 10-K"). Significant accounting policies disclosed therein have not changed, except as described later in Note 1.

Earnings Per Share

Basic earnings per share is computed using the two-class method, which is an earnings allocation formula that determines earnings per share for common stock and any participating securities according to dividend and participating rights in undistributed earnings. The Company's restricted stock awards ("RSA's") granted prior to December 31, 2016 contain non-forfeitable rights to dividends or dividend equivalents and are deemed to be participating securities. RSA's granted subsequent to December 31, 2016 do not contain non-forfeitable rights to dividends and are not deemed to be participating securities.

Under the two-class method, net income for the period is allocated between common stockholders and the holders of the participating securities based on the weighted-average number of common shares outstanding during the period, excluding participating, unvested RSA's ("common shares"), and the weighted-average number of participating unvested RSA's outstanding during the period, respectively. The allocated, undistributed income for the period is then divided by the weighted-average number of common shares and participating, unvested RSA's outstanding during the period to arrive at basic earnings per common share and participating security for the period, respectively. Pursuant to U.S. GAAP, the Company has elected not to separately present basic or diluted earnings per share attributable to participating securities in the Condensed Consolidated Statements of Operations.

Diluted earnings per share is computed in a manner consistent with that of basic earnings per share, while considering other potentially dilutive securities. Potentially dilutive securities consist of both unvested, participating and non-participating RSA's, as well as outstanding options to purchase common stock ("Stock Options") and contingent performance stock units ("PSU's") (collectively, "Potential dilutive shares"). The dilutive effect, if any, for non-participating RSA's, Stock Options and PSU's is determined using the greater of dilution as calculated under the treasury stock method or the two-class method. Potential dilutive shares are excluded from diluted earnings per share when their effect is anti-dilutive. When there is a net loss for a period, all Potential dilutive shares are anti-dilutive and are excluded from the calculation of diluted loss per share for that period.

The following table sets forth the calculations of basic and diluted earnings per share:

	Three Months Ended September 30,		Nine Months Ended September 30,	
(in thousands, except per share amounts)	2019	2018	2019	2018
Net income	$ 3,923	$ 5,503	$ 26,439	$ 28,456
Less: Dividends and undistributed income allocated to participating securities	5	18	37	94
Income attributable to common stockholders	$ 3,918	$ 5,485	$ 26,402	$ 28,362
Basic weighted-average common shares outstanding	18,112	19,726	18,184	20,090
Add: dilutive effect of equity instruments	227	150	210	138
Diluted weighted-average shares outstanding	18,339	19,876	18,394	20,228
Earnings per share - basic	$ 0.22	$ 0.28	$ 1.45	$ 1.41
Earnings per share - diluted	$ 0.21	$ 0.28	$ 1.44	$ 1.40

For the three and nine months ended September 30, 2019 and 2018, RSA's and Stock Options convertible to 0.3 million and 0.3 million shares, respectively, and 0.3 million and 0.3 million shares, respectively, of common stock for each of the periods presented were outstanding but were not included in the computation of diluted net income per share because the effect would have been anti-dilutive. For the nine months ended September 30, 2018, Stock Options to purchase 0.1 million shares, which vest based on the Company achieving specified performance targets, were outstanding, but were not included in the computation of diluted net income per share for a portion of this period because they were determined not to be contingently issuable.

Use of Estimates

The preparation of financial statements in conformity with U.S. GAAP requires management to make estimates and assumptions that affect the amounts reported in the financial statements and accompanying notes. There have been no changes in the Company’s critical accounting estimates from those that were disclosed in the 2018 Form 10-K. Actual results could differ from these estimates.

Risks and Uncertainties

The Company’s earnings are significantly affected by equity earnings it receives from Tinuum Group. As of September 30, 2019, Tinuum Group has 23 invested RC facilities of which 11 are leased to a single customer. A majority of these leases are periodically renewed and the loss of this single customer or material modification to the lease terms of these facilities by this customer would have a significant adverse impact on Tinuum Group's financial position, results of operations and cash flows, which in turn would have material adverse impact on the Company’s financial position, results of operations and cash flows.

The Company's revenues, sales volumes, earnings and cash flows are significantly affected by prices of competing power generation sources such as natural gas and renewable energy. Low natural gas prices make it a competitive alternative to coal-fired power generation and therefore, coal consumption may be reduced, which reduces the demand for our products. In addition, coal consumption and demand for our products is also affected by the demand for electricity, which is higher in the warmer and colder months of the year. Abnormal temperatures during the summer and winter months may significantly reduce coal consumption and thus the demand for the Company's products.

<u>*Reclassifications*</u>

Certain balances have been reclassified from the prior year to conform to the current year presentation. No reclassifications have any impact to income before income taxes or net income.

<u>*New Accounting Standards*</u>

Recently Adopted

In February 2016, the FASB issued ASU 2016-02, *Leases* (Topic 842) ("ASU 2016-02"), which created ASC Topic 842 - *Leases* ("ASC 842"), requiring lessees to recognize a right of use asset and related lease liability for those leases classified as operating leases at the commencement date and have lease terms of more than 12 months. ASC 842 retains the distinction between finance leases (formerly defined as capital leases) and operating leases. On January 1, 2019, the Company adopted ASC 842 retrospectively beginning with the date of adoption. Under this adoption method, the application date is the beginning of the reporting period in which the Company first applies the provisions of ASC 842. Accordingly, the Company's reporting for the comparative periods presented in the financial statements and related disclosures continues in accordance with legacy U.S. GAAP under ASC Topic 840 - Leases ("ASC 840"). The adoption of ASC 842 had no impact to the opening balance of Retained earnings.

As of the adoption date, the Company recorded $7.0 million and $7.0 million of "right of use" ("ROU") assets and incremental lease liabilities, respectively. The cumulative effect of the change from the adoption of ASC 842 to the Consolidated Balance Sheet as of January 1, 2019 is shown in the table that follows:

(in thousands)	Balance as of December 31, 2018	Impact of Adoption	Balance as of January 1, 2019
Balance Sheet			
Other long-term assets	$ 7,993	$ 6,956	$ 14,949
Other liabilities	$ 50,058	$ 3,085	$ 53,143
Other long-term liabilities	$ 940	$ 3,871	$ 4,811

See Note 6 for additional disclosures required under ASC 842 in the year of adoption.

As of January 1, 2019, Tinuum Group adopted ASU 2016-02 and ASU 2014-09 (Topic 606), *Revenue from Contracts with Customers* and related pronouncements ("ASC 606"). As a result of Tinuum Group's adoption of these pronouncements, the Company recorded a cumulative effect increase of $28.8 million to Retained earnings as of January 1, 2019, based on the Company's ownership percentage of Tinuum Group's cumulative effect adjustment, and increased its investment balance in Tinuum Group in the amount of $37.2 million and established a deferred tax liability of $8.4 million. As a result of the increase in the investment balance in Tinuum Group, for the nine months ended September 30, 2019, the Company recognized equity earnings in Tinuum Group based on its pro-rata share of Tinuum Group's net income rather than based on cash distributions received as had been required in prior periods as a result of the cumulative cash distributions exceeding the cumulative pro-rata share of Tinuum Group's net income.

Not Yet Adopted

In June 2016, the FASB issued ASU 2016-13, *Financial Instruments - Credit Losses (Topic 326) Measurement of Credit Losses on Financial Instruments* ("ASU 2016-13"). The main objective of ASU 2016-13 is to provide financial statement users with more decision-useful information about the expected credit losses on financial instruments and other commitments to extend credit held by a reporting entity at each reporting date. To achieve this objective, the amendments in ASU 2016-13 replace the incurred loss impairment methodology in current U.S. GAAP with a methodology that reflects expected credit losses and requires consideration of a broader range of reasonable and supportable information to inform credit loss estimates. ASU 2016-13 is effective for fiscal years beginning after December 15, 2019, including interim periods within those years, and must be adopted under a modified retrospective method approach. Entities may adopt ASU 2016-13 earlier as of the fiscal years beginning after December 15, 2018, including interim periods within those years. The Company is currently evaluating the provisions of this guidance and assessing its impact on the Company's financial statements and disclosures. The Company does not believe this standard will have a material impact on the Company's financial statements and disclosures.

In August 2018, the FASB issued ASU 2018-13, *Fair Value Measurement (Topic 820) Disclosure Framework - Changes to the Disclosure Requirements for Fair Value Measurement* ("ASU 2018-13"). The amendments in ASU 2018-13 improve the effectiveness of fair value measurement disclosures and modify the disclosure requirements on fair value measurements in Topic 820, Fair Value Measurement ("Topic 820"), based on the concepts in FASB Concepts Statement, Conceptual Framework for Financial Reporting - Chapter 8: Notes to Financial Statements, including the consideration of costs and benefits. ASU 2018-13 is effective for fiscal years, and interim periods within those fiscal years, beginning after December 15, 2019. The amendments on changes in unrealized gains and losses, the range and weighted-average of significant unobservable inputs used to develop Level 3 fair value measurements, and the narrative description of measurement uncertainty should be applied prospectively for only the most recent interim or annual period presented in the initial fiscal year of adoption. All other amendments should be applied retrospectively to all periods presented upon their effective date. Early adoption is permitted upon issuance of this update. An entity is permitted to early adopt any removed or modified disclosures upon issuance of this update and delay adoption of the additional disclosures until their effective date. The Company is currently evaluating the provisions of ASU 2018-13 and assessing its impact on the Company's financial statement disclosures. The Company does not believe this standard will have a material impact on the Company's financial statement disclosures.

Note 2 - Acquisition

As described in Note 1, on the Acquisition Date, the Company completed the Carbon Solutions Acquisition for a total purchase price of $75.0 million (the "Purchase Price"). The results of Carbon Solutions have been included in the Company's consolidated financial statements since the Acquisition Date. The fair value of the purchase consideration totaled $66.5 million and consisted of cash of $65.8 million and an additional purchase adjustment amount payable to Carbon Solutions' secured lender of $0.7 million, which was paid in March 2019. The Purchase Price was adjusted by assumed debt and contractual commitments of $11.8 million, less cash acquired of $3.3 million. The Company also paid $4.5 million in acquisition-related costs (or transaction costs) during the year ended December 31, 2018. The Company funded the cash consideration from cash on hand and the proceeds from the Term Loan and Security Agreement (the "Senior Term Loan") in the principal amount of $70.0 million, as more fully described in Note 5.

The following table summarizes the final purchase price allocation. Subsequent to December 31, 2018, the Company completed additional analysis and adjustments were made to the preliminary purchase price allocations as noted in the table below:

Fair value of assets acquired:	**As Originally Reported**	**Adjustments**	**As Adjusted**
Cash	$ 3,284	$ —	$ 3,284
Receivables	6,409	—	6,409
Inventories	22,100	(356)	21,744
Prepaid expenses and other current assets	2,992	61	3,053
Spare parts	3,359	—	3,359
Property, plant and equipment	43,033	(377)	42,656
Mine leases and development	2,500	200	2,700
Mine reclamation asset	—	2,402	2,402
Intangible assets	4,000	100	4,100
Other assets	168	—	168
Amount attributable to assets acquired	87,845	2,030	89,875
Fair value of liabilities assumed:			
Accounts payable	4,771	—	4,771
Accrued liabilities	7,354	254	7,608
Equipment lease liabilities	8,211	—	8,211
Mine reclamation liability	626	1,776	2,402
Other liabilities	437	—	437
Amount attributable to liabilities assumed	21,399	2,030	23,429
Net assets acquired	$ 66,446	$ —	$ 66,446

Adjustments to the preliminary purchase price allocation primarily relate to changes in fair values assigned to property, plant and equipment, intangible assets, mine reclamation liability and the related mine reclamation asset as a result of the final valuation report from the Company's third-party valuation firm issued in May 2019. During the three months ended June 30, 2019 based on new information of facts and circumstances that existed as of the Acquisition Date, the Company revised its estimates used as of the Acquisition Date related to the net realizable value of certain finished goods inventory items as well as values assigned to certain prepaid and accrued expense items.

The adjustments were recorded as of June 30, 2019 and were included in the Consolidated Balance Sheet as of that date and the resultant impact to the Statement of Operations was reflected for the three months ended June 30, 2019.

The following table represents the intangible assets, as adjusted for purchase price adjustments noted above, identified as part of the Carbon Solutions Acquisition:

(in thousands)		Amount	Weighted Average Useful Life (years)
Customer relationships	$	2,200	5
Developed technology		1,600	5
Trade name		300	2
Total intangibles acquired	$	4,100	

<u>Unaudited Pro Forma Financial Information</u>

The following represents the pro forma effects of the Carbon Solutions Acquisition as if it had occurred on January 1, 2017. The pro forma pre-tax income for the period presented has been calculated after applying the Company's accounting policies in effect for 2017 and 2018. In addition, pro forma net income for the three and nine months ended September 30, 2018 includes: (1) the impact on Carbon Solutions of the adoption of ASC 606 effective January 1, 2018, which resulted in a reclassification of $2.1 million and $5.9 million, respectively, from Revenues to Cost of Revenue for freight costs billed to customers, with no impact to income from operations; (2) the reduction in depletion, depreciation and amortization resulting from the purchase price adjustments to Property, plant and equipment and Mine development costs; (3) the adjustment to interest expense from the combination of the Senior Term Loan that was used to fund the Carbon Solutions Acquisition and the elimination of certain debt of Carbon Solutions as a result of pay-offs by the Company as of the Acquisition Date; and (4) the removal of $1.0 million and $4.2 million in transaction costs incurred for the three and nine months ended September 30, 2018, respectively, together with the income tax effect on (1) through (4). The pro forma results do not include any anticipated synergies or other expected benefits of the Carbon Solutions Acquisition. The unaudited pro forma financial information below is not necessarily indicative of either future results of operations or results that might have been achieved had the Carbon Solutions Acquisition been consummated as of January 1, 2017.

The following table presents the pro forma effects of the Carbon Solutions Acquisition for the three and nine months ended September 30, 2018:

	Three Months Ended		Nine Months Ended	
(in thousands)	September 30, 2018		September 30, 2018	
Revenues	$	22,447	$	57,597
Net income	$	8,372	$	24,434

Note 3 - Inventories

The following table summarizes the Company's inventories recorded at the lower of average cost or net realizable value as of September 30, 2019 and December 31, 2018:

	As of			
(in thousands)	September 30, 2019		December 31, 2018	
Product inventory (1)	$	14,953	$	19,403
Raw material inventory		1,964		2,388
	$	16,917	$	21,791

(1) As of September 30, 2019 and December 31, 2018, Product inventory includes zero and $5.0 million, respectively, attributed to the increase in fair value of inventory acquired from the Carbon Solutions Acquisition.

Note 4 - Equity Method Investments

Tinuum Group, LLC

The Company's ownership interest in Tinuum Group was 42.5% as of September 30, 2019 and December 31, 2018. Tinuum Group supplies technology equipment and technical services at select coal-fired generators, but its primary purpose is to put into operation facilities that produce and sell refined coal ("RC") that lower emissions and also qualify for Section 45 tax credits. Tinuum Group has been determined to be a variable interest entity ("VIE"); however, the Company does not have the power to direct the activities that most significantly impact Tinuum Group's economic performance and has therefore accounted for the investment under the equity method of accounting. The Company determined that the voting partners of Tinuum Group have identical voting rights, equity control interests and board control interests, and therefore, concluded that the power to direct the activities that most significantly impact Tinuum Group's economic performance was shared.

The following table summarizes the results of operations of Tinuum Group:

	Three Months Ended September 30,		Nine Months Ended September 30,	
(in thousands)	2019	2018	2019	2018
Gross profit	$ 16,810	$ 26,530	$ 96,189	$ 81,626
Operating, selling, general and administrative expenses	11,076	5,908	23,421	17,406
Income from operations	5,734	20,622	72,768	64,220
Other expenses	(450)	(577)	(427)	(2,801)
Class B preferred return	—	—	—	(12)
Loss attributable to noncontrolling interest	22,355	17,126	51,022	38,145
Net income available to members	$ 27,639	$ 37,171	$ 123,363	$ 99,552
ADES equity earnings from Tinuum Group	$ 11,746	$ 8,075	$ 50,757	$ 33,575

For the three and nine months ended September 30, 2018 periods presented in the table below, the difference between the Company's proportionate share of Tinuum Group's net income available to members (at its equity interest of 42.5%) and the Company's earnings from its Tinuum Group equity method investment as reported in the Condensed Consolidated Statements of Operations relates to the Company receiving distributions in excess of the carrying value of the equity investment, and therefore recognizing such excess distributions as equity method earnings in the period the distributions occur, as discussed below.

For the three and nine months ended September 30, 2018 periods presented in the table below, the Company recognized equity earnings from Tinuum Group to the extent that cash distributions were received from Tinuum Group during the period. For the three months ended September 30, 2019, the Company recognized its pro-rata share of Tinuum Group's net income available to its members for the respective period. For the nine months ended September 30, 2019, the Company recognized its pro-rata share of Tinuum Group's net income available to its members for the period, less the amount necessary to recover the cumulative earnings short-fall balance as of the end of the immediately preceding period, which was December 31, 2018. For the three and nine months ended September 30, 2019, the Company recognized equity earnings from Tinuum Group of $11.7 million and $50.8 million, respectively. For the three and nine months ended September 30, 2018, the Company recognized equity earnings from Tinuum Group of $8.1 million and $33.6 million, respectively. As of September 30, 2019 and December 31, 2018, the Company's carrying value in Tinuum Group was $37.7 million and zero, respectively.

The following tables present the Company's investment balance, equity earnings and cash distributions in excess of the investment balance, if any, for the three and nine months ended September 30, 2019 and 2018 (*in thousands*):

Description	Date(s)	Investment balance	ADES equity earnings (loss)	Cash distributions	Memorandum Account: Cash distributions and equity earnings in (excess) of investment balance
Beginning balance	12/31/2018	$ —	$ —	$ —	$ (1,672)
Impact of adoption of accounting standards (1)	First Quarter	37,232	—	—	—
ADES proportionate share of income from Tinuum Group	First Quarter	21,439	21,439	—	—
Recovery of prior cash distributions in excess of investment balance (prior to cash distributions)	First Quarter	(1,672)	(1,672)	—	1,672
Cash distributions from Tinuum Group	First Quarter	(16,788)	—	16,788	—
Total investment balance, equity earnings (loss) and cash distributions	03/31/2019	$ 40,211	$ 19,767	$ 16,788	$ —
ADES proportionate share of income from Tinuum Group	Second Quarter	$ 19,244	$ 19,244	$ —	$ —
Cash distributions from Tinuum Group	Second Quarter	(17,000)	—	17,000	—
Total investment balance, equity earnings (loss) and cash distributions	6/30/2019	$ 42,455	$ 19,244	$ 17,000	$ —
ADES proportionate share of income from Tinuum Group	Third Quarter	$ 11,746	$ 11,746	$ —	$ —
Cash distributions from Tinuum Group	Third Quarter	(16,468)	—	16,468	—
Total investment balance, equity earnings (loss) and cash distributions	9/30/2019	$ 37,733	$ 11,746	$ 16,468	$ —

Description	Date(s)	Investment balance	ADES equity earnings (loss)	Cash distributions	Memorandum Account: Cash distributions and equity earnings in (excess) of investment balance
Beginning balance	12/31/2017	$ —	$ —	$ —	$ (12,218)
ADES proportionate share of income from Tinuum Group (2)	First Quarter	12,458	12,458	—	—
Recovery of prior cash distributions in excess of investment balance (prior to cash distributions)	First Quarter	(12,218)	(12,218)	—	12,218
Cash distributions from Tinuum Group	First Quarter	(11,050)	—	11,050	—
Adjustment for current year cash distributions in excess of investment balance	First Quarter	10,810	10,810	—	(10,810)
Total investment balance, equity earnings (loss) and cash distributions	3/31/2018	$ —	$ 11,050	$ 11,050	$ (10,810)
ADES proportionate share of income from Tinuum Group (2)	Second Quarter	$ 14,059	$ 14,059	$ —	$ —
Recovery of prior cash distributions in excess of investment balance (prior to cash distributions)	Second Quarter	(10,810)	(10,810)	—	10,810
Cash distributions from Tinuum Group	Second Quarter	(14,450)	—	14,450	—
Adjustment for current year cash distributions in excess of investment balance	Second Quarter	11,201	11,201	—	(11,201)
Total investment balance, equity earnings (loss) and cash distributions	6/30/2018	$ —	$ 14,450	$ 14,450	$ (11,201)
ADES proportionate share of income from Tinuum Group (2)	Third Quarter	$ 15,798	$ 15,798	$ —	$ —
Recovery of prior cash distributions in excess of investment balance (prior to cash distributions)	Third Quarter	(11,201)	(11,201)	—	11,201
Cash distributions from Tinuum Group	Third Quarter	(8,075)	—	8,075	—
Adjustment for current year cash distributions in excess of investment balance	Third Quarter	3,478	3,478	—	(3,478)
Total investment balance, equity earnings (loss) and cash distributions	9/30/2018	$ —	$ 8,075	$ 8,075	$ (3,478)

(1) As discussed in Note 1, Tinuum Group adopted ASC 606 and ASC 842 as of January 1, 2019. As a result of Tinuum Group's adoption of these standards, the Company recorded a cumulative adjustment of $28.8 million, net of the impact of income taxes, related to the Company's percentage of Tinuum Group's cumulative effect adjustment that increased the Company's Retained earnings as of January 1, 2019.

(2) For the three and nine months ended September 30, 2018, the amount of the Company's 42.5% proportionate share of net income available to members as shown in the table above may differ from mathematical calculations of the Company's 42.5% equity interest in Tinuum Group multiplied by the amounts of net income available to members as shown in the table above of Tinuum Group's results of operations due to adjustments related to the Class B preferred return.

Tinuum Services, LLC

The Company has a 50% voting and economic interest in Tinuum Services, which is equivalent to the voting and economic interest of NexGen Refined Coal, LLC ("NexGen"). The Company has determined that Tinuum Services is not a VIE and has evaluated its consolidation analysis under the voting interest model. Because the Company does not own greater than 50% of the outstanding voting shares, either directly or indirectly, it has accounted for its investment in Tinuum Services under the equity method of accounting. The Company's investment in Tinuum Services as of September 30, 2019 and December 31, 2018 was $6.3 million and $6.6 million, respectively.

The following table summarizes the results of operations of Tinuum Services:

	Three Months Ended September 30,		Nine Months Ended September 30,	
(in thousands)	2019	2018	2019	2018
Gross loss	$ (27,834)	$ (21,362)	$ (77,761)	$ (64,069)
Operating, selling, general and administrative expenses	51,927	43,947	151,789	127,783
Loss from operations	(79,761)	(65,309)	(229,550)	(191,852)
Other (expenses) income	(460)	78	(1,018)	443
Loss attributable to noncontrolling interest	85,586	68,509	243,163	199,971
Net income	$ 5,365	$ 3,278	$ 12,595	$ 8,562
ADES equity earnings from Tinuum Services	$ 2,682	$ 1,639	$ 6,297	$ 4,281

Included within the Consolidated Statements of Operations of Tinuum Services for the three and nine months ended September 30, 2019 and 2018, respectively, were losses related to VIE's of Tinuum Services. These losses do not impact the Company's equity earnings from Tinuum Services as 100% of those losses are attributable to a noncontrolling interest and eliminated in the calculations of Tinuum Services' net income attributable to the Company's interest.

The following table details the components of the Company's respective equity method investments included within the Earnings from equity method investments line item on the Condensed Consolidated Statements of Operations:

	Three Months Ended September 30,		Nine Months Ended September 30,	
(in thousands)	2019	2018	2019	2018
Earnings from Tinuum Group	$ 11,746	$ 8,075	$ 50,757	$ 33,575
Earnings from Tinuum Services	2,682	1,639	6,297	4,281
(Losses) earnings from other	(2)	1	(3)	1
Earnings from equity method investments	$ 14,426	$ 9,715	$ 57,051	$ 37,857

The following table details the components of the cash distributions from the Company's respective equity method investments included in the Condensed Consolidated Statements of Cash Flows. Distributions from equity method investees are reported in the Condensed Consolidated Statements of Cash Flows as "Distributions from equity method investees, return on investment" within Operating cash flows until such time as the carrying value in an equity method investee company is reduced to zero; thereafter, such distributions are reported as "Distributions from equity method investees in excess of cumulative earnings" within Investing cash flows.

	Nine Months Ended September 30,	
(in thousands)	2019	2018
Distributions from equity method investees, return on investment		
Tinuum Group	$ 50,256	$ —
Tinuum Services	6,550	4,000
	$ 56,806	$ 4,000
Distributions from equity method investees in excess of investment basis		
Tinuum Group	$ —	$ 33,575
	$ —	$ 33,575

Note 5 - Debt Obligations

(in thousands)	As of September 30, 2019	As of December 31, 2018
Senior Term Loan due December 2021, related party	$ 46,000	$ 70,000
Less: net unamortized debt issuance costs	(1,380)	(1,990)
Less: net unamortized debt discount	(1,338)	(2,052)
Senior Term Loan due December 2021, net	43,282	65,958
Finance lease obligations (1)	7,066	8,167
	50,348	74,125
Less: Current maturities	(24,072)	(24,067)
Total long-term debt	$ 26,276	$ 50,058

(1) As of December 31, 2018, obligations related to capital lease obligations as defined in ASC 840.

Senior Term Loan

On December 7, 2018, the Company, and ADA-ES, Inc. ("ADA"), a wholly-owned subsidiary, and certain other subsidiaries of the Company as guarantors, The Bank of New York Mellon as administrative agent, and Apollo Credit Strategies Master Fund Ltd and Apollo A-N Credit Fund (Delaware) L.P. (collectively "Apollo"), affiliates of a beneficial owner of greater than five percent of the Company's common stock and a related party, entered into the Senior Term Loan in the amount of $70.0 million less original issue discount of $2.1 million. Proceeds from the Senior Term Loan were used to fund the Carbon Solutions Acquisition as disclosed in Note 2. The Company also paid debt issuance costs of $2.0 million related to the Senior Term Loan. The Senior Term Loan has a term of 36 months and bears interest at a rate equal to 3-month LIBOR (subject to a 1.5% floor) + 4.75% per annum, which is adjusted quarterly to the current 3-month LIBOR rate, and interest is payable quarterly in arrears. Quarterly principal payments of $6.0 million were required beginning in March 2019, and the Company may prepay the Senior Term Loan at any time without penalty. The Senior Term Loan is secured by substantially all of the assets of the Company, including the cash flows from Tinuum Group and Tinuum Services (collectively, the "Tinuum Entities"), but excluding the Company's equity interests in the Tinuum entities.

The Senior Term Loan includes, among others, the following covenants: (1) Beginning December 31, 2018 and as of the end of each fiscal quarter thereafter, the Company must maintain a minimum cash balance of $5.0 million and shall not permit "expected future net cash flows from the refined coal business" (as defined in the Senior Term Loan) to be less than 1.75 times the outstanding principal amount of the Senior Term Loan; (2) Beginning in January 2019, annual collective dividends and buybacks of Company shares in an aggregate amount, not to exceed $30.0 million, is permitted so long as (a) no default or event of default exists under the Senior Term Loan and (b) expected future net cash flows from the refined coal business as of the end of the most recent fiscal quarter exceed $100.0 million.

Line of Credit

On September 30, 2018, ADA, as borrower, the Company, as guarantor, and a bank (the "Lender") entered into an amendment (the "Twelfth Amendment") to the 2013 Loan and Security Agreement (the "Line of Credit"). The Twelfth Amendment decreased the borrowing availability of the Line of Credit to $5.0 million due to decreased collateral requirements, extended the maturity date of the Line of Credit to September 30, 2020 and permitted the Line of Credit to be used as collateral (in place of restricted cash) for letters of credit ("LC's") up to $5.0 million related to equipment projects and certain other agreements. Under the Twelfth Amendment, there was no minimum balance requirement based on the Company meeting certain conditions and maintaining minimum trailing twelve-month EBITDA (earnings before interest, taxes, depreciation and amortization), as previously defined in the "Eleventh Amendment" to the Line of Credit, of $24.0 million.

On December 7, 2018, ADA, as borrower, the Company, as guarantor, and the Lender entered into an amendment to the Line of Credit, which provided, among other things, for ADA to be able to enter into the Senior Term Loan as a guarantor so long as the principal amount of the Senior Term Loan did not exceed $70.0 million. Additionally, the financial covenants in the Line of Credit were amended and restated to be consistent with the aforementioned Senior Term Loan covenants, including maintaining a minimum cash balance of $5.0 million.

As of September 30, 2019, there were no outstanding borrowings under the Line of Credit.

Note 6 - Leases

The financial statement impact from the adoption of ASC 842 as of January 1, 2019 is due to recording ROU assets and related lease liabilities for operating lease commitments that were outstanding as of December 31, 2018. The Company has elected the transitional practical expedients allowed under ASC 842, which include among other things that the Company need not reassess: (1) whether any existing contracts are or contain leases, inclusive of land easements; (2) the lease classification or lease term for existing leases; and (3) initial direct costs for any existing leases. In addition, the Company has elected for all classes of underlying assets the practical expedient to not separate nonlease components from lease components and to account for each separate lease component and the nonlease components associated with that lease component as a single lease component.

ASC 842 defines a lease as a contract, or part of a contract, that conveys the right to control the use of an identified asset for a period of time in exchange for consideration. Control over the use of an identified asset means that an entity has both the right to obtain substantially all of the economic benefits from the use of an identified asset and the right to direct the use of that identified asset. The determination of whether a contract contains a lease may require significant assumptions and judgments.

Historically, Carbon Solutions has used leasing to fund the majority of its capital needs for mining and manufacturing equipment. As of September 30, 2019, the Company has obligations under finance and operating leases in the amounts of $7.1 million and $5.9 million, respectively. ROU assets under finance leases are mining equipment used at the Company's lignite mine, which provides the key raw materials for manufacturing the Company's products. ROU assets under operating leases are primarily plant equipment used at the Company's manufacturing facility, but also include other office equipment, vehicles and office facilities. As of September 30, 2019, the Company has ROU assets, net of accumulated amortization, under finance leases and operating leases of $6.4 million and $5.9 million, respectively.

Certain of the finance and operating leases have options permitting renewals for additional periods and buy-out options. Renewal and buy-out options for applicable leases have not been included in the measurement of the respective lease liabilities as the Company is not reasonably certain that it will exercise the respective option or the lessor does not have an exclusive right to exercise the option.

Variable lease payments represent payments made by a lessee for the right to use an underlying asset that vary because of changes in facts or circumstances occurring after the commencement date of a lease other than the passage of time. Variable lease payments that are based on an index or rate, calculated by using the index or rate that exists on the lease commencement date, are included in the measurement of a lease liability. Certain of the Company's operating leases for office facilities contain variable lease components that are not based on an index or rate, and the Company recognizes these payments as lease expense in the period in which the obligation for those payments is incurred.

The Company calculates lease liabilities based on the present value of lease payments discounted by the rate implicit in the lease or, if not readily determinable, the Company's incremental borrowing rate.

The Company records lease liabilities and related ROU assets for all leases that have a term of greater than one year. For short-term leases (leases with terms of less than one year), the Company expenses lease payments on a straight-line basis over the lease term.

Finance leases

Leases classified as capital leases under ASC 840 and the related assets and liabilities were recorded and classified as finance leases as of January 1, 2019 based on their carrying values of $8.1 million and $8.2 million, respectively, as of December 31, 2018. ROU assets under finance leases and finance lease liabilities are included in Property, plant and equipment and Current portion and Long-term portion of borrowings, respectively, in the Condensed Consolidated Balance Sheet as of September 30, 2019.

Finance lease liabilities are subsequently measured by increasing the carrying amount to reflect interest expense on the finance lease liability and reducing the carrying amount of the lease liability to reflect lease payments made during the period. Interest on finance lease liabilities is determined in each period during the lease term as the amount that produces a constant periodic discount rate on the remaining balance of the lease liability. ROU assets under finance leases are amortized over the remaining lease term on a straight-line basis. Interest expense related to finance lease liabilities and amortization of ROU assets under finance leases are included in Interest expense and Depreciation, amortization, depletion and accretion, respectively, in the Condensed Consolidated Statement of Operations for the three and nine months ended September 30, 2019.

Operating leases

Operating lease liabilities as of January 1, 2019 were calculated at the present value, using a discount rate of the lease, of the remaining minimum rental payments (as defined under ASC 840). As the rate implicit in all of the operating leases was not readily determinable, the Company determined its discount rate as of January 1, 2019 based on an estimate of its incremental borrowing rate. This rate was based on the Company's effective borrowing rate on the Senior Term Loan, considering the collateral requirements contained therein, in effect as of January 1, 2019. ROU assets under operating leases as of January 1, 2019 were determined as the calculated value of the operating lease liabilities less accrued lease payments and accrued lease incentives. As of December 31, 2018, the total amount of accrued lease payments and accrued lease incentives was approximately $0.1 million. ROU assets under operating leases and operating lease liabilities are included in Other long-term assets and Other liabilities and Other long-term liabilities, respectively, in the Condensed Consolidated Balance Sheet as of September 30, 2019.

Operating lease liabilities are subsequently measured at the present value of the lease payments not yet paid discounted using the discount rate for the lease established at the inception date of the lease (or January 1, 2019 for operating leases in effect as of December 31, 2018). ROU assets under operating leases are subsequently measured at the amounts of the related operating lease liability, adjusted for, as applicable, prepaid or accrued lease payments, the remaining balance of any lease incentives received, unamortized initial direct costs and impairment. Lease expense from operating leases is recognized as a single lease cost over the remaining lease term on a straight-line basis. Variable lease payments not included in operating lease liabilities are recognized as expense in the period in which the obligation for those payments is incurred. Lease expense for operating leases for the three and nine months ended September 30, 2019 was $1.1 million and $3.3 million, respectively, of which $1.0 million and $3.1 million, respectively is included in Consumables - cost of revenue, exclusive of depreciation and amortization, and $0.1 million and $0.3 million, respectively, is included in General and administrative in the Condensed Consolidated Statement of Operations for the three and nine months ended September 30, 2019.

In August 2019, the Company entered into a new lease agreement covering approximately twenty-one thousand square feet of office space for a term of 3.5 years and recorded a ROU asset of $1.2 million and a corresponding operating lease liability of $1.2 million.

Lease financial information as of and for the three and nine months ended September 30, 2019 is provided in the following table:

(in thousands)	Three Months Ended September 30, 2019	Nine Months Ended September 30, 2019
Finance lease cost:		
Amortization of right-of-use assets	$ 1,277	$ 2,371
Interest on lease liabilities	82	270
Operating lease cost	908	2,764
Short-term lease cost	198	558
Variable lease cost (1)	52	227
Total lease cost	$ 2,517	$ 6,190
Other Information:		
Cash paid for amounts included in the measurement of lease liabilities:		
Operating cash flows from finance leases		$ 270
Operating cash flows from operating leases		$ 2,435
Financing cash flows from finance leases		$ 1,016
Right-of-use assets obtained in exchange for new operating lease liabilities		$ 1,309
Weighted-average remaining lease term - finance leases		4.4 years
Weighted-average remaining lease term - operating leases		2.5 years
Weighted-average discount rate - finance leases		6.1%
Weighted-average discount rate - operating leases		8.6%

(1) Primarily includes common area maintenance, property taxes and insurance payable to lessors.

The following table summarizes the Company’s future lease payments under finance and operating leases as of September 30, 2019:

(in thousands)	Operating Lease Commitments	Finance Lease Commitments	Total Lease Commitments
2019 (remaining three months)	$ 873	$ 433	$ 1,306
2020	2,718	1,707	4,425
2021	2,035	1,802	3,837
2022	721	951	1,672
2023	359	951	1,310
Thereafter	—	2,482	2,482
Total lease payments	6,706	8,326	15,032
Less: Imputed interest	(769)	(1,260)	(2,029)
Present value of lease payments	$ 5,937	$ 7,066	$ 13,003

Disclosures under ASC 840

Rent expense for the three and nine months ended September 30, 2018 was $0.1 million and $0.2 million, respectively, and was included in General and administrative expense in the Condensed Consolidated Statement of Operations.

As of December 31, 2018, mining equipment financed under capital leases in the amount of $8.1 million, net of accumulated amortization of $0.1 million, was included in Property, plant and equipment in the Condensed Consolidated Balance Sheet.

The following table summarizes the Company's future minimum non-cancellable lease payments due under capital and operating leases as of December 31, 2018:

(in thousands)	Operating Lease Commitments	Capital Lease Commitments
2019	$ 3,619	$ 1,749
2020	2,273	1,707
2021	1,632	1,802
2022	310	951
2023	221	951
Thereafter	—	2,482
Total minimum lease payments	$ 8,055	9,642
Less: Imputed interest		(1,475)
Present value of minimum lease payments		$ 8,167

Note 7 - Revenues

Contract Assets and Liabilities

Contract assets are comprised of unbilled receivables and are included in Receivables, net in the Condensed Consolidated Balance Sheet. Unbilled receivables represent a conditional right to consideration in exchange for goods or services transferred to a customer.

Trade receivables represent an unconditional right to consideration in exchange for goods or services transferred to a customer. The Company invoices its customers in accordance with the terms of the contract. Credit terms are generally net 30 from the date of invoice. The timing between the satisfaction of performance obligations and when payment is due from the customer is generally not significant. The Company records allowances for doubtful trade receivables when it is probable that the balances will not be collected.

Contract liabilities are comprised of deferred revenue, which represents an obligation to transfer goods or services to a customer for which the Company has received consideration from the customer and, if deliverable within one year or less, is included in Other current liabilities in the Condensed Consolidated Balance Sheet and, if deliverable outside of one year, is included in Other long-term liabilities in the Condensed Consolidated Balance Sheet.

Trade receivables, net

The following table shows the components of Trade receivables, net:

	As of	
(in thousands)	September 30, 2019	December 31, 2018
Trade receivables	$ 7,338	$ 10,121
Less: Allowance for doubtful accounts	(567)	(567)
Trade receivables, net	$ 6,771	$ 9,554

For the three and nine months ended September 30, 2019, the Company recognized zero provision for bad debt expense, respectively.

Disaggregation of Revenue

During the three and nine months ended September 30, 2019 and 2018, all performance obligations related to revenues recognized were satisfied at a point in time. The Company disaggregates its revenues by major components as well as between its two reportable segments, which are further discussed in Note 13 to the Condensed Consolidated Financial Statements. The following tables disaggregate revenues by major component for the three and nine months ended September 30, 2019 and 2018 (in thousands):

	Three Months Ended September 30, 2019				Nine Months Ended September 30, 2019			
	Segment				Segment			
	PGI	RC	Other	Total	PGI	RC	Other	Total
Revenue component								
Consumables	$ 14,010	$ —	$ 738	$ 14,748	$ 39,612	$ —	$ 1,631	$ 41,243
License royalties, related party	—	4,385	—	4,385	—	12,796	—	12,796
Revenues from customers	14,010	4,385	738	19,133	39,612	12,796	1,631	54,039
Earnings from equity method investments	—	14,426	—	14,426	—	57,051	—	57,051
Total revenues from customers and earnings from equity method investments	$ 14,010	$ 18,811	$ 738	$ 33,559	$ 39,612	$ 69,847	$ 1,631	$ 111,090

	Three Months Ended September 30, 2018			Nine Months Ended September 30, 2018		
	Segment			Segment		
	PGI	RC	Total	PGI	RC	Total
Revenue component						
Consumables	$ 1,043	$ —	$ 1,043	$ 2,390	$ —	$ 2,390
License royalties, related party	—	4,104	4,104	—	10,857	10,857
Other	—	—	—	72	—	72
Revenues from customers	1,043	4,104	5,147	2,462	10,857	13,319
Earnings from equity method investments	—	9,715	9,715	—	37,857	37,857
Total revenues from customers and earnings from equity method investments	$ 1,043	$ 13,819	$ 14,862	$ 2,462	$ 48,714	$ 51,176

Note 8 - Commitments and Contingencies

Legal Proceedings

The Company is from time to time subject to, and is presently involved in, various pending or threatened legal actions and proceedings, including those that arise in the ordinary course of its business. Such matters are subject to many uncertainties and to outcomes, the financial impacts of which are not predictable with assurance and that may not be known for extended periods of time. The Company records a liability in its consolidated financial statements for costs related to claims, settlements, and judgments where management has assessed that a loss is probable and an amount can be reasonably estimated. There were no significant legal proceedings as of September 30, 2019.

Restricted Cash

As of September 30, 2019 and December 31, 2018, the Company had long-term restricted cash of $5.0 million and $5.2 million, respectively, which primarily consisted of minimum cash balance requirements under the Senior Term Loan. As of September 30, 2019 and December 31, 2018, the Company had short-term restricted cash of zero and $0.1 million, respectively, related to other commitments.

Tinuum Group

The Company also has certain limited obligations contingent upon future events in connection with the activities of Tinuum Group. The Company, NexGen and two entities affiliated with NexGen have provided an affiliate of the Goldman Sachs Group, Inc. with limited guaranties (the "Tinuum Group Party Guaranties") related to certain losses it may suffer as a result of inaccuracies or breach of representations and covenants. The Company also is a party to a contribution agreement with NexGen under which any party called upon to pay on a Tinuum Group Party Guaranty is entitled to receive contributions from the other party equal to 50% of the amount paid. No liability or expense provision has been recorded by the Company related to this contingent obligation as the Company believes that it is not probable that a loss will occur with respect to Tinuum Group Party Guaranties.

Note 9 - Stockholders' Equity

Stock Repurchase Programs

In November 2018, the Company's Board of Directors (the "Board") authorized the Company to purchase up to $20.0 million of its outstanding common stock. This stock repurchase program will remain in effect until December 31, 2019 unless otherwise modified by the Board. Previously, the Board had authorized the Company to purchase up to $20.0 million of its outstanding common stock under a separate repurchase program that was in effect until July 31, 2018.

For the three and nine months ended September 30, 2019, under the respective stock repurchase program authorized by the Board, the Company purchased 8,152 and 256,743 shares of its common stock for cash of $0.1 million and $2.9 million, respectively, inclusive of commissions and fees. For the three and nine months ended September 30, 2018, under the respective stock repurchase program authorized by the Board, the Company purchased 186,212 and 1,011,630 shares of its common stock for cash of $2.1 million and $11.2 million, respectively, inclusive of commissions and fees. Of these amounts, $2.1 million and $4.3 million were purchased in single blocks through privately negotiated transactions for the three and nine months ended September 30, 2018, respectively.

Quarterly Cash Dividend

Dividends per share declared by the Board, and paid quarterly on all outstanding shares of common stock during the three and nine months ended September 30, 2019 and 2018 were as follows:

	2019		2018	
	Per share	Date paid	Per share	Date paid
Dividends declared during quarter ended:				
March 31	$ 0.25	March 7, 2019	$ 0.25	March 8, 2018
June 30	$ 0.25	June 7, 2019	$ 0.25	June 8, 2018
September 30	$ 0.25	September 6, 2019	$ 0.25	September 6, 2018
	$ 0.75		$ 0.75	

A portion of the dividends declared remains accrued subsequent to the payment dates and represents dividends accumulated on nonvested shares of common stock held by employees and directors of the Company that contain forfeitable dividend rights that are not payable until the underlying shares of common stock vest. These amounts are included in both Other current liabilities and Other long-term liabilities on the Condensed Consolidated Balance Sheet as of September 30, 2019.

Tax Asset Protection Plan

U.S. federal income tax rules, and Section 382 of the Internal Revenue Code in particular, could substantially limit the use of net operating losses and other tax assets if the Company experiences an "ownership change" (as defined in the Internal Revenue Code). In general, an ownership change occurs if there is a cumulative change in the ownership of the Company by "5 percent stockholders" that exceeds 50 percentage points over a rolling three-year period.

On May 5, 2017, the Board approved the declaration of a dividend of rights to purchase Series B Junior Participating Preferred Stock for each outstanding share of common stock as part of a tax asset protection plan (the "Tax Asset Protection Plan") designed to protect the Company's ability to utilize its net operating losses and tax credits. The Tax Asset Protection Plan is intended to act as a deterrent to any person acquiring beneficial ownership of 4.99% or more of the Company's outstanding common stock.

On April 6, 2018, the Board approved the First Amendment to the Tax Asset Protection Plan (the "First Amendment") that amends the Tax Asset Protection Plan dated May 5, 2017. The First Amendment amended the definition of "Final Expiration Date" under the Tax Asset Protection Plan to extend the duration of the TAPP and makes associated changes in connection therewith. At the Company's 2018 annual meeting of stockholders, the Company's stockholders approved the First Amendment, thus the Final Expiration Date will be the close of business on December 31, 2019, which was subsequently extended, as described below.

On April 5, 2019, the Board approved the Second Amendment to the Tax Asset Protection Plan (the "Second Amendment") that amends the Tax Asset Protection Plan dated May 5, 2017, as amended by the First Amendment to Tax Asset Protection Plan, dated April 6, 2018 (the "TAPP") between the Company and the Rights Agent. The Second Amendment amends the definition of the "Final Expiration Date" under the TAPP to extend the duration of the TAPP and makes associated changes in connection therewith. At the Company's 2019 annual meeting of stockholders, the Company's stockholders approved the Second Amendment, thus the Final Expiration Date will be the close of business on December 31, 2020.

Note 10 - Stock-Based Compensation

The Company grants equity-based awards to employees, non-employee directors, and consultants that may include, but are not limited to, RSA's, restricted stock units ("RSU's") and stock options. Stock-based compensation expense related to manufacturing employees and administrative employees is included within the Cost of goods sold and Payroll and benefits line items, respectively, in the Condensed Consolidated Statements of Operations. Stock-based compensation expense related to non-employee directors and consultants is included within the General and administrative line item in the Condensed Consolidated Statements of Operations.

Total stock-based compensation expense for the three and nine months ended September 30, 2019 and 2018 was as follows:

	Three Months Ended September 30,		Nine Months Ended September 30,	
(in thousands)	2019	2018	2019	2018
RSA expense	$ 468	$ 919	$ 1,326	$ 1,871
Stock option expense	—	—	—	58
Total stock-based compensation expense	$ 468	$ 919	$ 1,326	$ 1,929

The amount of unrecognized compensation cost as of September 30, 2019, and the expected weighted-average period over which the cost will be recognized is as follows:

	As of September 30, 2019	
(in thousands)	Unrecognized Compensation Cost	Expected Weighted-Average Period of Recognition (in years)
RSA expense	$ 3,146	1.67
Total unrecognized stock-based compensation expense	$ 3,146	1.67

Restricted Stock

Restricted stock is typically granted with vesting terms of three years. The fair value of RSA's and RSU's is determined based on the closing price of the Company's common stock on the authorization date of the grant multiplied by the number of shares subject to the stock award. Compensation expense for RSA's is generally recognized on a straight-line basis over the entire vesting period. Compensation expense for RSU's is generally recognized on a straight-line basis over the service period of the award.

A summary of RSA and RSU activity under the Company's various stock compensation plans for the nine months ended September 30, 2019 is presented below:

	Restricted Stock		Weighted-Average Grant Date Fair Value	
(in thousands, except for share and per share amounts)	Awards	Units	RSA's	RSU's
Non-vested at January 1, 2019	280,852	20,000	$ 9.92	$ 10.52
Granted	275,983	—	$ 11.07	$ —
Vested	(84,156)	—	$ 9.74	$ —
Forfeited	(3,498)	—	$ 10.96	$ —
Non-vested at September 30, 2019	469,181	20,000	$ 10.62	$ 10.52

Stock Options

Stock options generally vest over three years or upon satisfaction of performance-based conditions and have a contractual limit of five years from the date of grant to exercise. The fair value of stock options granted is determined on the date of grant using the Black-Scholes option pricing model and the related expense is recognized on a straight-line basis over the entire vesting period.

A summary of stock option activity for the nine months ended September 30, 2019 is presented below:

	Number of Options Outstanding and Exercisable	Weighted-Average Exercise Price	Aggregate Intrinsic Value (in thousands)	Weighted-Average Remaining Contractual Term (in years)
Options outstanding, January 1, 2019	529,780	$ 12.23		
Options granted	—	—		
Options exercised	(185,332)	9.50		
Options expired / forfeited	(20,000)	20.07		
Options outstanding, September 30, 2019	324,448	$ 13.31	$ 497	0.74
Options exercisable, September 30, 2019	324,448	$ 13.31	$ 497	0.74

The Company did not receive cash from the exercise of stock options during the three months ended September 30, 2019 as 149,715 shares were withheld as payment of the exercise price. The total intrinsic value of options exercised during the three months ended September 30, 2019 was $0.4 million.

Note 11 - Supplemental Financial Information

Supplemental Balance Sheet Information

The following table summarizes the components of Prepaid expenses and other assets and Other long-term assets, net as presented in the Condensed Consolidated Balance Sheets:

	As of	
(in thousands)	September 30, 2019	December 31, 2018
Prepaid expenses and other assets:		
Prepaid expenses	$ 1,635	$ 1,233
Prepaid income taxes	2,753	2,940
Other	1,682	1,397
	$ 6,070	$ 5,570
Other long-term assets, net:		
Highview Investment	$ 552	$ 552
Spare parts	3,325	3,278
Mine development costs, net	4,672	2,531
Mine reclamation asset, net	2,291	—
Prepaid royalty expense, long-term	955	955
Right of use assets, operating leases, net	5,894	—
Other long-term assets	674	677
	$ 18,363	$ 7,993

Spare parts include critical spares required to support plant operations. Parts and supply costs are determined using the lower of cost or estimated replacement cost. Parts are recorded as maintenance expenses in the period in which they are consumed.

Mine development costs include acquisition costs, the cost of other development work and mitigation costs related to the Company's mining operations which are depleted over the estimated life of the related mine reserves, which is 18 years. The Company performs an evaluation of the recoverability of the carrying value of mine development costs to determine if facts and circumstances indicate that their carrying value may be impaired and if any adjustment is warranted. There were no indicators of impairment as of September 30, 2019. Mine reclamation asset represents an asset retirement obligation asset and is depreciated over the estimated life of the mine, which is 18 years.

The Company holds a long-term investment (the "Highview Investment") in Highview Enterprises Limited ("Highview"), a London, England based developmental stage company specializing in power storage. In November 2014, the Company acquired an 8% ownership interest in the common stock of Highview for $2.8 million in cash. The Company accounts for the Highview Investment as an investment recorded at cost, less impairment, plus or minus observable changes in price for identical or similar investments of the same issuer.

The Highview Investment is evaluated for indicators of impairment such as an event or change in circumstances that may have a significant adverse effect on the fair value of the investment. There were no changes to the carrying value of the Highview Investment for the three and nine months ended September 30, 2019 as there were no indicators of impairment or observable price changes for equity issued by Highview.

The following table details the components of Other current liabilities and Other long-term liabilities as presented in the Condensed Consolidated Balance Sheets:

	As of	
(in thousands)	**September 30, 2019**	**December 31, 2018**
Other current liabilities:		
Current portion of operating lease obligations	$ 2,605	$ —
Accrued interest	339	407
Income and other taxes payable	420	479
Other	923	1,252
	$ 4,287	$ 2,138
Other long-term liabilities:		
Operating lease obligations, long-term	$ 3,332	$ —
Mine reclamation liability	2,540	624
Other long-term liabilities	190	316
	$ 6,062	$ 940

Supplemental Condensed Consolidated Statements of Operations Information

The following table details the components of Interest expense in the Condensed Consolidated Statements of Operations:

	Three Months Ended September 30,		Nine Months Ended September 30,	
(in thousands)	**2019**	**2018**	**2019**	**2018**
Interest on Senior Term Loan	$ 940	$ —	$ 3,344	$ —
Debt discount and debt issuance costs	473	—	1,324	—
453A interest	234	388	882	1,128
Other	82	11	270	19
	$ 1,729	$ 399	$ 5,820	$ 1,147

Note 12 - Income Taxes

For the three and nine months ended September 30, 2019 and 2018, the Company's income tax expense and effective tax rates based on forecasted pre-tax income were:

	Three Months Ended September 30,		Nine Months Ended September 30,	
(in thousands, except for rate)	**2019**	**2018**	**2019**	**2018**
Income tax expense	$ 6,595	$ 3,931	$ 14,928	$ 5,151
Effective tax rate	63%	42%	36%	15%

The effective tax rate for the three and nine months ended September 30, 2019 was different from the federal statutory rate due to increases of $4.8 million and $3.6 million, respectively, in the valuation allowance on deferred tax assets. These charges were a result of a reduction in forecasts as of September 30, 2019 of future years' taxable income. In addition, the effective rate for both the three and nine months ended September 30, 2019 was increased by state income tax expense, net of federal benefit.

The Company assesses the valuation allowance recorded against deferred tax assets at each reporting date. The determination of whether a valuation allowance for deferred tax assets is appropriate requires the evaluation of positive and negative evidence that can be objectively verified. Consideration must be given to all sources of taxable income available to realize the deferred tax asset, including, as applicable, the future reversal of existing temporary differences, future taxable income forecasts exclusive of the reversal of temporary differences and carryforwards, taxable income in carryback years and tax planning strategies. In estimating income taxes, the Company assesses the relative merits and risks of the appropriate income tax treatment of transactions taking into account statutory, judicial, and regulatory guidance.

Note 13 - Business Segment Information

Operating segments are defined as components of an enterprise about which separate financial information is available that is evaluated regularly by a company's chief operating decision maker ("CODM"), or a decision-making group, in deciding how to allocate resources and in assessing financial performance. As of September 30, 2019, the Company's CODM was the Company's CEO. The Company's operating and reportable segments are identified by products and services provided.

As of September 30, 2019, the Company has two reportable segments: (1) Refined Coal ("RC"); and (2) Power Generation and Industrials ("PGI").

The business segment measurements provided to and evaluated by the CODM are computed in accordance with the principles listed below:

- The accounting policies of the operating segments are the same as those described in the summary of significant accounting policies in the 2018 Form 10-K.
- Segment revenues include equity method earnings and losses from the Company's equity method investments.
- Segment operating income (loss) includes segment revenues and allocation of certain "Corporate general and administrative expenses," which include Payroll and benefits, Legal and professional fees and General and administrative.
- RC segment operating income includes interest expense directly attributable to the RC segment.

As of September 30, 2019 and December 31, 2018, substantially all of the Company's material assets are located in the U.S. and all significant customers are U.S. companies. The following table presents the Company's operating segment results for the three and nine months ended September 30, 2019 and 2018:

	Three Months Ended September 30,		Nine Months Ended September 30,	
(in thousands)	2019	2018	2019	2018
Revenues:				
Refined Coal:				
Earnings in equity method investments	$ 14,426	$ 9,715	$ 57,051	$ 37,857
License royalties, related party	4,385	4,104	12,796	10,857
	18,811	13,819	69,847	48,714
Power Generation and Industrials:				
Consumables	14,010	1,043	39,612	2,390
Other	—	—	—	72
	14,010	1,043	39,612	2,462
Total segment reporting revenues	32,821	14,862	109,459	51,176
Adjustments to reconcile to reported revenues:				
Earnings in equity method investments	(14,426)	(9,715)	(57,051)	(37,857)
Corporate and other	738	—	1,631	—
Total reported revenues	$ 19,133	$ 5,147	$ 54,039	$ 13,319
Segment operating income (loss):				
Refined Coal (1)	$ 18,158	$ 12,798	$ 68,137	$ 45,775
Power Generation and Industrials (2)	(977)	(1,168)	(8,301)	(3,493)
Total segment operating income	$ 17,181	$ 11,630	$ 59,836	$ 42,282

(1) Included in RC segment operating income for the three and nine months ended September 30, 2019 and 2018 is 453A interest expense of $0.2 million and $0.9 million and $0.4 million and $1.1 million, respectively.

(2) Included in PGI segment operating loss for the nine months ended September 30, 2019 was $4.7 million of costs recognized as a result of the step-up in inventory fair value recorded from the Carbon Solutions Acquisition. Also included in PGI segment operating loss for the three and nine months ended September 30, 2019 was $1.9 million and $4.5 million, respectively, of depreciation, amortization, and depletion expense on mine and plant long-lived assets.

A reconciliation of reportable segment operating income to the Company's consolidated income before income tax expense is as follows:

	Three Months Ended September 30,		Nine Months Ended September 30,	
(in thousands)	2019	2018	2019	2018
Total reported segment operating income	$ 17,181	$ 11,630	$ 59,836	$ 42,282
Other operating loss	(658)	—	(1,409)	—
	16,523	11,630	58,427	42,282
Adjustments to reconcile to income before income tax expense attributable to the Company:				
Corporate payroll and benefits	(768)	(957)	(2,004)	(3,054)
Corporate legal and professional fees	(1,737)	(634)	(5,254)	(3,222)
Corporate general and administrative	(2,278)	(658)	(5,427)	(2,483)
Corporate depreciation and amortization	(21)	(23)	(41)	(97)
Corporate interest (expense) income, net	(1,413)	(10)	(4,668)	(18)
Other income (expense), net	212	86	334	199
Income before income tax expense	$ 10,518	$ 9,434	$ 41,367	$ 33,607

Corporate general and administrative expenses include certain costs that benefit the business as a whole but are not directly related to one of the Company's segments. Such costs include, but are not limited to, accounting and human resources staff, information systems costs, legal fees, facility costs, audit fees and corporate governance expenses.

A reconciliation of reportable segment assets to the Company's consolidated assets is as follows:

	As of	
(in thousands)	September 30, 2019	December 31, 2018
Assets:		
Refined Coal (1)	$ 49,055	$ 11,468
Power Generation and Industrials	82,121	85,786
Total segment assets	131,176	97,254
All Other and Corporate (2)	47,552	62,410
Consolidated	$ 178,728	$ 159,664

(1) Includes $44.1 million and $6.6 million of investments in equity method investees, respectively.
(2) Includes the Company's deferred tax assets.

Note 14 - Fair Value Measurements

Fair value of financial instruments

The carrying amounts of financial instruments, including cash, cash equivalents and restricted cash, accounts receivable, accounts payable and accrued expenses, approximate fair value due to the short maturity of these instruments. Accordingly, these instruments are not presented in the table below. The following table provides the estimated fair values of the remaining financial instruments:

	As of September 30, 2019		As of December 31, 2018	
(in thousands)	Carrying Value	Fair Value	Carrying Value	Fair Value
Financial Instruments:				
Highview Investment	$ 552	$ 552	$ 552	$ 552
Highview Obligation	$ 207	$ 207	$ 213	$ 213

Concentration of credit risk

The Company's financial instruments that are exposed to concentrations of credit risk consist primarily of cash and cash equivalents. The Company holds cash and cash equivalents at three financial institutions as of September 30, 2019. If an institution was unable to perform its obligations, the Company would be at risk regarding the amount of cash and investments in excess of the Federal Deposit Insurance Corporation limits (currently $250 thousand) that would be returned to the Company.

Assets and Liabilities Measured at Fair Value on a Recurring Basis

As of September 30, 2019 and December 31, 2018, the Company had no financial instruments carried and measured at fair value on a recurring basis.

Assets and Liabilities Measured at Fair Value on a Non-Recurring Basis

The Company completed the Carbon Solutions Acquisition, in which the fair value of the purchase consideration totaled $66.5 million. The Company's allocation of purchase consideration to the estimated fair values of the assets acquired and liabilities assumed is disclosed in Note 2.

The fair value measurements represent Level 3 measurements as they are based on significant inputs not observable in the market.

Note 15 - Restructuring

In December 2018, the Company recorded restructuring charges in connection with the departures of certain executives of Carbon Solutions in conjunction with the Carbon Solutions Acquisition. As part of the Carbon Solutions Acquisition, the Company also assumed a salary severance liability for an additional executive of Carbon Solutions in the amount of $0.6 million. Additionally, the Company recorded restructuring charges in 2018 in connection with a reduction in force that commenced in May 2018 as part of the Company's further alignment of the business with strategic objectives, which included the departure of certain executive officers. These charges related to cash severance arrangements with departing employees and executives, as well as stock-based compensation charges related to the acceleration of vesting of certain stock awards. There were no material restructuring activities during the three and nine months ended September 30, 2019.

A summary of the net pretax charges, incurred by segment, for the three and nine months ended September 30, 2018 is as follows:

		Pretax Charge			
(in thousands, except employee data)	Approximate Number of Employees	Refined Coal (1)	Power Generation and Industrials (1)	All Other and Corporate (1)	Total
Three Months Ended September 30, 2018					
Restructuring charges	7	$ 168	$ 500	$ 434	$ 1,102
Changes in estimates		—	—	—	—
Total pretax charge, net of reversals		$ 168	$ 500	$ 434	$ 1,102
Nine Months Ended September 30, 2018					
Restructuring charges	13	$ 448	$ 996	$ 557	$ 2,001
Changes in estimates		—	—	—	—
Total pretax charge, net of reversals		$ 448	$ 996	$ 557	$ 2,001

(1) Restructuring charges were allocated consistent with the allocations made in Note 13 - Business Segment Information

The following table summarizes the Company's change in restructuring accruals for the nine months ended September 30, 2019:

(in thousands)	Employee Severance
Remaining accrual as of December 31, 2018	$ 2,208
Expense provision	233
Cash payments and other	(1,758)
Change in estimates	(104)
Remaining accrual as of September 30, 2019	$ 579

Restructuring accruals are included within the Accrued payroll and related liabilities line item in the Condensed Consolidated Balance Sheets. Restructuring expenses are included within the Payroll and benefits line item in the Condensed Consolidated Statements of Operations.

Note 16 - Subsequent Events

Unless disclosed elsewhere within the notes to the Condensed Consolidated Financial Statements, the following are the significant matters that occurred subsequent to September 30, 2019.

Dividends

On November 12, 2019, the Company's Board declared a quarterly dividend of $0.25 per share of common stock, which is payable on December 13, 2019 to stockholders of record as of the close of business on November 26, 2019.

Share repurchase program

As disclosed in Note 9, in November 2018, the Company's Board authorized the Company to purchase up to $20.0 million of its outstanding common stock. This stock repurchase program was to remain in effect until December 31, 2019 unless otherwise modified by the Board. As of September 30, 2019, the Company had $2.9 million remaining under this program. In November 2019, the Board authorized an incremental $7.1 million to this stock repurchase program and provided that the program will remain in effect until all amounts are utilized or the program is otherwise modified by the Board.

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

The following discussion and analysis of our financial condition and results of our operations should be read together with the unaudited Condensed Consolidated Financial Statements and notes of Advanced Emissions Solutions, Inc. ("ADES" or the "Company") included elsewhere in Item 1 of Part I of this Quarterly Report and with the audited consolidated financial statements and the related notes of ADES included in the 2018 Form 10-K.

Overview

We provide environmental solutions to customers in coal-fired power generation, municipal water and other industries primarily through emissions and water purification control technologies of our subsidiaries and joint ventures. Our proprietary technologies and associated product offerings provide pollutant control solutions to enable coal-fired power generators, industrials and municipal water to reduce emissions of mercury and other air pollutants and to assist in the purification of water.

We operate two segments: Refined Coal ("RC") and Power Generation and Industrials ("PGI") (f/k/a "Emissions Control" or "EC"). Our RC segment is comprised of our equity ownership in Tinuum Group, LLC ("Tinuum Group"), an unconsolidated entity that provides reduction of mercury and nitrogen oxide ("NO_X") emissions at select coal-fired power generators through the production and sale of RC that qualifies for tax credits under the Internal Revenue Code Section 45 - Production Tax Credit ("Section 45 tax credits"). We benefit from Tinuum Group's production and sale of RC, which generates tax credits, as well as its revenue from selling or leasing RC facilities to tax equity investors.

Our PGI segment includes the sale of products that provide mercury control and other air and water contaminants control to coal-fired power generators and other industrial companies. Our primary products are produced from lignite coal, which creates activated carbon ("AC"). From AC, we manufacture various forms of AC that include powdered activated carbon ("PAC") and granular activated carbon ("GAC"). There are three primary consumable products that work in conjunction with the installed equipment at coal-fired utilities to control mercury: PAC, coal additives and scrubber additives. In many cases these three consumable products can be used together or in many circumstances substituted for each other. However, activated carbon is typically the most efficient and effective way to capture mercury and currently accounts for over 50% of the mercury control consumables North American market.

On December 7, 2018 (the "Acquisition Date"), we acquired (the "Carbon Solutions Acquisition") 100% of the equity interests of ADA Carbon Solutions, LLC ("Carbon Solutions"). Carbon Solutions is a manufacturer and seller of AC and a leader in mercury capture using PAC for the coal-fired power plant, industrial and water treatment markets. Carbon Solutions also owns an associated lignite mine that supplies the primary raw material for manufacturing powdered activated carbon. Carbon Solutions was formed in 2008 as a 50/50 joint venture by the Company and Energy Capital Partners LLC. The Company relinquished its ownership in 2011 as part of a legal settlement agreement as described in the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 2017. The Company acquired Carbon Solutions primarily to expand the Company's product offerings within the mercury control industry and other complimentary PAC markets.

Results of Operations

For the three and nine months ended September 30, 2019, we recognized net income of $3.9 million and $26.4 million compared to net income of $5.5 million and $28.5 million for the three and nine months ended September 30, 2018.

The operating results for the three and nine months ended September 30, 2019 are primarily attributable to a combination of factors, including:

- Continued performance in our RC business segment, principally related to equity earnings and royalties from our Tinuum Group and Tinuum Services, LLC ("Tinuum Services") equity investments;
- Performance in our PGI business segment, principally related to the Carbon Solutions Acquisition;
- Impacts related to changes in income tax expense.

The following sections provide additional information regarding these comparative periods. For comparability purposes, the following tables set forth our results of operations for the periods presented in the Condensed Consolidated Financial Statements included in Item 1 of this Quarterly Report. The period-to-period comparison of financial results may not be indicative of financial results to be achieved in future periods.

Comparison of the Three Months Ended September 30, 2019 and 2018

Total Revenue and Cost of Revenue

A summary of the components of our revenues and cost of revenue for the three months ended September 30, 2019 and 2018 is as follows:

	Three Months Ended September 30,		Change	
(in thousands, except percentages)	2019	2018	($)	(%)
Revenues:				
Consumables	$ 14,748	$ 1,043	$ 13,705	1,314%
License royalties, related party	4,385	4,104	281	7%
Total revenues	$ 19,133	$ 5,147	$ 13,986	272%
Operating expenses:				
Consumables cost of revenue, exclusive of depreciation and amortization	$ 11,939	$ 954	$ 10,985	1,151%

Consumables and consumables cost of revenue

For the three months ended September 30, 2019, consumables revenues increased from the comparable period in 2018 primarily due to Carbon Solutions' operations. These operations also increased the total pounds of our consumables sold quarter over quarter.

Consumables revenue is affected by electricity demand driven by seasonal weather and related power generation needs as well as competitor prices related to alternative power generation sources such as natural gas. During the three months ended September 30, 2019, Consumables revenue and margins were negatively impacted by low coal-fired power dispatch, most significantly driven by power generation from sources other than coal. In a recently updated forecast, the U.S. Energy Information Administration ("EIA") revised downward by 7% its December 2018 forecast for 2019 coal-fired electricity-generating units.

License royalties, related party

For the three months ended September 30, 2019 and 2018, there were 14.5 million tons and 10.5 million tons, respectively, of RC produced using M-45™ and M-45-PC™ technologies ("M-45 Technology"), which Tinuum Group licenses from us ("M-45 License"). The increase in license royalties was primarily due to Tinuum Group obtaining additional third-party investors for new RC facilities, one each during the second and fourth quarters of 2018, as well as four additional RC facilities added during the nine months ended September 30, 2019, all of which use our M-45 License. The addition of new invested RC facilities resulted in an increase in both payments to Tinuum Group and the related tons subject to the M-45 License. Offsetting the net increase in license royalties for the three months ended September 30, 2019 from the additional RC facilities was a lower royalty per ton rate, which was primarily due to higher depreciation recognized during the three months ended September 30, 2019 on all royalty bearing RC facilities as a result of a reduction in their estimated useful lives, as determined by Tinuum Group during the three months ended September 30, 2019. License royalties are recognized based upon a percentage of the per-ton, pre-tax margin as defined in the M-45 License, which is negatively impacted by higher depreciation. Based on the change in estimated useful lives, we expect the royalty earned per ton of RC through 2021 to be lower than historical rates.

Additional information related to revenue concentrations and contributions by class and reportable segment can be found within the Business Segments discussion and in Note 13 to the Condensed Consolidated Financial Statements.

Other Operating Expenses

A summary of the components of our operating expenses, exclusive of cost of revenue items (presented above), for the three months ended September 30, 2019 and 2018 is as follows:

	Three Months Ended September 30,		Change	
(in thousands, except percentages)	2019	2018	($)	(%)
Operating expenses:				
Payroll and benefits	$ 2,651	$ 2,555	$ 96	4%
Legal and professional fees	1,755	698	1,057	151%
General and administrative	3,136	834	2,302	276%
Depreciation, amortization, depletion and accretion	2,043	74	1,969	2,661%
	$ 9,585	$ 4,161	$ 5,424	130%

Payroll and benefits

Payroll and benefits expenses, which represent costs related to selling, general and administrative personnel, increased during the three months ended September 30, 2019 compared to the same quarter in 2018 primarily due to an increase in headcount of personnel resulting from the Carbon Solutions Acquisition. Payroll and benefits expenses for the three months ended September 30, 2018 also included restructuring expenses of $1.1 million.

Legal and professional fees

Legal and professional fees increased during the three months ended September 30, 2019 compared to the same quarter in 2018 due to legal and professional services costs associated with the integration of Carbon Solutions as well as expenses incurred related to on-going matters in the normal course of business.

General and administrative

General and administrative expenses increased during the three months ended September 30, 2019 compared to the same quarter in 2018 due to an increase in general operating expenses, including an increase in outsourced IT costs related to the integration of Carbon Solutions of approximately $1.0 million. Additional increases were related to rent and occupancy expense due to additional leased office and warehouse space resulting from the Carbon Solutions Acquisition of approximately $0.4 million quarter over quarter. Further increases related to travel and insurance expenses.

Depreciation, amortization, depletion and accretion

Depreciation and amortization expense increased during the three months ended September 30, 2019 compared to the same quarter in 2018 due to the addition of long-lived assets and intangible assets acquired as part of the Carbon Solutions Acquisition, which contributed approximately $1.7 million and $0.2 million of depreciation and amortization expense, respectively, for the three months ended September 30, 2019.

Other Income (Expense), net

A summary of the components of other income (expense), net for the three months ended September 30, 2019 and 2018 is as follows:

	Three Months Ended September 30,		Change	
(in thousands, except percentages)	2019	2018	($)	(%)
Other income (expense):				
Earnings from equity method investments	$ 14,426	$ 9,715	$ 4,711	48%
Interest expense	(1,729)	(399)	(1,330)	333%
Other	212	86	126	147%
Total other income	$ 12,909	$ 9,402	$ 3,507	37%

Earnings from equity method investments

The following table details the components of our respective equity method investments included within the Earnings from equity method investments line item in the Condensed Consolidated Statements of Operations:

	Three Months Ended September 30,	
(in thousands)	2019	2018
Earnings from Tinuum Group	$ 11,746	$ 8,075
Earnings from Tinuum Services	2,682	1,639
(Losses) earnings from other	(2)	1
Earnings from equity method investments	$ 14,426	$ 9,715

Earnings from equity method investments, and changes related thereto, are impacted by our most significant equity method investees: Tinuum Group and Tinuum Services.

For the three months ended September 30, 2019, we recognized $11.7 million in equity earnings from Tinuum Group, which was equal to our proportionate share of Tinuum Group's net income of $11.7 million for the quarter. During the three months ended September 30, 2018, we recognized $8.1 million in equity earnings from Tinuum Group compared to our proportionate share of Tinuum Group's net income of $15.8 million for the quarter. The difference between our pro-rata share of Tinuum Group's net income and our earnings from our Tinuum Group equity method investment as reported on the Condensed Consolidated Statements of Operations for the three months ended September 30, 2018 was the result of cumulative distributions received from Tinuum Group being in excess of the carrying value of the investment, and therefore we recognized such excess distributions as equity method earnings in the period the distributions occurred.

For the three months ended September 30, 2019, equity earnings from our interest in Tinuum Group were positively impacted by the addition of two new RC facilities during the three months ended September 30, 2019. However, our earnings were negatively impacted from higher depreciation on all Tinuum Group RC facilities as a result of a reduction in their estimated useful lives as determined by Tinuum Group during the three months ended September 30, 2019. Additionally, during the current year, there has been a reduction in coal consumption, largely due to lower natural gas prices, as well as unusually lower temperatures during the first half of 2019. As a result of the reduction in coal consumption, during the three months ended September 30, 2019, Tinuum Group restructured RC facility contracted leases with its largest customer, which decreased lease payments beginning in the three months ended September 30, 2019 and will also negatively impact our pro-rata share of Tinuum Group's earnings in the future.

Further, two coal-fired utilities in which Tinuum Group has invested RC facilities announced expected closures in the fourth quarter of 2019 and the associated leases of those facilities will terminate during this period. As a result of higher depreciation, reduced lease payments and closures of two utilities, we expect our pro-rata share of Tinuum Group's earnings and distributions to be lower in future periods. However, future incremental invested RC facilities would positively impact our expectation of future earnings and distributions.

Equity earnings from our interest in Tinuum Services increased by $1.0 million during the three months ended September 30, 2019 compared to the three months ended September 30, 2018, and for those quarters, Tinuum Services provided operating and maintenance services to 22 and 17 operating RC facilities, respectively. Tinuum Services derives earnings under fixed-fee arrangements as well as fee arrangements that are based on actual RC production, depending upon the specific RC facility operating and maintenance agreement.

Historically, we have earned Section 45 tax credits related to the production of RC, most significantly due to our direct and indirect ownership, through Tinuum Group, in the GWN REF RC facility ("GWN REF"). However, based on an agreement effective January 1, 2019 with its largest customer, which also has an ownership interest in Tinuum Group, substantially all of the tax credits earned from GWN REF will be allocated to this customer. As a result, our earned Section 45 tax credits for 2019 through 2021 will be substantially lower. For the three months ended September 30, 2019 and 2018, our Section 45 tax credits earned were $0.1 million and $1.6 million, respectively.

Interest expense

For the three months ended September 30, 2019, interest expense increased $1.3 million compared to the three months ended September 30, 2018 primarily due to interest expense incurred in the three months ended September 30, 2019 of $1.4 million related to a senior term loan (the "Senior Term Loan") entered into on December 7, 2018 to fund the Carbon Solutions Acquisition. This increase was comprised of stated interest on the Senior Term Loan principal of $0.9 million and interest expense related to debt discount and debt issuance costs associated with the Senior Term Loan of $0.5 million.

Income tax expense

For the three months ended September 30, 2019, we recorded income tax expense of $6.6 million compared to income tax expense of $3.9 million for the three months ended September 30, 2018. The income tax expense recorded for the three months ended September 30, 2019 was comprised of estimated federal income tax expense of $6.2 million and estimated state income tax expense of $0.4 million. The income tax expense recorded for the three months ended September 30, 2018 was comprised of estimated federal income tax expense of $2.9 million and estimated state income tax expense of $1.0 million.

The increase in income tax expense quarter over quarter was primarily due to an increase in the valuation allowance on deferred tax assets of $4.8 million for the three months ended September 30, 2019 compared to an increase of $1.4 million for the three months ended September 30, 2018 based on changes in forecasts as of September 30, 2019 and September 30, 2018, respectively, of future years' taxable income. Offsetting the net increase in income tax expense quarter over quarter was a decrease in state income tax expense of $0.6 million.

Comparison of the Nine Months Ended September 30, 2019 and 2018

Total Revenue and Cost of Revenue

A summary of the components of our revenues and cost of revenue for the nine months ended September 30, 2019 and 2018 is as follows:

	Nine Months Ended September 30,		Change	
(in thousands, except percentages)	2019	2018	($)	(%)
Revenues:				
Consumables	$ 41,243	$ 2,390	$ 38,853	1,626 %
License royalties, related party	12,796	10,857	1,939	18 %
Other	—	72	(72)	*
Total revenues	$ 54,039	$ 13,319	$ 40,720	306 %
Operating expenses:				
Consumables cost of revenue, exclusive of depreciation and amortization	$ 38,339	$ 2,567	$ 35,772	1,394 %
Other sales cost of revenue, exclusive of depreciation and amortization	$ —	$ (346)	$ 346	(100)%

* Calculation not meaningful

Consumables and consumables cost of revenue

During the nine months ended September 30, 2019, consumables revenues increased from the comparable period in 2018 primarily due to Carbon Solutions' operations. These operations also increased the total pounds of our consumables sold period over period.

Consumables cost of revenue was negatively impacted during the nine months ended September 30, 2019 due to $5.0 million of costs recognized as a result of the step-up in inventory fair value recorded from the Carbon Solutions Acquisition. As of June 30, 2019, the step-up in inventory was fully recognized in cost of revenue and consumables gross margin will not be impacted for the remainder of 2019.

During the nine months ended September 30, 2019, Consumables revenue and margins were negatively impacted by low coal-fired power dispatch driven by mild weather conditions as well as power generation from sources other than coal. In a recently updated forecast, the EIA revised downward by 7% its December 2018 forecast for 2019 coal-fired electricity-generating units.

License royalties, related party

For the nine months ended September 30, 2019 and 2018, there were 35.0 million tons and 26.4 million tons, respectively, of RC produced using the M-45 Technology under the M-45 License. The increase in license royalties was primarily due to obtaining additional third-party investors for two new RC facilities during 2018 and four new RC facilities during 2019, all of which use our M-45 License. The addition of new invested RC facilities in 2018 and 2019 resulted in an increase in both cash payments to Tinuum Group and the related tons subject to the M-45 License. Offsetting the net increase in license royalties for the nine months ended September 30, 2019 from additional facilities was a lower royalty per ton rate. This lower rate is attributable to higher depreciation recognized on all royalty bearing RC facilities during the three months ended September 30, 2019 as a result of a reduction in their estimated useful lives as determined by Tinuum Group during the three months ended September 30, 2019.

Additional information related to revenue concentrations and contributions by class and reportable segment can be found within the segment discussion below and in Note 13 to the Condensed Consolidated Financial Statements.

Other Operating Expenses

A summary of the components of our operating expenses, exclusive of cost of revenue items (presented above), for the nine months ended September 30, 2019 and 2018 is as follows:

	Nine Months Ended September 30,		Change	
(in thousands, except percentages)	2019	2018	($)	(%)
Operating expenses:				
Payroll and benefits	$ 8,005	$ 7,528	$ 477	6%
Legal and professional fees	5,300	3,459	1,841	53%
General and administrative	7,699	3,098	4,601	149%
Depreciation, amortization, depletion and accretion	4,902	262	4,640	1,771%
	$ 25,906	$ 14,347	$ 11,559	81%

Payroll and benefits

Payroll and benefits expenses increased during the nine months ended September 30, 2019 compared to the same period in 2018 primarily due to an increase in headcount of personnel resulting from the Carbon Solutions Acquisition. Payroll and benefits expenses for the nine months ended September 30, 2018 also included restructuring expenses of $2.0 million.

Legal and professional fees

Legal and professional fees expenses increased during the nine months ended September 30, 2019 compared to the same period in 2018 primarily due to legal and professional fees associated with the integration of Carbon Solutions as well as expenses incurred related to on-going matters in the normal course of business.

General and administrative

General and administrative expenses increased during the nine months ended September 30, 2019 compared to the same period in 2018 due to an increase in general operating expenses, including an increase in outsourced IT costs related to the integration of Carbon Solutions of approximately $1.6 million. Further increases period over period of approximately $1.0 million related to rent and occupancy expense from additional leased office and warehouse space resulting from the Carbon Solutions Acquisition. Remaining increases period over period related to travel, insurance and recruiting expenses.

Depreciation and amortization

Depreciation and amortization expense increased during the nine months ended September 30, 2019 compared to the same period in 2018 due to the addition of long-lived assets and intangible assets acquired as part of the Carbon Solutions Acquisition, which contributed approximately $3.8 million and $0.7 million of depreciation and amortization, respectively, for the nine months ended September 30, 2019.

Other Income (Expense), net

A summary of the components of our other income (expense), net for the nine months ended September 30, 2019 and 2018 is as follows:

	Nine Months Ended September 30,		Change	
(in thousands, except percentages)	2019	2018	($)	(%)
Other income (expense):				
Earnings from equity method investments	$ 57,051	$ 37,857	$ 19,194	51%
Interest expense	(5,820)	(1,147)	(4,673)	407%
Other	342	146	196	134%
Total other income	$ 51,573	$ 36,856	$ 14,717	40%

Earnings from equity method investments

The following table details the components of our respective equity method investments included within the Earnings from equity method investments line item on the Condensed Consolidated Statements of Operations:

	Nine Months Ended September 30,	
(in thousands)	2019	2018
Earnings from Tinuum Group	$ 50,757	$ 33,575
Earnings from Tinuum Services	6,297	4,281
(Losses) earnings from other	(3)	1
Earnings from equity method investments	$ 57,051	$ 37,857

Earnings from equity method investments, and changes related thereto, are impacted by our most significant equity method investees: Tinuum Group and Tinuum Services.

For the nine months ended September 30, 2019, we recognized $50.8 million in equity earnings from Tinuum Group compared to our proportionate share of Tinuum Group's net income of $52.4 million for the period. The difference represents the cumulative earnings short-fall balance as of the end of the immediately preceding period, which was December 31, 2018. For the nine months ended September 30, 2018, we recognized $33.6 million in equity earnings from Tinuum Group compared to our proportionate share of Tinuum Group's net income of $42.3 million for the period. This difference was the result of cumulative distributions received from Tinuum Group being in excess of the carrying value of the investment, and therefore we recognized such excess distributions as equity method earnings in the period the distributions occurred. For the nine months ended September 30, 2019, equity earnings from Tinuum Group were negatively impacted from higher depreciation on all Tinuum Group RC facilities as a result of a reduction in their estimated useful lives as determined by Tinuum Group during the three months ended September 30, 2019, as described above.

For the nine months ended September 30, 2019, equity earnings from our interest in Tinuum Group were positively impacted by the addition of four new RC facilities during the nine months ended September 30, 2019. Further, revenues from two of these facilities were recognized immediately in 2019 as a result of Tinuum Group’s adoption of ASC Topic 606 - *Revenue from Contracts with Customers* ("ASC 606") and ASC Topic 842 - *Leases* ("ASC 842") as of January 1, 2019. However, our earnings were negatively impacted from higher depreciation on all Tinuum Group RC facilities as a result of a reduction in their estimated useful lives as determined by Tinuum Group during the three months ended September 30, 2019, as described above. As a result of a reduction in coal consumption, as noted above, during the three months ended September 30, 2019, Tinuum Group restructured RC facility contracted leases with its largest customer, which decreased lease payments beginning in the three months ended September 30, 2019 and will also negatively impact our pro-rata share of Tinuum Group's earnings in the future.

As of September 30, 2019 and 2018, Tinuum Group had 23 and 18 invested RC facilities, respectively, that were generating revenues. There were no 100% retained RC facilities as of September 30, 2019 or September 30, 2018, except for temporary operations of a retained RC facility prior to its lease or sale.

Equity earnings from our interest in Tinuum Services increased during the nine months ended September 30, 2019 compared to the nine months ended September 30, 2018. During the nine months ended September 30, 2019 and 2018, Tinuum Services provided operating and maintenance services to 22 and 17 operating RC facilities, respectively, which was the driver in the increase in equity earnings. Tinuum Services derives earnings under fixed-fee arrangements as well as fee arrangements that are based on actual RC production, depending upon the specific RC facility operating and maintenance agreement.

During the nine months ended September 30, 2019 and 2018, our Section 45 tax credits earned were $0.2 million and $5.3 million, respectively. As discussed above, the substantial decrease period over period was primarily due to an agreement between Tinuum Group and its largest customer effective January 1, 2019 that allocated substantially all of the tax credits earned from GWN REF to this customer, who also has an ownership interest in Tinuum Group.

Interest expense

For the nine months ended September 30, 2019, interest expense increased $4.7 million compared to the nine months ended September 30, 2018 primarily due to interest expense incurred in the nine months ended September 30, 2019 related to the Senior Term Loan. The increase was mostly comprised of stated interest on the Senior Term Loan principal of $3.3 million and interest expense related to debt discount and debt issuance costs associated with the Senior Term Loan of $1.3 million.

Income tax expense

For the nine months ended September 30, 2019, we recorded income tax expense of $14.9 million compared to income tax expense of $5.2 million for the nine months ended September 30, 2018. The income tax expense recorded for the nine months ended September 30, 2019 was comprised of estimated federal income tax expense of $13.2 million and estimated state income tax expense of $1.7 million. The income tax expense recorded for the nine months ended September 30, 2018 was comprised of estimated federal income tax expense of $3.4 million and estimated state income tax expense of $1.8 million.

The increase in income tax expense period over period was primarily due to: (1) an increase in forecasted pre-tax income period over period from the Carbon Solutions Acquisition and the addition of new invested RC facilities during the nine months ended September 30, 2019, which resulted in an increase in income tax expense of $3.2 million from the nine months ended September 30, 2018; and (2) an increase in the valuation allowance of on deferred tax assets of $3.8 million for the nine months ended September 30, 2019 compared to a decrease in the valuation allowance of $2.7 million for the nine months ended September 30, 2018 based on changes in forecasts of future years' taxable income as of September 30, 2019 and September 30, 2018, respectively.

Non-GAAP Financial Measures

To supplement the Company's financial information presented in accordance with U.S. generally accepted accounting principles, or GAAP, we are providing non-GAAP measures of certain financial performance. These non-GAAP measures include Consolidated EBITDA and Segment EBITDA. The Company included non-GAAP measures because management believes that they help to facilitate comparison of operating results between periods. The Company believes the non-GAAP measures provide useful information to both management and users of the financial statements by excluding certain expenses, gains and losses that may not be indicative of core operating results and business outlook. These non-GAAP measures are not in accordance with, or an alternative to, measures prepared in accordance with GAAP and may be different from non-GAAP measures used by other companies. In addition, these non-GAAP measures are not based on any comprehensive set of accounting rules or principles. These measures should only be used to evaluate the Company's results of operations in conjunction with the corresponding GAAP measures.

The Company has defined Consolidated EBITDA as net income, adjusted for the impact of the following items that are either non-cash or that the Company does not consider representative of its ongoing operating performance: depreciation, amortization, depletion and accretion, interest expense, net and income tax expense. Because Consolidated EBITDA omits certain non-cash items, the Company believes that the measure is less susceptible to variances that affect the Company's operating performance.

Segment EBITDA is calculated as Segment operating income (loss) adjusted for the impact of the following items that are either non-cash or that the Company does not consider representative of its ongoing operating performance: depreciation, amortization, depletion and accretion and interest expense, net. When used in conjunction with GAAP financial measures, Segment EBITDA is a supplemental measure of operating performance that management believes is a useful measure for the Company's PGI segment performance relative to the performance of its competitors as well as performance period over period. Additionally, the Company believes the measure is less susceptible to variances that affect its operating performance results.

The Company presents Consolidated EBITDA and Segment EBITDA because the Company believes they are useful as supplemental measures in evaluating the performance of the Company's operating performance and provide greater transparency into the results of operations. The Company's management uses Consolidated EBITDA and Segment EBITDA as factors in evaluating the performance of its business.

The adjustments to Consolidated EBITDA and Segment EBITDA in future periods are generally expected to be similar. Consolidated EBITDA and Segment EBITDA have limitations as analytical tools, and these measures should not be considered in isolation or as a substitute for analyzing the Company's results as reported under GAAP.

Consolidated EBITDA

	Three Months Ended September 30,		Nine Months Ended September 30,	
(in thousands)	2019	2018	2019	2018
Net income (1)	$ 3,923	$ 5,503	$ 26,439	$ 28,456
Depreciation, amortization, depletion and accretion	2,043	74	4,902	262
Interest expense, net	1,663	317	5,619	1,003
Income tax expense	6,595	3,931	14,928	5,151
Consolidated EBITDA	$ 14,224	$ 9,825	$ 51,888	$ 34,872

(1) Net income for the nine months ended September 30, 2019 was inclusive of a $5.0 million adjustment, which increased cost of revenue due to a step-up in basis of inventory acquired related to the Carbon Solutions Acquisition.

Business Segments

As of September 30, 2019, we have two reportable segments: (1) RC and (2) PGI. The business segment measurements provided to and evaluated by our chief operating decision maker are computed in accordance with the principles listed below:

- The accounting policies of the operating segments are the same as those described in the summary of significant accounting policies in the 2018 Form 10-K.
- Segment revenues include equity method earnings and losses from our equity method investments.
- Segment operating income (loss) includes segment revenues and allocation of certain "Corporate general and administrative expenses," which include Payroll and benefits, Rent and occupancy, Legal and professional fees, and General and administrative.
- RC segment operating income includes interest expense directly attributable to the RC segment.

The principal products and services of our segments are:

1. RC - Our RC segment derives its earnings from equity method investments as well as royalty payment streams and other revenues related to enhanced combustion of and reduced emissions of both NO_X and mercury from the burning of coal. Our equity method investments related to the RC segment include Tinuum Group, Tinuum Services and other immaterial equity method investments. Segment revenues include our equity method earnings (losses) from our equity method investments and royalty earnings from Tinuum Group. These earnings are included within the Earnings from equity method investments and License royalties, related party line items in the Condensed Consolidated Statements of Operations. Key drivers to the RC segment performance are the produced and sold RC from both operating and retained RC facilities, royalty-bearing tonnage and the number of operating (leased or sold) and retained RC facilities. These key drivers impact our earnings and cash distributions from equity method investments.
2. PGI - Our PGI segment primarily includes revenues and related expenses from the sale of consumable products that utilize PAC chemical technologies. These options provide coal-powered utilities and industrial boilers with mercury control solutions working in conjunction with activated carbon injection ("ACI") and dry sorbent injection ("DSI") systems and other pollution control equipment, generally without the requirement for significant ongoing capital outlays. These amounts are included within the respective revenues and cost of revenue line items in the Condensed Consolidated Statements of Operations.

Management uses segment operating income (loss) to measure profitability and performance at the segment level. Management believes segment operating income (loss) provides investors with a useful measure of our operating performance and underlying trends of the businesses. Segment operating income (loss) may not be indicative of our overall consolidated performance and therefore, should be read in conjunction with our Condensed Consolidated Statements of Operations.

The following table presents our operating segment results for the three and nine months ended September 30, 2019 and 2018:

	Three Months Ended September 30,				Nine Months Ended September 30,			
(in thousands)	2019		2018		2019		2018	
Revenues:								
Refined Coal:								
Earnings in equity method investments	$	14,426	$	9,715	$	57,051	$	37,857
License royalties, related party		4,385		4,104		12,796		10,857
		18,811		13,819		69,847		48,714
Power Generation and Industrials:								
Consumables		14,010		1,043		39,612		2,390
Other		—		—		—		72
		14,010		1,043		39,612		2,462
Total segment reporting revenues		32,821		14,862		109,459		51,176
Adjustments to reconcile to reported revenues:								
Earnings in equity method investments		(14,426)		(9,715)		(57,051)		(37,857)
Corporate and other		738		—		1,631		—
Total reported revenues	$	19,133	$	5,147	$	54,039	$	13,319
Segment operating income (loss):								
Refined Coal (1)	$	18,158	$	12,798	$	68,137	$	45,775
Power Generation and Industrials (2)		(977)		(1,168)		(8,301)		(3,493)
Total segment operating income	$	17,181	$	11,630	$	59,836	$	42,282

(1) Included in RC segment operating income for the three and nine months ended September 30, 2019 and 2018 is 453A interest expense of $0.2 million and $0.9 million and $0.4 million and $1.1 million, respectively.

(2) Included in PGI segment operating loss for the nine months ended September 30, 2019 was approximately $4.7 million of costs recognized as a result of the step-up in inventory fair value recorded from the Carbon Solutions Acquisition. Also included within the PGI segment operating loss for the three and nine months ended September 30, 2019 was $1.9 million and $4.5 million, respectively, of depreciation, amortization, and depletion expense on mine- and plant-related long-lived assets.

RC

The following table details the segment revenues of our respective equity method investments:

	Three Months Ended September 30,				Nine Months Ended September 30,			
(in thousands)	2019		2018		2019		2018	
Earnings from Tinuum Group	$	11,746	$	8,075	$	50,757	$	33,575
Earnings from Tinuum Services		2,682		1,639		6,297		4,281
(Losses) earnings from other		(2)		1		(3)		1
Earnings from equity method investments	$	14,426	$	9,715	$	57,051	$	37,857

For the three months ended September 30, 2019 and September 30, 2018

RC earnings increased primarily due to an increase in equity earnings in Tinuum Group during the three months ended September 30, 2019 compared to the same quarter in 2018, as presented above.

For the three months ended September 30, 2019, we recognized $11.7 million in equity earnings from Tinuum Group, which was equal to our proportionate share of Tinuum Group's net income of $11.7 million for the quarter. During the three months ended September 30, 2018, we recognized $8.1 million in equity earnings from Tinuum Group compared to our proportionate share of Tinuum Group's net income of $15.8 million for the quarter. The difference between our pro-rata share of Tinuum Group's net income and our earnings from our Tinuum Group equity method investment as reported on the Condensed

Consolidated Statements of Operations for the three months ended September 30, 2018 was the result of cumulative distributions received from Tinuum Group being in excess of the carrying value of the investment, and therefore we recognized such excess distributions as equity method earnings in the period the distributions occurred.

For the three months ended September 30, 2019, equity earnings from our interest in Tinuum Group were positively impacted by the addition of two new RC facilities during the three months ended September 30, 2019. However, our earnings were negatively impacted from higher depreciation recognized for the three months ended September 30, 2019 on all Tinuum Group RC facilities as a result of a reduction in their estimated useful lives as determined by Tinuum Group during the three months ended September 30, 2019. As a result of the reduction in coal consumption described above, during the three months ended September 30, 2019, Tinuum Group restructured RC facility contracted leases with its largest customer, which decreased lease payments beginning in the three months ended September 30, 2018 and will also negatively impact our pro-rata share of Tinuum Group's earnings in the future.

Earnings from Tinuum Services for the three months ended September 30, 2019 increased compared to the same quarter in 2018 primarily due to an increase in the number of operating RC facilities from 17 to 22 in which Tinuum Services provides operating and maintenance services.

RC earnings were positively impacted during the three months ended September 30, 2019 by an increase in royalties related to Tinuum Group's use of our M-45 License. During the three months ended September 30, 2019 and 2018, there were 14.5 million tons and 10.5 million tons, respectively, of RC produced using the M-45 Technology. The increase in Royalty revenue was driven by both an increase in payments to Tinuum Group and the related tons subject to the M-45 License. Offsetting the net increase in Royalty revenue for the three months ended September 30, 2019 from additional facilities was a lower royalty per ton rate from higher depreciation recognized for the three months ended September 30, 2019 on all royalty bearing RC facilities as a result of a reduction in their estimated useful lives as determined by Tinuum Group during the three months ended September 30, 2019. The increase in Royalty revenue was driven by both an increase in payments to Tinuum Group and the related tons subject to the M-45 License.

Future earnings and growth in the RC segment will continue to be impacted by coal-fired electricity generation dispatch and invested facilities with leases subject to periodic renewals being terminated, repriced, or otherwise subject to renegotiated terms.

Additional discussion of our equity method investments is included above within our consolidated results and in Note 4 of the Condensed Consolidated Financial Statements.

PGI

Discussion of revenues derived from our PGI segment and costs related thereto are included above within our consolidated results.

For the three months ended September 30, 2019 and September 30, 2018

PGI segment operating loss remained consistent for the three months ended September 30, 2019 compared to the three months ended September 30, 2018 primarily due to operating income related to the Carbon Solutions Acquisition, which was offset by an increase in operating loss from our legacy PGI business. During the three months ended September 30, 2019, consumables revenue and margins also continued to be negatively impacted by low coal-fired power dispatch driven by power generation from sources other than coal. In a recently updated forecast, the EIA revised downward by 7% its December 2018 forecast for 2019 coal-fired electricity-generating units.

PGI Segment EBITDA

	Three Months Ended September 30,	
(in thousands)	2019	2018
Segment operating loss	$ (977)	$ (1,168)
Depreciation, amortization, depletion and accretion	1,853	42
Interest expense, net	75	—
Segment EBITDA income (loss)	$ 951	$ (1,126)

RC
For the nine months ended September 30, 2019 and September 30, 2018
For the nine months ended September 30, 2019, we recognized $50.8 million in equity earnings from Tinuum Group compared to our proportionate share of Tinuum Group's net income of $52.4 million for the period. The difference represents the cumulative earnings short-fall balance as of the end of the immediately preceding period, which was December 31, 2018. For the nine months ended September 30, 2018, we recognized $33.6 million in equity earnings from Tinuum Group compared to our proportionate share of Tinuum Group's net income of $42.3 million for the period. This difference was the result of cumulative distributions received from Tinuum Group being in excess of the carrying value of the investment, and therefore we recognized such excess distributions as equity method earnings in the period the distributions occurred.

For the nine months ended September 30, 2019, equity earnings from our interest in Tinuum Group were positively impacted by the addition of four new RC facilities during the nine months ended September 30, 2019. Further, revenues from two of these facilities were recognized immediately in 2019 as a result of Tinuum Group's adoption of ASC Topic 606 - *Revenue from Contracts with Customers* and ASC Topic 842 - *Leases* as of January 1, 2019. However, our earnings were negatively impacted from higher depreciation recognized for the nine months ended September 30, 2019 on all Tinuum Group RC facilities as a result of a reduction in their estimated useful lives as determined by Tinuum Group during the three months ended September 30, 2019, as described above. As a result of a reduction in coal consumption, as noted above, during the three months ended September 30, 2019, Tinuum Group restructured RC facility contracted leases with its largest customer, which decreased lease payments beginning in the three months ended September 30, 2019 and will also negatively impact our pro-rata share of Tinuum Group's earnings in the future.

Earnings from Tinuum Services for the nine months ended September 30, 2019 increased compared to the same period in 2018 primarily due to an increase in the number of operating RC facilities from 17 to 22 in which Tinuum Services provides operating and maintenance services.

RC earnings were positively impacted during the nine months ended September 30, 2019 by an increase in royalties related to Tinuum Group's use of our M-45 License. During the nine months ended September 30, 2019 and 2018, there were 35.0 million tons and 26.4 million tons, respectively, of RC produced using the M-45 Technology. The increase in Royalty revenue was primarily driven by an increase in both payments to Tinuum Group and the related tons subject to the M-45 License. Offsetting the net increase in Royalty revenue for the nine months ended September 30, 2019 from additional facilities was a lower royalty per ton rate from higher depreciation recognized for the nine months ended September 30, 2019 on all royalty bearing RC facilities as a result of a reduction in their estimated useful lives as determined by Tinuum Group during the three months ended September 30, 2019.

Future earnings and growth within the RC segment will continue to be impacted by coal-fired dispatch, and invested facilities with leases subject to periodic renewals being terminated, repriced, or otherwise subject to renegotiated terms.

Additional discussion of our equity method investments is included above within our consolidated results and in Note 4 of the Condensed Consolidated Financial Statements.

PGI
Discussion of revenues derived from our PGI segment and costs related thereto are included above within our consolidated results.

For the nine months ended September 30, 2019 and September 30, 2018
PGI segment operating income increased during the nine months ended September 30, 2019 compared to the nine months ended September 30, 2018 primarily due to the increase in operating income due to the operations of Carbon Solutions. This increase was offset with an additional $4.7 million of cost of revenue expense related to a step-up in basis of acquired finished goods inventory and $4.4 million of depreciation, amortization, and depletion expense related to Carbon Solutions Acquisition. During the nine months ended September 30, 2019, Consumables revenue and margins were negatively impacted by low coal-fired power dispatch driven by power generation from sources other than coal as well as mild weather. In a recently updated forecast, the EIA revised downward by 7% its December 2018 forecast of 2019 coal-fired electricity-generating units.

PGI Segment EBITDA

	Nine Months Ended September 30,	
(in thousands)	2019	2018
Segment operating loss (1)	$ (8,301)	$ (3,493)
Depreciation, amortization, depletion and accretion	4,498	113
Interest expense, net	263	—
Segment EBITDA loss	$ (3,540)	$ (3,380)

(1) Segment operating loss for the nine months ended September 30, 2019 was inclusive of a $4.7 million adjustment, which increased cost of revenue due to a step-up in basis of inventory acquired related to the Carbon Solutions Acquisition.

Liquidity and Capital Resources

Overview of Factors Affecting Our Liquidity
During the nine months ended September 30, 2019, our liquidity position was positively affected primarily due to distributions from Tinuum Group and Tinuum Services, royalty payments from Tinuum Group and borrowing availability under our bank ("Lender") line of credit ("Line of Credit").

Our principal sources of cash include:

- cash on hand;
- distributions from Tinuum Group and Tinuum Services;
- royalty payments from Tinuum Group; and
- operations of the PGI segment.

Our principal uses of cash during the nine months ended September 30, 2019 included:

- repurchases of shares of common stock;
- payment of dividends;
- payment of debt principal and interest; and
- our business operating expenses, including federal and state tax payments and cash severance payments.

Our ability to continue to generate sufficient cash flow required to meet ongoing operational needs and obligations, as well as future expected dividend payments and potential future share repurchases, depends upon several factors, including executing on our contracts and initiatives, receiving royalty payments from Tinuum Group and distributions from Tinuum Group and Tinuum Services, and increasing our share of the market for PGI consumables, as well as expanding our overall PAC business into additional adjacent markets. Increased distributions from Tinuum Group will likely be dependent upon both preserving existing contractual relationships and securing additional tax equity investors for those Tinuum Group facilities that are currently not operating.

Due to the Carbon Solutions Acquisition, we expect our use of liquidity for capital expenditures will increase in future periods. Carbon Solutions has historically incurred costs both for recurring capital expenditures for its AC manufacturing facility and for mine development at its lignite mine. Going forward, we anticipate additional material capital resources will be needed to maintain or improve capital assets. We incurred expenditures related to planned maintenance on our AC manufacturing facility during the nine months ended September 30, 2019.

Tinuum Group and Tinuum Services Distributions

The following table summarizes the cash distributions from our equity method investments that most significantly affected our consolidated cash flow results for the nine months ended September 30, 2019 and 2018:

	Nine Months Ended September 30, 2019	
(in thousands)	**2019**	**2018**
Tinuum Group	$ 50,256	$ 33,575
Tinuum Services	6,550	4,000
Distributions from equity method investees	$ 56,806	$ 37,575

Future cash flows from Tinuum through 2021 are expected to range from $150 to $175 million, a decrease from the previously reported range of $175 to $200 million. The key drivers in achieving these future cash flows are based on the following:

- 23 invested facilities as of September 30, 2019 and inclusive of all net Tinuum cash flows (distributions and license royalties), offset by estimated federal and state income tax payments and 453A interest payments.

Expected future cash flows from Tinuum Group are based on the following key assumptions:

- Tinuum Group continues to not operate retained facilities;
- Tinuum Group does not have material unexpected capital expenditures or unusual operating expenses;
- Tax equity lease renewals on invested facilities are not terminated or repriced; and
- Coal-fired power generation remains consistent with contractual expectations.

As noted above, recently, two coal-fired utilities where Tinuum has invested RC facilities operating were announced for closure, which is expected to occur in the fourth quarter of 2019. The shuttering of these facilities has negatively impacted our expectations related to future cash flows if we are unable to move the existing RC facilities to new utilities. Also as noted above, Tinuum Group and its largest customer agreed to certain reductions in overall lease payments for the period from

October 2019 to December 2021, which will negatively impact future cash flows. These factors will result in a net reduction in our pro-rata share of expected future RC cash flows. However, with the addition of two RC facilities during the three months ended September 30, 2019, future cash flows are expected to decrease by approximately $10.0 million from September 2019 to December 2021.

Senior Term Loan

On December 7, 2018, we and ADA-ES, Inc. ("ADA"), a wholly-owned subsidiary, and certain other subsidiaries of the Company as guarantors, The Bank of New York Mellon as administrative agent, and Apollo Credit Strategies Master Fund Ltd and Apollo A-N Credit Fund (Delaware) L.P. (collectively "Apollo"), affiliates of a beneficial owner of greater than five percent of our common stock and a related party, entered into the "Senior Term Loan" in the amount of $70.0 million, less original issue discount of $2.1 million. Proceeds from the Senior Term Loan were used to fund the Carbon Solutions Acquisition as disclosed in Note 2. We also paid debt issuance costs of $2.0 million related to the Senior Term Loan. The Senior Term Loan has a term of 36 months and bears interest at a rate equal to 3-month LIBOR (subject to a 1.5% floor) + 4.75% per annum, which is adjusted quarterly to the current 3-month LIBOR rate, and interest is payable quarterly in arrears. Quarterly principal payments of $6.0 million are required and commenced in March 2019, and we may prepay the Senior Term Loan at any time without penalty. The Senior Term Loan is secured by substantially all of our assets, including the cash flows from Tinuum Group and Tinuum Services (collectively, the "Tinuum Entities"), but excluding our equity interests in those Tinuum entities. During the nine months ended September 30, 2019, we made principal payments of $24.0 million.

The Senior Term Loan includes, among others, the following covenants: (1) Beginning December 31, 2018 and as of the end of each fiscal quarter thereafter, we must maintain a minimum cash balance of $5.0 million and shall not permit "expected future net cash flows from the refined coal business" (as defined in the Senior Term Loan) to be less than 1.75 times the outstanding principal amount of the Senior Term Loan; (2) Beginning in January 2019, annual collective dividends and buybacks of shares of our common stock in an aggregate amount, not to exceed $30.0 million, is permitted so long as (a) no default or event of default exists under the Senior Term Loan and (b) expected future net cash flows from the refined coal business as of the end of the most recent fiscal quarter exceed $100.0 million.

Stock Repurchases and Dividends

In November 2018, the Board of Directors (the "Board") authorized us to purchase up to $20.0 million of our outstanding common stock. In November 2019, the Board authorized an incremental $7.1 million to this stock repurchase program and provided that the program will remain in effect until all amounts are utilized or the program is otherwise modified by the Board. Previously, in December 2017, the Board had authorized us to purchase up to $20.0 million of our outstanding common stock under a separate repurchase program that was in effect until July 31, 2018. During the year ended December 31, 2018, under these two stock repurchase programs, we purchased 2,350,422 shares of our common stock for cash of $25.3 million, inclusive of commissions and fees. During the nine months ended September 30, 2019, under the applicable stock repurchase program, we purchased 256,743 shares of our common stock for cash of $2.9 million, inclusive of commissions and fees.

During the nine months ended September 30, 2019 and 2018, we declared and paid quarterly cash dividends to stockholders of $13.7 million and $15.2 million, respectively, as follows:

	2019		2018	
	Per share	Date paid	Per share	Date paid
Dividends declared during quarter ended:				
March 31	$ 0.25	March 7, 2019	$ 0.25	March 8, 2018
June 30	0.25	June 7, 2019	0.25	June 8, 2018
September 30	0.25	September 6, 2019	0.25	September 6, 2018
	$ 0.75		$ 0.75	

Line of Credit

As of September 30, 2019, there were no outstanding borrowings under the Line of Credit.

On September 30, 2018, ADA, as borrower, we, as guarantor, and the Lender entered into an amendment (the "Twelfth Amendment") to the Line of Credit. The Twelfth Amendment decreased the borrowing availability of the Line of Credit to $5.0 million due to decreased collateral requirements, extended the maturity date of the Line of Credit to September 30, 2020 and permitted the Line of Credit to be used as collateral (in place of restricted cash) for letters of credit ("LC's") up to $5.0 million related to equipment projects and certain other agreements. Under the Twelfth Amendment, there was no minimum balance requirement based on us meeting certain conditions and maintaining minimum trailing twelve-month EBITDA (earnings before interest, taxes, depreciation and amortization), as previously defined in the "Eleventh Amendment" to the Line of Credit, of $24.0 million.

On December 7, 2018, ADA, as borrower, we, as guarantor, and the Lender entered into an amendment to the Line of Credit, which provided, among other things, for ADA to be able to enter into the Senior Term Loan as a guarantor so long as the principal amount of the Senior Term Loan did not exceed $70.0 million. Additionally, the financial covenants in the Line of Credit were amended and restated to be consistent with the aforementioned Senior Term Loan covenants, including maintaining a minimum cash balance of $5.0 million.

Sources and Uses of Cash

Nine Months Ended September 30, 2019 vs. Nine Months Ended September 30, 2018

Cash, cash equivalents and restricted cash decreased from $23.8 million as of December 31, 2018 to $20.2 million as of September 30, 2019. The following table summarizes our cash flows for the nine months ended September 30, 2019 and 2018, respectively:

	Nine Months Ended September 30,		
(in thousands)	**2019**	**2018**	**Change**
Cash and cash equivalents and restricted cash provided by (used in):			
Operating activities	$ 47,598	$ (4,311)	$ 51,909
Investing activities	(9,174)	32,634	(41,808)
Financing activities	(42,041)	(27,102)	(14,939)
Net change in cash and cash equivalents and restricted cash	$ (3,617)	$ 1,221	$ (4,838)

Additionally, the following table summarizes the cash flows of Tinuum Group, whose cash distributions most significantly impact our consolidated cash flow results, for the nine months ended September 30, 2019 and 2018, respectively:

	Nine Months Ended September 30,	
(in thousands)	**2019**	**2018**
Tinuum Group cash, beginning of year	$ 26,211	$ 13,309
Cash provided by (used in):		
Operating activities	77,040	49,021
Investing activities (1)	(13,458)	(12,246)
Financing activities	(40,863)	(23,146)
Net change in cash	22,719	13,629
Tinuum Group cash, end of period	$ 48,930	$ 26,938

(1) During the nine months ended September 30, 2019 and 2018, Tinuum Group's use of cash from investing activities related to RC facilities in the engineering and installation phase.

Cash flow from operating activities

Cash flows provided by operating activities for the nine months ended September 30, 2019 were $47.6 million and changed by $51.9 million compared to the nine months ended September 30, 2018. Cash flows from operating activities were positively impacted primarily by the following: (1) net income of $26.4 million, which was primarily due to earnings from equity method investees of $57.1 million and license royalties earned from Tinuum Group of $12.8 million; (2) distributions from equity method investees, return on investment of $56.8 million; (3) a decrease in deferred tax assets, exclusive of valuation allowance changes, of $6.8 million; (4) depreciation, amortization, depletion, and accretion of $4.9 million; and a net decrease in working capital of $3.2 million. Included in distributions from equity method investees, return on investments is $50.3 million of distributions received from Tinuum Group. During the nine months ended September 30, 2018, the carrying value of our investment in Tinuum Group was zero and all cash distributions were reported as distributions in excess of cumulative earnings as a component of cash flows from investing activities. Due to the increase in the balance of our investment in Tinuum Group from Tinuum Group's adoption of new accounting standards as of January 1, 2019, during the nine months ended September 30, 2019, all distributions during the period were reported as return on investment within cash flows from operating activities. Offsetting these increases to operating cash flows were earnings from equity method investees of $57.1 million.

Cash flows used in operating activities for the nine months ended September 30, 2018 were $4.3 million and were positively impacted primarily by the following: (1) net income of $28.5 million, which was primarily due to earnings from equity method investees of $37.9 million and license royalties earned from Tinuum Group of $10.9 million; (2) distributions from equity method investees, return on investment of $4.0 million; and (3) stock-based compensation of $1.9 million. Offsetting these increases to operating cash flows were primarily earnings from equity method investees of $37.9 million and a net increase in working capital of $2.9 million.

Cash flow from investing activities

Distributions from equity method investees

Distributions received from our equity method investees reported as return in excess of investment basis within investing cash flows decreased by $33.6 million for the nine months ended September 30, 2019 compared to the nine months ended September 30, 2018. The decrease was driven primarily by the effect of an increase in our equity investment in Tinuum Group from Tinuum Group's adoption of new accounting standards as of January 1, 2019, which resulted in all cash distributions reported as return on investment within cash flows from operations during the nine months ended September 30, 2019. In total, cash distributions from Tinuum Group increased period over period due to additional invested RC facilities, of which two and four were added during 2018 and 2019, respectively.

Acquisition of business

During the nine months ended September 30, 2019, we paid the remaining consideration payable of $0.7 million for the Carbon Solutions Acquisition.

Acquisition of property, equipment, and intangible assets

For the nine months ended September 30, 2019, expenditures for property, equipment, and intangible assets primarily related to capital expenditures at our AC manufacturing facility in anticipation of the planned outages that had been delayed prior to the Carbon Solutions Acquisition. These expenditures approximated $6.4 million during the nine months ended September 30, 2019.

Mine development costs

During the nine months ended September 30, 2019, we incurred costs related to development work and mitigation costs for our mining operations.

Contributions to equity method investees

During the nine months ended September 30, 2018, we made a contribution to Tinuum Services of $0.8 million due to a capital call.

Cash flow from financing activities

Principal payments on term loan

During the nine months ended September 30, 2019, we made required principal payments of $18.0 million and additional principal payments of $6.0 million related to the Senior Term Loan.

Cash dividends paid

During the nine months ended September 30, 2019 and 2018, we made payments of $13.7 million and $15.2 million, respectively, related to dividends declared on our common stock.

Repurchase of common stock

As described in Note 9 of the Condensed Consolidated Financial Statements, during the nine months ended September 30, 2019 and under a stock repurchase program authorized by the Board, we purchased 256,743 shares of our common stock for cash of $2.9 million, inclusive of commissions and fees. During the nine months ended September 30, 2018, we repurchased 1,011,630 shares of our common stock for cash of $11.2 million.

Equity award activity

During the nine months ended September 30, 2019 and 2018, we used $0.4 million and $0.7 million, respectively, for the repurchase of shares to satisfy tax withholdings upon the vesting of equity-based awards.

Contractual Obligations

During the nine months ended September 30, 2019, there were no material changes to our contractual obligations outside of the ordinary course of business from those reported as of December 31, 2018.

Off-Balance Sheet Arrangements

During the nine months ended September 30, 2019, we did not engage in any off-balance sheet arrangements except those discussed in Item 7 - "Management's Discussion and Analysis of Financial Condition and Results of Operations" in the 2018 10-K.

Critical Accounting Policies and Estimates

Except for the adoption of ASC 842 related to leases on January 1, 2019, our significant accounting policies and estimates have not changed from those reported in Item 7 - "Management's Discussion and Analysis of Financial Condition and Results of Operations" in the 2018 10-K.

Recently Issued Accounting Standards

Refer to Note 1 of the Condensed Consolidated Financial Statements included in Item 1 of this Quarterly Report for new accounting standards applicable to us that were issued during the nine months ended September 30, 2019 and subsequent thereto through the date of this Quarterly Report.

Forward-Looking Statements Found in this Report

This Quarterly Report contains forward-looking statements within the meaning of Section 27A of the Securities Act of 1933 and Section 21E of the Securities Exchange Act of 1934, as amended, or the Exchange Act, that involve risks and uncertainties. In particular, such forward-looking statements are found in this Part I, Item 2 above. Words or phrases such as "anticipates," "believes," "expects," "intends," "plans," "estimates," "predicts," the negative expressions of such words, or similar expressions are used in this Quarterly Report to identify forward-looking statements, and such forward-looking statements include, but are not limited to, statements or expectations regarding:

(a) the scope and impact of mercury and other regulations or pollution control requirements, including the impact of the final MATS;
(b) the production and sale of RC by RC facilities that will qualify for Section 45 tax credits;
(c) expected growth or contraction in and potential size of our target markets;
(d) expected supply and demand for our products and services;
(e) increasing competition in the PGI market;
(f) future level of research and development activities;
(g) the effectiveness of our technologies and the benefits they provide;
(h) Tinuum Group’s ability to profitably sell and/or lease additional RC facilities and/or RC facilities that may be returned to Tinuum Group, or to recognize the tax benefits from production and sale of RC on retained RC facilities;
(i) probability of any loss occurring with respect to certain guarantees made by Tinuum Group ("Party Guarantees");
(j) the timing of awards of, and work and related testing under, our contracts and agreements and their value;
(k) the timing and amounts of or changes in future revenues, royalties earned, backlog, funding for our business and projects, margins, expenses, earnings, tax rates, cash flows, royalty payment obligations, working capital, liquidity and other financial and accounting measures;
(l) the outcome of current and pending legal proceedings;
(m) awards of patents designed to protect our proprietary technologies both in the U.S. and other countries; and
(n) whether any legal challenges or EPA actions will have a material impact on the implementation of the MATS or other regulations and on our ongoing business.

The forward-looking statements included in this Quarterly Report involve risks and uncertainties. Actual events or results could differ materially from those discussed in the forward-looking statements as a result of various factors including, but not limited to, timing of new and pending regulations and any legal challenges to or extensions of compliance dates of them; the U.S. government’s failure to promulgate regulations or appropriate funds that benefit our business; changes in laws and regulations, accounting rules, prices, economic conditions and market demand; impact of competition; availability, cost of and demand for alternative energy sources and other technologies; technical, start up and operational difficulties; failure of the RC facilities to produce RC; termination of or amendments to the contracts for sale or lease of RC facilities or such facilities to qualify for Section 45 tax credits; decreases in the production of RC; our inability to commercialize our technologies on favorable terms; our inability to ramp up our operations to effectively address recent and expected growth in our business; loss of key personnel; potential claims from any terminated employees, customers or vendors; availability of materials and equipment for our businesses; intellectual property infringement claims from third parties; pending litigation; as well as other factors relating to our business, as described in our filings with the SEC, with particular emphasis on the risk factor disclosures contained in those filings. You are cautioned not to place undue reliance on the forward-looking statements made in this Quarterly Report and to consult filings we have made and will make with the SEC for additional discussion concerning risks and uncertainties that may apply to our business and the ownership of our securities. The forward-looking statements contained in this Quarterly Report are presented as of the date hereof, and we disclaim any duty to update such statements unless required by law to do so.

Item 3. Quantitative and Qualitative Disclosures about Market Risk

The information under this Item is not required to be provided by smaller reporting companies.

Item 4. Controls and Procedures

Evaluation of Disclosure Controls and Procedures

As required by Rule 13a-15(b) under the Securities Exchange Act of 1934, as amended (the "Exchange Act"), we have evaluated, under the supervision of and with the participation of our management, including our principal executive officer and principal financial officer, the effectiveness of the design and operation of our disclosure controls and procedures (as defined in Rules 13a-15(e) and 15d-15(e) under the Exchange Act) as of the end of the period covered by this report. Our disclosure controls and procedures are designed to ensure that information required to be disclosed in the reports that we file or submit under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in the SEC’s rules and forms. Based upon this evaluation, our principal executive officer and principal financial officer concluded that our disclosure controls and procedures were effective as of September 30, 2019.

Changes in Internal Control Over Financial Reporting

On December 7, 2018, we acquired Carbon Solutions and excluded their business from our assessment of internal control over financial reporting as of December 31, 2018, as allowed under general guidance issued by the Staff of the Securities and Exchange Commission. Except for the acquisition of Carbon Solutions, there have been no changes in our internal control over financial reporting (as defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act) during the fiscal quarter ended September 30, 2019 that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

PART II. OTHER INFORMATION

Item 1. Legal Proceedings

From time to time, we are involved in litigation, claims and other proceedings related to the conduct of our business. Litigation and other disputes are inherently unpredictable and subject to substantial uncertainties and unfavorable resolutions could occur. None of these matters, either individually or in the aggregate, currently is material to us.

Item 1A. Risk Factors

There are no material updates to our risk factors as disclosed in the 2018 Form 10-K.

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

Issuer Purchases of Equity Securities

Period	(a) Total number of shares purchased	(b) Average price paid per share	(c) Total number of shares purchased as part of publicly announced programs	(d) Maximum number (or approximate dollar value) of shares that may yet be purchased under the plans or programs (in thousands)
July 1 to July 31, 2019	—	$ —	—	$ —
August 1 to August 31, 2019	8,152	11.75	8,152	—
September 1 to September 30, 2019	—	—	—	2,899
Total	8,152	$ —	8,152	$ 2,899

Item 3. Defaults Upon Senior Securities

None.

Item 4. Mine Safety Disclosures

The statement concerning mine safety violations or other regulatory matters required by Section 1503(a) of the Dodd-Frank Wall Street Reform and Consumer Protection Act and Item 104 of Regulation S-K is included in Exhibit 95.1 to this Quarterly Report.

Item 5. Other Information

None.

Item 6. Exhibits

Exhibit No.	Description	Form	File No.	Incorporated by Reference Exhibit	Filing Date
10.1	Third Amendment to the Second Amended and Restated Operating Agreement of Tinuum Group, LLC. dated September 4, 2019*,**				
31.1	Certification of Principal Executive Officer of Advanced Emissions Solutions, Inc. Pursuant to 17 CFR 240.13a-14(a) or 17 CFR 240.15d-14(a)*				
31.2	Certification of Principal Financial Officer of Advanced Emissions Solutions, Inc. Pursuant to 17 CFR 240.13a-14(a) or 17 CFR 240.15d-14(a)*				
32.1	Certification of Principal Executive Officer and Principal Financial Officer of Advanced Emissions Solutions, Inc. Pursuant to 18 U.S.C Section 1350, as Adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002*				
95.1	Mine Safety Disclosure Exhibit*				
101. INS	XBRL Instance Document				
101.SCH	XBRL Schema Document				
101.CAL	XBRL Calculation Linkbase Document				
101.LAB	XBRL Label Linkbase Document				
101.PRE	XBRL Presentation Linkbase Document				
101.DEF	Taxonomy Extension Definition Linkbase Document				

Notes:

* – Filed herewith.

** – Portions of this exhibit have been omitted pursuant to a request for confidential treatment.

SIGNATURES

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

Advanced Emissions Solutions, Inc.
(Registrant)

November 12, 2019	By:	/s/ L. Heath Sampson
		L. Heath Sampson Chief Executive Officer (Principal Executive Officer)
November 12, 2019	By:	/s/ Greg P. Marken
		Greg P. Marken Chief Financial Officer (Principal Financial and Accounting Officer)