UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, DC 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, 2024

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

Commission file number 001-36103

TECOGEN INC. (OTCQX:TGEN)
(Exact name of registrant as specified in its charter)

Delaware	**04-3536131**
(State or Other Jurisdiction of Incorporation or Organization)	*(IRS Employer Identification No.)*

76 Treble Cove Road, Bldg. 1
North Billerica, Massachusetts 01862
(Address of Principal Executive Offices and Zip Code)

(781) 466-6400
(Registrant's telephone number, including area code)

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 every Interactive Data File required to be submitted 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 such files). Yes ☒ No ☐

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

Large accelerated filer ☐ Accelerated filer ☐
Non–Accelerated Filer ☒ 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 ☒

As of September 30, 2024, 24,850,261 shares of common stock, $.001 par value per share, of the registrant were issued and outstanding.

TECOGEN INC.

QUARTERLY REPORT ON FORM 10-Q
FOR THE PERIOD ENDED SEPTEMBER 30, 2024
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PART I - FINANCIAL INFORMATION

References in this Form 10-Q to "we", "us", "our"', the "Company" and "Tecogen" refers to Tecogen Inc. and its consolidated subsidiaries, unless otherwise noted.

PART I - FINANCIAL INFORMATION
Item 1 - Financial Statements

CONDENSED CONSOLIDATED BALANCE SHEETS
(unaudited)

	September 30, 2024	December 31, 2023
ASSETS		
Current assets:		
Cash and cash equivalents	$ 1,282,238	$ 1,351,270
Accounts receivable, net	5,448,364	6,781,484
Unbilled revenue	1,139,532	1,258,532
Inventories, net	9,895,226	10,553,419
Prepaid and other current assets	403,218	360,639
Total current assets	18,168,578	20,305,344
Long-term assets:		
Property, plant and equipment, net	1,699,398	1,162,577
Right of use assets - operating leases	1,839,031	743,096
Right of use assets - finance leases	438,123	200,187
Intangible assets, net	2,604,406	2,436,230
Goodwill	2,563,862	2,743,424
Other assets	166,889	201,771
TOTAL ASSETS	$ 27,480,287	$ 27,792,629
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Related party notes payable	$ 1,530,228	$ 505,505
Accounts payable	4,838,395	4,514,415
Accrued expenses	2,638,228	2,504,629
Deferred revenue, current	1,378,652	1,647,206
Operating lease obligations, current	426,498	248,933
Finance lease obligations, current	84,814	40,540
Acquisition liabilities, current	811,732	845,363
Unfavorable contract liability, current	131,590	176,207
Total current liabilities	11,840,137	10,482,798
Long-term liabilities:		
Deferred revenue, net of current portion	1,219,650	369,611
Operating lease obligations, net of current portion	1,452,924	523,660
Finance lease obligations, net of current portion	315,797	159,647
Acquisition liabilities, net of current portion	1,125,588	1,181,779
Unfavorable contract liability, net of current portion	332,987	422,839
Total liabilities	16,287,083	13,140,334
Commitments and contingencies		
Stockholders' equity:		
Tecogen Inc. shareholders' equity:		
Common stock, $0.001 par value; 100,000,000 shares authorized; 24,850,261 issued and outstanding at September 30, 2024 and December 31, 2023	24,850	24,850
Additional paid-in capital	57,733,308	57,601,402
Accumulated deficit	(46,453,827)	(42,879,656)
Total Tecogen Inc. stockholders' equity	11,304,331	14,746,596
Non-controlling interest	(111,127)	(94,301)
Total stockholders' equity	11,193,204	14,652,295
TOTAL LIABILITIES AND STOCKHOLDERS' EQUITY	$ 27,480,287	$ 27,792,629

The accompanying notes are an integral part of these condensed consolidated financial statements.

CONDENSED CONSOLIDATED STATEMENTS OF OPERATIONS
(unaudited)

	Three Months Ended	
	September 30, 2024	September 30, 2023
Revenues		
Products	$ 1,391,016	$ 2,938,789
Services	3,850,551	3,842,600
Energy production	388,563	331,141
Total revenues	5,630,130	7,112,530
Cost of sales		
Products	797,209	1,669,747
Services	2,139,042	2,346,384
Energy production	212,965	170,378
Total cost of sales	3,149,216	4,186,509
Gross profit	2,480,914	2,926,021
Operating expenses		
General and administrative	2,681,558	2,708,817
Selling	442,812	425,465
Research and development	233,809	160,033
Gain on sale of assets	(4,042)	—
Total operating expenses	3,354,137	3,294,315
Loss from operations	(873,223)	(368,294)
Other income (expense)		
Other income (expense), net	(18,453)	(16,330)
Interest expense	(23,003)	(6,357)
Unrealized gain (loss) on investment securities	18,749	(56,246)
Total other income (expense), net	(22,707)	(78,933)
Loss before provision for state income taxes	(895,930)	(447,227)
Provision for state income taxes	—	—
Consolidated net loss	(895,930)	(447,227)
Income attributable to the non-controlling interest	(34,478)	(34,346)
Loss attributable to Tecogen Inc.	$ (930,408)	$ (481,573)
Net loss per share - basic	$ (0.04)	$ (0.02)
Net loss per share - diluted	$ (0.04)	$ (0.02)
Weighted average shares outstanding - basic	24,850,261	24,850,261
Weighted average shares outstanding - diluted	24,850,261	24,850,261

The accompanying notes are an integral part of these condensed consolidated financial statements.

CONDENSED CONSOLIDATED STATEMENTS OF OPERATIONS
(unaudited)

	Nine Months Ended	
	September 30, 2024	September 30, 2023
Revenues		
Products	$ 3,002,087	$ 7,094,556
Services	11,991,378	10,931,744
Energy production	1,550,549	1,214,806
Total revenues	16,544,014	19,241,106
Cost of sales		
Products	2,018,734	4,500,771
Services	6,423,114	6,159,855
Energy production	966,440	728,124
Total cost of sales	9,408,288	11,388,750
Gross profit	7,135,726	7,852,356
Operating expenses		
General and administrative	8,428,119	8,418,581
Selling	1,377,758	1,426,321
Research and development	734,994	625,691
Gain on sale of assets	(8,070)	(19,950)
Total operating expenses	10,532,801	10,450,643
Loss from operations	(3,397,075)	(2,598,287)
Other income (expense)		
Interest and other income (expense), net	(15,305)	(36,562)
Interest expense	(59,542)	(8,629)
Unrealized gain (loss) on investment securities	—	(18,749)
Total other income (expense), net	(74,847)	(63,940)
Loss before provision for state income taxes	(3,471,922)	(2,662,227)
Provision for state income taxes	22,100	32,252
Consolidated net loss	(3,494,022)	(2,694,479)
Income attributable to non-controlling interest	(80,149)	(57,232)
Net loss attributable to Tecogen Inc.	$ (3,574,171)	$ (2,751,711)
Net loss per share - basic	$ (0.14)	$ (0.11)
Net loss per share - diluted	$ (0.14)	$ (0.11)
Weighted average shares outstanding - basic	24,850,261	24,850,261
Weighted average shares outstanding - diluted	24,850,261	24,850,261

The accompanying notes are an integral part of these condensed consolidated financial statements.

CONDENSED CONSOLIDATED STATEMENT OF STOCKHOLDERS' EQUITY
For the Three and Nine Months Ended September 30, 2024 and 2023
(unaudited)

	Tecogen Inc. Stockholders' Equity					
Three Months Ended September 30, 2024	**Common Stock Shares**	**Common Stock $0.001 Par Value**	**Additional Paid-in-Capital**	**Accumulated Deficit**	**Non-controlling Interest**	**Total**
Balance at June 30, 2024	24,850,261	$ 24,850	$ 57,691,400	$ (45,523,419)	$ (97,284)	$ 12,095,547
Stock-based compensation expense	—	—	41,908	—	—	41,908
Distributions to non-controlling interest	—	—	—	—	(48,321)	(48,321
Net income (loss)	—	—	—	(930,408)	$ 34,478	(895,930
Balance at September 30, 2024	24,850,261	$ 24,850	$ 57,733,308	$ (46,453,827)	$ (111,127)	$ 11,193,204

Nine Months Ended September 30, 2024	**Common Stock Shares**	**Common Stock $0.001 Par Value**	**Additional Paid-in-Capital**	**Accumulated Deficit**	**Non-controlling Interest**	**Total**
Balance at December 31, 2023	24,850,261	$ 24,850	$ 57,601,402	$ (42,879,656)	$ (94,301)	$ 14,652,295
Stock-based compensation expense	—	—	131,906	—	—	131,906
Distributions to non-controlling interest	—	—	—	—	(96,975)	(96,975
Net income (loss)	—	—	—	(3,574,171)	80,149	(3,494,022
Balance at September 30, 2024	24,850,261	$ 24,850	$ 57,733,308	$ (46,453,827)	$ (111,127)	$ 11,193,204

Three Months Ended September 30, 2023	**Common Stock Shares**	**Common Stock $0.001 Par Value**	**Additional Paid-in-Capital**	**Accumulated Deficit**	**Non-controlling Interest**	**Total**
Balance at June 30, 2023	24,850,261	$ 24,850	$ 57,456,944	$ (40,551,686)	$ (107,512)	$ 16,822,596
Stock-based compensation expense	—	—	68,775	—	—	68,775
Distributions to non-controlling interest	—	—	—	—	(38,855)	(38,855
Net income (loss)	—	—	—	(481,573)	34,346	(447,227
Balance at September 30, 2023	24,850,261	$ 24,850	$ 57,525,719	$ (41,033,259)	$ (112,021)	$ 16,405,289

Nine Months Ended September 30, 2023	**Common Stock Shares**	**Common Stock $0.001 Par Value**	**Additional Paid-in-Capital**	**Accumulated Deficit**	**Non-controlling Interest**	**Total**
Balance at December 31, 2022	24,850,261	$ 24,850	$ 57,351,008	$ (38,281,548)	$ (106,560)	18,987,750
Stock-based compensation expense	—	—	174,711	—	—	174,711
Distributions to non-controlling interest	—	—	—	—	(62,693)	(62,693
Net income (loss)	—	—	—	(2,751,711)	57,232	(2,694,479
Balance at September 30, 2023	24,850,261	$ 24,850	$ 57,525,719	$ (41,033,259)	$ (112,021)	$ 16,405,289

The accompanying notes are an integral part of these condensed consolidated financial statements.

CONDENSED CONSOLIDATED STATEMENTS OF CASH FLOWS
(unaudited)

	Nine Months Ended	
	September 30, 2024	**September 30, 2023**
CASH FLOWS FROM OPERATING ACTIVITIES:		
Consolidated net loss	$ (3,494,022)	$ (2,694,479)
Adjustments to reconcile net loss to net cash used in operating activities:		
Depreciation and amortization	419,744	459,779
Provision for credit losses	29,817	44,000
Stock-based compensation	131,906	174,711
Unrealized (gain) loss on investment securities	—	18,749
Gain on disposition of assets	(8,070)	(19,950)
Non-cash interest expense	25,966	—
Changes in operating assets and liabilities		
(Increase) decrease in:		
Accounts receivable	1,303,300	(1,324,448)
Employee retention credit	—	667,121
Unbilled revenue	119,000	56,994
Inventory	658,194	(165,537)
Prepaid assets and other current assets	(42,578)	(19,128)
Other assets	704,565	491,836
Increase (decrease) in:		
Accounts payable	323,980	1,140,759
Accrued expenses and other current liabilities	133,599	256,847
Deferred revenue	581,485	458,512
Other liabilities	(1,003,881)	(566,016)
Net used in operating activities	(116,995)	(1,020,250)
CASH FLOWS FROM INVESTING ACTIVITIES:		
Purchases of property and equipment	(838,932)	(31,728)
Proceeds from disposition of assets	40,255	16,863
Payment for business acquisition	—	(170,000)
Distributions to non-controlling interest	(96,975)	(62,693)
Net cash used in investing activities	(895,652)	(247,558)
CASH FLOWS FROM FINANCING ACTIVITIES:		
Finance lease principal payments	(56,385)	—
Proceeds from related party notes payable	1,000,000	—
Net cash provided by financing activities	943,615	—
Net decrease in cash and cash equivalents	(69,032)	(1,267,808)
Cash and cash equivalents, beginning of the period	1,351,270	1,913,969
Cash and cash equivalents, end of the period	$ 1,282,238	$ 646,161
Supplemental disclosure of cash flow information:		
Cash paid for interest	$ 22,909	$ 7,385
Cash paid for taxes	$ 22,100	$ 32,252
Non-cash investing activities:		
Aegis Contract and Related Asset Acquisition:		
Accounts receivable credit	$ —	$ 300,000
Accounts payable assumed	—	91,048
Contingent consideration	272,901	1,442,462
Total	$ 272,901	$ 1,833,510

The accompanying notes are an integral part of these condensed consolidated financial statements.

Note 1. Description of Business and Basis of Presentation

Description of Business

Tecogen Inc. (together with its subsidiaries "we", "our", "us" or "Tecogen"), a Delaware corporation, was incorporated on September 15, 2000, and acquired the assets and liabilities of the Tecogen Products division of Thermo Power Corporation. We produce commercial and industrial, natural-gas-fueled engine-driven, combined heat and power (CHP) products that reduce energy costs, decrease greenhouse gas emissions and alleviate congestion on the national power grid. Our products supply electric power or mechanical power for cooling, while heat from the engine is recovered and purposefully used at a facility. The majority of our customers are located in regions with the highest utility rates, typically California, the Midwest and the Northeast.

Our operations are comprised of three business segments. Our Products segment designs, manufactures and sells industrial and commercial cogeneration systems. Our Services segment provides operation and maintenance services to customers for our products. Our Energy Production segment sells energy in the form of electricity, heat, hot water and cooling to our customers under long-term sales agreements.

Our common stock is quoted on OTC Markets Group, Inc.'s OTCQX Best Market tier and trades under the symbol "TGEN."

Liquidity, Going Concern and Management's Plans

The condensed consolidated financial statements have been prepared in accordance with U.S. generally accepted accounting principles assuming that we will continue as a going concern, which contemplates the realization of assets and the settlement of obligations in the normal course of business. As of September 30, 2024, our cash and cash equivalents were $1,282,238, compared to $1,351,270 at December 31, 2023, a decrease of $69,032. For the nine months ended September 30, 2024 we used $116,995 in cash from operations and had a net operating loss of $3,397,075, due to a decrease in Products revenue and gross margin and an increase in operating expenses. Our Service gross margin percentage for the nine months ended September 30, 2024 of 46.4% is below our historical Service gross margins which ranged between 53.0% to 55.0%. Working capital at September 30, 2024 was $6,328,441, compared to $9,822,546 at December 31, 2023, a decrease of $3,494,105 and our accumulated deficit was $46,453,827.

As a result of the above factors, management has performed an analysis to evaluate our ability to continue as a going concern for one year after the financial statements issuance date. Management's analysis includes forecasting future revenues, expenditures and cash flows, taking into consideration past performance as well as key initiatives recently undertaken. Our forecasts are dependent on our ability to maintain margins based on the our ability to close on new and expanded business, leverage existing working capital, and effectively manage expenses. New and expanded business includes the sale and shipment of newly developed hybrid-drive air-cooled chillers, the acquisition of additional maintenance contracts in February 2024 and May 2024 (see Note 7. "Aegis Contract and Related Asset Acquisitions"), and the expansion of markets served by our chiller products into the data center market, which is currently experiencing power constraints. Our backlog at September 30, 2024 was $5,023,267. We have drawn $1,500,000 under the note subscription agreements with related parties (see Note 11. "Related Party Notes"). On October 30, 2024, our Board of Directors authorized management to proceed with an equity offering consisting of a private placement to existing shareholders in an amount of up to $2 million, consisting of one share of common stock, with a warrant to purchase one share of common stock for each share purchased, exercisable within two years. Based on management's analysis, we believe that cash flows from operations, the note agreements and anticipated proceeds from the private placement offering will be sufficient to fund operations over the next twelve months. There can, however, be no assurance we will be able to do so. Based on our analysis, the consolidated financial statements do not include any adjustments to the carrying amounts and classification of assets, liabilities, and reported expenses that may be necessary if we were unable to continue as a going concern. If we do not achieve our revenue, expenditure or cash flows forecast, we may need to raise additional capital through a debt or equity financing to meet our need for capital to fund operations and future growth.

Basis of Presentation

The financial statements have been prepared in accordance with accounting standards set by the Financial Accounting Standards Board, or FASB. The FASB sets generally accepted accounting principles, or GAAP, to ensure financial condition, results of operations, and cash flows are consistently reported. References to GAAP issued by the FASB in these footnotes are to the FASB Accounting Standards Codification, or ASC. We adopted the presentation requirements for noncontrolling interests required by ASC 810 Consolidation. Under ASC 810, earnings or losses attributed to the noncontrolling interests are reported as part of the consolidated earnings and not a separate component of income or expense.

The accompanying condensed consolidated financial statements include our accounts and the accounts of the entities in which we have a controlling financial interest. Those entities include our wholly-owned subsidiary, American DG Energy

Inc. ("ADGE"), Tecogen CHP Solutions, Inc., and a joint venture, American DG New York, LLC, or ADGNY, in which ADGE holds a 51.0% interest. As the controlling partner, all major decisions in respect of ADGNY are made by ADGE in accordance with the joint venture agreement. The interests in the individual underlying energy system projects in ADGNY vary between ADGE and its joint venture partner. The noncontrolling interest and distributions are determined based on economic ownership. The economic ownership is calculated by the amount invested by us and the noncontrolling partner in each site. Each quarter, we calculate a year-to-date profit/loss for each site that is part of ADGNY and the noncontrolling interest percent of economic ownership in each site is applied to determine the noncontrolling interest share in the profit/loss. The same methodology is used to determine quarterly distributions of available cash to the noncontrolling interest partner. On our balance sheet, noncontrolling interest represents the joint venture partner's investment in ADGNY, plus its share of after-tax profits less any cash distributions. ADGE owned a controlling 51.0% legal and economic interest in ADGNY as of September 30, 2024 and December 31, 2023.

The unaudited interim condensed consolidated financial statements have been prepared on the same basis as the annual audited financial statements and, in the opinion of management, reflect all adjustments, which include only normal recurring adjustments, necessary for the fair statement of our financial position as of September 30, 2024 and the results of operations and cash flows for the three and nine months ended September 30, 2024 and 2023. The financial data and other information disclosed in these notes for the three and nine months ended September 30, 2024 and 2023 are also unaudited. The operating results for the nine months ended September 30, 2024 are not necessarily indicative of the results that may be expected for the year ending December 31, 2024. Certain reclassifications of prior year amounts have been made to conform to the present year presentations. All intercompany transactions have been eliminated in consolidation.

The condensed consolidated balance sheet at December 31, 2023 has been derived from the audited consolidated financial statements at that date but does not include all of the information and footnotes required by generally accepted accounting principles for complete financial statements.

For further information, refer to the consolidated financial statements and footnotes thereto included in Tecogen's Annual Report on Form 10-K for the year ended December 31, 2023.

Use of Estimates

The preparation of financial statements in conformity with accounting principles generally accepted in the United States of America requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Actual results could differ from those estimates.

Income Taxes

The provisions for income taxes in the accompanying unaudited condensed consolidated statements of operations differ from that which would be expected by applying the federal statutory tax rate due to losses for which no benefit is recognized.

Business Combinations

In accordance with applicable accounting standards, we estimate the fair value of assets acquired and liabilities assumed as of the acquisition date of each business combination. Any excess purchase price over the fair value of the net tangible and intangible assets acquired is allocated to goodwill. We may make certain estimates and assumptions when determining the fair values of assets acquired and liabilities assumed, including intangible assets. Critical estimates in valuing certain intangible assets include but are not limited to future expected cash flows from energy production sites or customer maintenance contracts, estimated operating costs, as well as discount rates. At the acquisition date, we will also record acquisition related liabilities, if applicable, for any contingent consideration or deferred payments to the seller. Contingent consideration is recorded at fair value on the acquisition date based on our expectation of achieving the contractually defined revenue targets. The fair value of the contingent consideration liabilities is remeasured each reporting period after the acquisition date and any changes in the estimated fair value are reflected as gains or losses in general and administrative expense in the consolidated statement of operations. Contingent consideration liabilities and deferred payments to sellers are recorded as current liabilities and long-term liabilities in the consolidated balance sheets based on the expected timing of settlement.

Management's estimates of fair value are based upon assumptions believed to be reasonable, but which are inherently uncertain and unpredictable and, as a result, actual results may differ from estimates. Any changes to provisional amounts identified during the measurement period are recognized in the reporting period in which the adjustment amounts are determined. Transaction costs associated with business combinations are expensed as incurred.

Segment Information

Our operations are comprised of three (3) business segments. Our Products segment designs, manufactures and sells industrial and commercial cogeneration systems. Our Services segment installs and maintains our cogeneration systems. Our Energy Production segment sells energy in the form of electricity, heat, hot water and cooling to our customers under long-term sales agreements.

Recently Issued Accounting Standards

Segment Reporting (Topic 280) - Improvements to Reportable Segment Disclosures. In November 2023, the Financial Accounting Standards Board issued ASU 2023-07, *Segment Reporting (Topic 280) - Improvements to Reportable Segment Disclosures*. The new standard requires enhanced disclosures about a public entity's reportable segments including more detailed information about a reportable segment's expenses. The amendments in this update apply to all public entities that are required to report segment information, and include those entities that have a single reportable segment. The amendments in this update are effective for fiscal years beginning after December 15, 2023, and interim periods within fiscal years beginning after December 15, 2024. Early adoption is permitted. We are currently evaluating the impact on our consolidated financial statements and related disclosures.

Income Taxes (Topic 740) - Improvements to Income Tax Disclosures. In December 2023, the Financial Accounting Standards Board issued ASU 2023-09, *Income Taxes (Topic 740) - Improvements to Income Tax Disclosures*. ASU 2023-09 provides more transparency about income tax information through improvements to income tax disclosures primarily related to the rate reconciliation and income taxes paid information. The amendments in this update are effective for annual periods beginning after December 15, 2024. Early adoption is permitted. We are currently evaluating the impact on our consolidated financial statements and related disclosures.

Note 2. Revenue

Revenue is recognized when performance obligations under the terms of a contract with our customer are satisfied; generally this occurs with the transfer of control of our products, services and energy production. Revenue is measured as the amount of consideration we expect to receive in exchange for transferring goods or providing services or energy to customers.

Shipping and handling fees billed to customers in a sales transaction are recorded in revenue and shipping and handling costs incurred are recorded in cost of sales. We have elected to exclude from revenue any value-added sales and other taxes which we collect concurrent with revenue-producing activities. These accounting policy elections are consistent with the manner in which we historically recorded shipping and handling fees and value-added taxes. Incremental costs incurred by us to obtain a contract with a customer are negligible, if any, and are expensed ratably in proportion to the related revenue recognized.

Disaggregated Revenue

In general, our business segmentation is aligned according to the nature and economic characteristics of our products and customer relationships and provides meaningful disaggregation of each business segment's results of operations. The following table further disaggregates our revenue by major source by segment for the three and nine months ended September 30, 2024 and 2023.

	Three Months Ended		Nine Months Ended	
	September 30, 2024	September 30, 2023	September 30, 2024	September 30, 2023
Products:				
Cogeneration	$ 1,294,453	$ 898,692	$ 2,188,355	$ 1,869,699
Chiller	37,979	1,935,165	695,040	4,692,080
Engineered Accessories	58,584	104,932	118,692	532,777
Total Products Revenue	1,391,016	2,938,789	3,002,087	7,094,556
Services	3,850,551	3,842,600	11,991,378	10,931,744
Energy production	388,563	331,141	1,550,549	1,214,806
Total revenues	$ 5,630,130	$ 7,112,530	$ 16,544,014	$ 19,241,106

Products Segment

Products. Our Product revenues include cogeneration systems that supply electricity and hot water, chillers that provide air-conditioning and hot water and engineered accessories, which consist of ancillary products and parts necessary to install a cogeneration unit including integration into the customers' existing electrical and mechanical systems. We refer to the package of engineered accessories and engineering and design services necessary for the customers' installation of a cogeneration unit as light installation services.

We transfer control and generally recognize a sale when we ship a product from our manufacturing facility at which point the customer takes ownership of the product. Payment terms on product sales are generally 30 days. We recognize revenue in certain circumstances before delivery to the customer has occurred (commonly referred to as bill and hold transactions). We recognize revenue related to such transactions once, among other things, the customer has made a written fixed commitment to purchase the product(s) under normal billing and credit terms, the customer has requested the product(s) be held for future delivery as scheduled and designated by them, risk of ownership has been assumed by the customer, and the product(s) are tagged as sold and segregated for storage awaiting further direction from the customer. Due to the infrequent nature and duration of bill and hold arrangements, the value associated with custodial storage services is deemed immaterial in the context of the contract and in total, and, accordingly, none of the transaction price is allocated to such service.

Depending on the product and terms of the arrangement, we may defer the recognition of a portion of the transaction price received because we have to satisfy a future obligation (e.g., product start-up service). Amounts allocated to product start-up services are recognized as revenue when the start-up service has been completed. We use an observable selling price to determine standalone selling prices where available and either a combination of an adjusted market assessment approach, an expected cost plus a margin approach, and/or a residual approach to determine the standalone selling prices for separate performance obligations as a basis for allocating contract consideration when an observable selling price is not available. Amounts received but not recognized pending completion of performance are recognized as contract liabilities and are recorded as deferred revenue along with deposits by customers.

Services Segment

Maintenance Services. Maintenance services are provided under either long-term maintenance contracts or time and material maintenance contracts. Revenue under time and material maintenance contracts is recognized when the maintenance service is completed. Revenue under long-term maintenance contracts is recognized either ratably over the term of the contract where the contract price is fixed or when the periodic maintenance activities are completed and the invoiced cost to the customer is based on run hours or kilowatts produced in a given period. We use an output method to measure progress towards completion of our performance obligation which results in the recognition of revenue on the basis of a direct measurement of the value to the customer of the services transferred to date relative to the remaining services promised under the contract. We use the practical expedient at ASC 606-10-55-18 of recognizing revenue in an amount equal to the amount we have the right to invoice the customer under the contract. Revenues resulting from the Aegis acquisition (see Note 7. Aegis Contract and Related Asset Acquisitions) have been included in our revenue from the Services segment since April 1, 2023. Payment terms for maintenance services are generally 30 days.

Energy Production Segment

Energy Production. Revenue from energy contracts is recognized when electricity, heat, hot and/or chilled water is produced by our owned on-site cogeneration systems. Each month we bill the customer and recognize revenue for the various forms of energy delivered, based on meter readings which capture the quantity of the various forms of energy delivered in a given month under a contractually defined formula which takes into account the current month's cost of energy from the local power utility.

As the various forms of energy delivered by us under energy production contracts are simultaneously delivered and consumed by the customer, our performance obligation under these contracts is considered to be satisfied over time. We use an output method to measure progress towards completion of our performance obligation which results in the recognition of revenue on the basis of a direct measurement of the value to the customer of the services transferred to date relative to the remaining services promised under the contract. We use the practical expedient at ASC 606-10-55-18 of recognizing revenue in an amount equal to that amount to which we have the right to invoice the customer under the contract. Payment terms on invoices under these contracts are generally 30 days.

Contract Balances

The timing of revenue recognition, billings and cash collections result in billed accounts receivable, unbilled revenue (contract assets) and deferred revenue, consisting of customer deposits and billings in excess of revenue recognized (contract liabilities) on the condensed consolidated balance sheets.

We did not recognize any revenue during the nine months ended September 30, 2024 that was included in unbilled revenue as of September 30, 2024.

Revenue recognized during the nine months ended September 30, 2024 that was included in deferred revenue at the beginning of the period was approximately $668,185.

Remaining Performance Obligations

Remaining performance obligations related to ASC 606 represent the aggregate transaction price allocated to performance obligations with an original contract term of greater than one year, excluding certain maintenance contracts and all energy production contracts where a direct measurement of the value to the customer is used as a method of measuring progress towards completion of our performance obligation. Exclusion of these remaining performance obligations is due in part to the inability to quantify values based on unknown future levels of delivery and in some cases rates used to invoice customers. Remaining performance obligations therefore consist of unsatisfied or partially satisfied performance obligations related to fixed price maintenance contracts and installation contracts.

As of September 30, 2024, the aggregate amount of the transaction price allocated to remaining performance obligations was approximately $2,598,302. We expect to recognize revenue of approximately 59.4% of the remaining performance obligations over the next 24 months, 53.1% recognized in the first 12 months and 6.3% recognized over the subsequent 12 months and the balance thereafter.

Note 3. Income (Loss) Per Common Share

Basic and diluted income (loss) per share for the three and nine months ended September 30, 2024 and 2023, respectively, were as follows:

	Three Months Ended		Nine Months Ended	
	September 30, 2024	September 30, 2023	September 30, 2024	September 30, 2023
Numerator:				
Net loss available to stockholders	$ (930,408)	$ (481,573)	$ (3,574,171)	$ (2,751,711)
Denominator:				
Weighted average shares outstanding - Basic	24,850,261	24,850,261	24,850,261	24,850,261
Effect of dilutive securities:				
Stock options	—	—	—	—
Weighted average shares outstanding - Diluted	24,850,261	24,850,261	24,850,261	24,850,261
Basic loss per share	$ (0.04)	$ (0.02)	$ (0.14)	$ (0.11)
Diluted loss per share	$ (0.04)	$ (0.02)	$ (0.14)	$ (0.11)
Anti-dilutive shares underlying stock options outstanding	1,726,086	1,829,051	1,726,086	1,829,051

Note 4. Inventories, net

Inventories at September 30, 2024 and December 31, 2023 consisted of the following:

	September 30, 2024	December 31, 2023
Raw materials, net	$ 8,654,755	$ 8,803,054
Work-in-process	657,831	798,522
Finished goods, net	582,640	951,843
Total inventories, net	$ 9,895,226	$ 10,553,419

Note 5. Property, Plant and Equipment, net

Property, plant and equipment at September 30, 2024 and December 31, 2023 consisted of the following:

	Estimated Useful Life (in Years)	September 30, 2024	December 31, 2023
Energy systems	10 - 15 years	$ 2,810,232	$ 2,810,232
Machinery and equipment	5 - 7 years	1,639,719	1,744,596
Furniture and fixtures	5 years	224,869	212,963
Computer software	3 - 5 years	192,865	192,865
Leasehold improvements	*	2,685	466,789
Construction in progress		786,507	—
		5,656,877	5,427,445
Less - accumulated depreciation and amortization		(3,957,479)	(4,264,868)
Property, plant and equipment, net		$ 1,699,398	$ 1,162,577

* Lesser of estimated useful life of asset or lease term

Depreciation and amortization expense on property and equipment for the three and nine months ended September 30, 2024 and 2023 was $101,780 and $307,491 and $112,783 and $352,192, respectively. Construction in progress are costs incurred since April 1, 2024 for initial improvements required to the North Billerica, Massachusetts leased premises which are estimated to range between $850,000 and $1,000,000.

Note 6. Intangible Assets and Liabilities Other Than Goodwill

As of September 30, 2024 and December 31, 2023 we had the following amounts related to intangible assets and liabilities other than goodwill:

	September 30, 2024			December 31, 2023		
Intangible assets	**Cost**	**Accumulated Amortization**	**Total**	**Cost**	**Accumulated Amortization**	**Total**
Product certifications	$ 777,465	$ (702,099)	$ 75,366	$ 777,465	$ (658,676)	$ 118,789
Patents	888,910	(562,581)	326,329	888,910	(496,807)	392,103
Developed technology	240,000	(184,000)	56,000	240,000	(172,000)	68,000
Trademarks	26,896	—	26,896	26,896	—	26,896
In Process R&D	263,936	(131,968)	131,968	263,936	(103,689)	160,247
Favorable contract asset	384,465	(378,914)	5,551	384,465	(376,139)	8,326
Customer contracts	2,225,123	(242,827)	1,982,296	1,772,659	(110,791)	1,661,868
	$ 4,806,795	$ (2,202,389)	$ 2,604,406	$ 4,354,331	$ (1,918,102)	$ 2,436,229
Intangible liability						
Unfavorable contract liability	$ 2,618,168	$ (2,153,591)	$ 464,577	$ 2,618,168	$ (2,019,122)	$ 599,046

The aggregate amortization expense related to intangible assets exclusive of contract related intangibles for the three and nine months ended September 30, 2024 and 2023 was $46,127 and $149,476 and $55,718 and $164,229. The net aggregate amortization expense (credit) related to the amortization of the contract related intangible assets and liabilities for the three and nine months ended September 30, 2024 and 2023 was $6,015 and $342 and $3,182 and $(53,295) respectively

Contract and Non-Contracted Related Intangibles

The favorable contract asset and unfavorable contract liability in the foregoing table represent the estimated fair value of American DG Energy's customer contracts (both positive for favorable contracts and negative for unfavorable contracts) which were acquired by us in May 2017. The customer contract asset includes the maintenance contracts acquired by us on

April 1, 2023, February 1, 2024 and May 1, 2024, as part of the Aegis acquisition (see Note 7. "Aegis Contract and Related Asset Acquisition.")

Amortization of intangibles including contract related amounts is calculated using the straight-line method over the remaining useful life or contract term, which range from approximately1-11 years, and is charged against cost of sales and general & administrative expenses in the accompanying consolidated statement of operations. Aggregate future amortization over the next five years and thereafter as of September 30, 2024 is estimated to be as follows:

	Non-contract Related Intangibles	Contract Related Intangibles	Total
Year 1	$ 165,671	$ 60,901	$ 226,572
Year 2	163,235	117,272	280,507
Year 3	162,227	128,634	290,861
Year 4	57,013	137,208	194,221
Year 5	31,388	137,208	168,596
Thereafter	10,129	942,047	952,176
Total	$ 589,663	1,523,270	$ 2,112,933

Note 7. Aegis Contract and Related Asset Acquisitions

On March 15, 2023, we entered into an agreement ("Agreement") with Aegis Energy Services, LLC (“Aegis”) pursuant to which Aegis agreed to assign to us and we agreed to assume certain Aegis maintenance agreements and agreed to purchase certain assets from Aegis, and related matters (“Acquisition”). On April 1, 2023, the Acquisition closed. Under the Agreement, we agreed to acquire from Aegis and assume Aegis’ rights and obligations arising on or after April 1, 2023, under maintenance agreements pursuant to which Aegis provided maintenance services to third parties for approximately 200 cogeneration systems and we agreed to acquire from Aegis certain vehicles and inventory used by Aegis in connection with the performance of its maintenance services. At closing, we acquired eight (8) Aegis vehicles for consideration consisting of $170,000 in cash. Also, we issued credits against outstanding accounts receivable due from Aegis in the amount of $300,000 for the acquisition of inventory that Aegis used to provide maintenance services. At closing, we hired eight (8) Aegis employees who, following the closing, have agreed to continue to provide maintenance services relating to the cogeneration systems covered by the maintenance agreements assumed pursuant to the Agreement. Following the closing and for a period of up to seven (7) years, we agreed to pay Aegis a percentage of the revenue collected for maintenance services provided pursuant to the maintenance agreements acquired from Aegis. The Agreement contained certain indemnification provisions and agreements on the part of Aegis and for each party to cooperate with each other and provide certain transitional assistance. We acquired the Aegis maintenance agreements to expand our Service portfolio and to benefit from the long-term contract revenue stream generated by these agreements.

On February 1, 2024, Tecogen and Aegis amended the Agreement to add eighteen (18) additional maintenance contracts assumed by us (the "February 2024 Amendment") which includes an undertaking by Aegis to use commercially reasonable efforts to support and assist our execution of maintenance service agreements for an additional thirty-six (36) cogeneration units sold to customers by Aegis. No additional maintenance service agreements contemplated in the February 2024 Amendment have been executed as of September 30, 2024.

On May 1, 2024, Tecogen and Aegis amended the Agreement to add thirty-one (31) additional maintenance contracts assumed by us (the "May 2024 Amendment") which includes an undertaking by Aegis to use commercially reasonable efforts to support and assist our execution of maintenance service agreements for an additional forty-eight (48) cogeneration units sold to customers by Aegis. No additional maintenance service agreements contemplated in the May 2024 Amendment have been executed as of September 30, 2024.

We have determined that the assignment and assumption of the Aegis maintenance agreements, in combination with the related asset acquisition and the retention of the former Aegis employees, constitutes a business and should be accounted for as a business combination under the acquisition method. As of the acquisition date, we recognized, separately from goodwill, the identifiable assets acquired and the liabilities assumed, at fair value. We have applied an interpretation of the guidance in ASC 805, Business Combinations, that allows an entity to combine multiple acquisitions as one single transaction due to the April 1, 2023, February 1, 2024 and May 1, 2024 acquisitions being executed in contemplation of one another to achieve the same commercial objective for the Company. As a result, we have adjusted the initial accounting for the April 1, 2023 acquisition for the value of net assets acquired from the February 1, 2024 and May 1, 2024 acquisitions.

We have included the financial results of the Aegis maintenance agreements in our consolidated financial statements from April 1, 2023, from February 1, 2024 and from May 1, 2024, the closing or acquisition dates for the acquisitions.

The following table summarizes the consideration paid for the Aegis acquisitions and the fair value of assets acquired and contract-related liabilities assumed as of the respective acquisition dates for each acquisition along with the combined accounting result:

	April 1, 2023	February 1, 2024	May 1, 2024	Total
Consideration Paid:				
Cash	$ 170,000	$ —	$ —	$ 170,00
Accounts receivable credit issued	300,000	—	—	300,00
Account payable due to Aegis	91,048	—	—	91,04
Contingent consideration	1,256,656	101,641	171,260	1,529,55
Total fair value of consideration transferred	1,817,704	101,641	171,260	2,090,60
Identifiable assets acquired and liabilities assumed:				
Assets acquired				
Property, plant and equipment	170,000	—	—	170,00
Inventory	391,048	—	—	391,04
Identifiable intangible asset - customer contracts	1,772,659	184,587	267,877	2,225,12
	2,333,707	184,587	267,877	2,786,17
Acquired contract-related liabilities assumed				
Deferred maintenance reserve	(853,271)	—	—	(853,27
	(853,271)	—	—	(853,27
Net identifiable assets acquired	1,480,436	184,587	267,877	1,932,90
Excess of cost over fair value of net assets acquired (Goodwill)	$ 337,268	$ (82,946)	$ (96,617)	$ 157,70

Initial Acquisition - April 1, 2023

The amounts initially recognized for inventory, identifiable intangible assets, contingent consideration and deferred maintenance reserves were provisional pending completion of the necessary valuations and analysis. ASC 805 establishes a measurement period to provide companies with a reasonable amount of time to obtain the information necessary to identify and measure various items in a business combination and cannot extend beyond one year from the acquisition date. As of December 31, 2023, we have completed our analysis and valuation.

As of September 30, 2024, we recorded no adjustments to the fair value of the contingent consideration and deferred maintenance reserves given the probability of achieving the revenue estimates and the actual and expected maintenance costs were consistent with our initial valuation.

February 2024 Amendment

The amounts initially recognized for identifiable intangible assets and contingent consideration are provisional, pending completion of the necessary valuations and analysis. ASC 805 establishes a measurement period to provide companies with a reasonable amount of time to obtain the information necessary to identify and measure various items in a business combination and cannot extend beyond one year from the acquisition date. During the nine months ended September 30, 2024, we identified a $9,232 adjustment to increase the contingent consideration liability and a $5,052 adjustment reducing the customer contracts intangible asset. As of September 30, 2024, we have not completed our analysis and valuation for the February 2024 amendment.

May 2024 Amendment

The amounts initially recognized for identifiable intangible assets and contingent consideration are provisional pending completion of the necessary valuations and analysis. ASC 805 establishes a measurement period to provide companies with a reasonable amount of time to obtain the information necessary to identify and measure various items in a business combination and cannot extend beyond one year from the acquisition date. As of September 30, 2024, we have not completed our analysis and valuation for the May 2024 amendment.

Acquisition Valuation

The fair value of the identifiable intangible asset was estimated using the income approach. The excess cash flow was discounted to present value using an appropriate rate of return to estimate the market value of the customer identifiable intangible asset and the risks associated with the future revenue forecasts due to potential changes in customer energy requirements or changes in the economic viability of these CHP sites which depend on the spread between natural gas fuel and electricity prices, all of which are not within our control. Key assumptions to value the customer identifiable intangible asset included the discount rate of 15%, profitability assumptions, revenue assumptions, and anticipated existing contract run out were the material assumptions utilized in the discounted cash flow model used to estimate fair value. The discount rate reflects an estimate of our weighted-average cost of capital.

Following the closing and for a period of up to seven (7) years, we agreed to pay Aegis contingent consideration equal to a percentage of the revenue collected for maintenance services provided pursuant to the maintenance agreements acquired from Aegis. On the date of acquisition, the fair value of the contingent consideration and the deferred maintenance reserve were calculated under the income approach using a weighted average cost of capital of 15%, discounting the future cash flows to present value, and are subsequently remeasured to fair value at each reporting date until the fair value contingencies are resolved. Fair value adjustments which may be determined at subsequent reporting dates will be recorded in our consolidated statements of operations and will not impact the goodwill balance after the measurement period.

The contingent consideration is payable within forty-five (45) days following the end of each calendar quarter through the earlier of the expiration or termination of the relevant maintenance agreements, or the seventh (7th) anniversary of the acquisition date. The consideration is equal to the product of the revenues collected in a calendar quarter multiplied by an applicable percentage. The agreement stipulates quarterly aggregate revenue targets and an applicable percentage, and provides for a higher applicable percentage if revenues exceed the target revenues. The applicable percentage ranges from 5% to 10% over the agreement term. The deferred maintenance reserve represents costs, which are expected to be incurred over a three-year period from the date of acquisition to repair customer equipment which had not been sufficiently maintained prior to our acquisition of the maintenance service agreements.

The purchase price of the acquisition was allocated to the tangible and intangible assets acquired and liabilities assumed and recognized at their fair value based on widely accepted valuation techniques in accordance with ASC 820, "Fair Value Measurement," as of the acquisition date. The process for estimating fair value requires the use of significant assumptions and estimates of future cash flows and developing appropriate discount rates. The excess of the purchase price over fair value of the net identified assets acquired and liabilities assumed was recorded as goodwill. Goodwill is primarily attributable to the going concern element of the Aegis business, including its assembled workforce and the long-term nature of the customer maintenance agreements, as well as anticipated cost synergies due primarily to the elimination of administrative overhead. Goodwill resulting from the Aegis acquisition is not expected to be deductible for income tax purposes.

Acquisition-related costs which consisted on recurring internal resources were de minimus and such costs were expensed as incurred (ASC 805-50-30-1).

The following table summarizes the contract-related liabilities assumed as of September 30, 2024 and December 31, 2023:

	September 30, 2024	December 31, 2023
Acquisition liabilities, current		
Contingent consideration	$ 284,289	$ 200,639
Deferred maintenance reserve	527,443	644,724
	811,732	845,363
Acquisition liabilities, long-term		
Contingent consideration	1,078,829	994,743
Deferred maintenance reserve	46,759	187,036
	$ 1,125,588	$ 1,181,779

Revenues and gross profit from the Aegis maintenance contracts were $537,353 and $367,982 and $1,948,900 and $1,324,861, respectively, for the three and nine months ended September 30, 2024. Revenues and gross profit for the three and six months ended September 30, 2023 were $602,724 and $355,698 and $1,231,537 and $766,804, respectively. The revenue and gross profit are included in our Services segment since the date of the respective contract acquisitions.

We are unable to provide the pro forma information required under ASC 805-10-50-2(h) as the disclosure is impracticable since the required pre-acquisition historical information could not be obtained from Aegis.

Note 8. Sale of Energy Producing Assets

During the first quarter of 2019 we recognized two individual sales of energy producing assets for a total of eight power purchase agreements, including the associated energy production contracts, for total consideration of $7 million.

In connection with these assets sales, we entered into agreements with the purchaser to maintain and operate the assets over the remaining periods of the associated energy production contracts (through August 2033 and January 2034, respectively) in exchange for monthly maintenance and operating fees. These agreements contain provisions whereby we have guaranteed to the purchaser a minimum level or threshold of cash flows from the associated energy production contracts. Actual results are compared to the minimum threshold bi-annually and we are contractually obligated to reimburse any shortfall to the purchaser. To the extent actual cash flow results exceed the minimum threshold, we are entitled to fifty percent of such excess under the agreements. Based upon an analysis of these energy producing assets' expected future performance, as of September 30, 2024, we do not expect to make any material payments under the guarantee.

At September 30, 2024, we were due $93,517 under the energy production contracts, representing fifty percent of the excess cash flows above the minimum threshold for the bi-annual period ended December 31, 2023 and the bi-annual period ended June 30, 2024. We expect to receive these funds in the fourth quarter of 2024.

The foregoing agreements also contain provisions whereby we have agreed to make whole the purchaser in the event the counterparty to the energy production contract(s) defaults on or otherwise terminates before the stated expiration of the energy production contract. Should we be required to make whole the purchaser under such provisions, we would be entitled to seek recovery from the counterparty to the energy production contract(s) under a similar provision contained in those contracts in respect of early termination.

We are also responsible under the agreements for site decommissioning costs, if any, in excess of certain threshold amounts by site. Decommissioning of site assets is performed when, if and as requested by the counterparty to the energy production contract upon termination of the energy production contract.

Note 9. Leases

Our leases principally consist of operating leases related to our corporate office, field offices, and our research, manufacturing, and storage facilities and vehicle and other equipment finance leases.

At lease inception, we determine if an arrangement constitutes a lease and whether that lease meets the classification criteria of a finance or operating lease. Some of our lease agreements contain lease components (e.g. minimum rent payments) and non-lease components (e.g. maintenance, labor charges, etc.). We account for each component separately based on the estimated standalone price of each component.

Operating Leases

Operating leases are included in Right-of-use assets, Lease obligations, current and Long-term liabilities - Lease obligations, net of current portion, on the condensed consolidated balance sheets. These assets and liabilities are recognized at the commencement date based on the present value of remaining lease payments over the lease term and using an incremental borrowing rate consistent with the lease terms or implicit rates when readily determinable. For those leases where it is reasonably certain at the commencement date that we will exercise the option to extend the lease, then the lease term will include the lease extension term. Short-term operating leases, which have an initial term of 12 months or less, are not recorded on the balance sheet.

On March 31, 2023, we entered into two lease agreements for two adjoining buildings, located in North Billerica, Massachusetts, containing approximately 26,412 square feet of manufacturing, storage and office space to serve as our headquarters and manufacturing facilities. The lease agreements provide for initial lease terms of five (5) years with two successive options to renew for additional terms of five (5) years. Both leases commenced on January 1, 2024 and require payment of the base rent, real estate taxes, common maintenance expenses and aggregate deposits of $38,200. Our costs for initial improvements required to the leased premises is estimated to range between $850,000 and $1,000,000. The estimated straight-line monthly rent expense for the initial term of the lease is approximately $26,962 per month. In accordance with ASC 842-20-30-1, we recorded the lease liability and right-of-use asset using the discount rate for the lease upon the lease commencement date, January 1, 2024.

On January 1, 2024 we extended our lease for the2,800 square foot Valley Stream, NY service center for an additional three (3) years through December 31, 2026, with an option to renew for an additional term of three (3) years. The straight-line base monthly rent for the extension is $4,560 per month. On February 1, 2024 we entered into a lease agreement for2,063 square feet of office and storage space in East Syracuse, New York for an initial lease term of three (3) years, expiring on January 31, 2027, with an option for an additional lease term of two (2) years. The straight-line base monthly rent for the initial lease term is $1,891 per month. On June 17, 2024, we extended our lease for1,751 square foot Hayward, CA service center for an additional three (3) years through July 31, 2027. The straight-line monthly rent for the extension is $3,662 per month.

The lease on our former headquarters located in Waltham, Massachusetts which consists of approximately43,000 square feet of manufacturing, storage and office space, expired on April 30, 2024. The base monthly rent in 2024 was $44,254.

Lease expense for operating leases, which principally consists of fixed payments for base rent, is recognized on a straight-line basis over the lease term. Operating lease expense for the three and nine months ended September 30, 2024 and 2023 was $164,627 and $631,840 and $209,506 and $616,062, respectively.

Supplemental information related to operating leases for the nine months ended September 30, 2024 and 2023 is as follows:

	Nine Months Ended September 30,	
	2024	2023
Cash paid for amounts included in the measurement of operating lease liabilities	$ 589,455	$ 558,028
Right-of-use assets obtained in exchange for operating lease liabilities	$ 1,547,800	$ —
Weighted-average remaining lease term - operating leases	4.3 Years	3.9 Years
Weighted-average discount rate - operating leases	7.5 %	6.0 %

Supplemental balance sheet information related to operating leases as of September 30, 2024 and December 31, 2023 was as follows:

	September 30, 2024	December 31, 2023
Operating leases		
Right-of-use assets	$ 1,839,031	$ 743,096
Operating lease liability, current	$ 426,498	$ 248,933
Operating lease liability, long-term	1,452,924	523,660
Total operating lease liability	$ 1,879,422	$ 772,593

Finance Leases

Finance leases are included in Right-of-use assets, Lease obligations, current and Long-term liabilities - Lease obligations, net of current portion, on the condensed consolidated balance sheets. These assets and liabilities are recognized at he commencement date based on the present value of remaining lease payments over the lease term and using an incremental borrowing rate consistent with the lease terms or implicit rates when readily determinable. For those leases where it is reasonably certain at the commencement date that we will exercise the option to extend the lease, then the lease term will include the lease extension term. Effective December 19, 2023, we entered into a master finance lease agreement for motor vehicles and acquired five (5) service vehicles. During the three months ended September 30, 2024 we acquired four (4) additional service vehicles under the master finance agreement. On May 21, 2024 we entered into a lease for a waste oil boiler.

Supplemental information for finance leases for the nine months ended September 30, 2024 was as follows:

	September 30, 2024
Right-of-use assets obtained in exchange for finance lease liabilities	$ 256,811
Weighted-average remaining lease term - finance leases	4.5 Years
Weighted-average discount rate - finance leases	9.8 %

Supplemental balance sheet information related to finance leases as of September 30, 2024 and December 31, 2023 is as follows:

	September 30, 2024	December 31, 2023
Finance leases		
Right-of-use assets - motor vehicles	$ 410,841	$ 200,187
Right-of-use assets - boiler	27,282	—
Total finance lease assets	$ 438,123	$ 200,187
Finance lease liability, current	$ 84,814	$ 40,540
Finance lease liability, long-term	315,797	159,647
Total finance lease liability	$ 400,611	$ 200,187

Future minimum lease commitments under non-cancellable operating and finance leases as of September 30, 2024 were as follows:

	Operating Leases	Finance Leases	Total
Year 1	$ 546,070	$ 119,920	$ 665,990
Year 2	545,587	104,844	650,431
Year 3	466,245	104,844	571,089
Year 4	425,465	104,844	530,309
Year 5	117,232	62,375	179,607
Thereafter	75,457	—	75,457
Total lease payments	2,176,056	496,827	2,672,883
Less: imputed interest	296,634	96,216	392,850
Total	$ 1,879,422	$ 400,611	$ 2,280,033

Note 10. Stock-Based Compensation

Stock-Based Compensation

We adopted a 2006 Stock Option and Incentive Plan, or the Plan, under which the Board of Directors may grant incentive or non-qualified stock options and stock grants to key employees, directors, advisors and consultants. The Plan was amended at various dates by the Board of Directors to increase the reserved shares of common stock issuable under the Plan to 3,838,750 as of September 30, 2024, and in June 2017 stockholders approved an amendment to extend the termination date of the Plan to January 1, 2026 ("Amended Plan").

Stock options vest based upon the terms within the individual option grants, with an acceleration of the unvested portion of such options upon a change in control event, as defined in the Amended Plan. The options are not transferable except by will or domestic relations order. The option price per share under the Amended Plan cannot be less than the fair market value of the underlying shares on the date of the grant. The number of shares remaining available for future issuance under the Amended Plan as of September 30, 2024 was 1,021,768.

During the nine months ended September 30, 2024, we did not grant any options to purchase shares of common stock or issue any stock grants under the Amended Plan.

We adopted the 2022 Stock Incentive Plan (the "2022 Plan"), under which the Board of Directors may grant incentive or non-qualified stock options and stock grants to key employees, directors, advisors and consultants. We have reserved 3,800,000 shares of our common stock for issuance pursuant to awards under the 2022 Plan. The adoption of the 2022 Plan was approved by our shareholders on June 9, 2022.

Under the 2022 Plan, stock options vest based upon the terms within the individual option grants, with an acceleration of the unvested portion of such options upon a change in control event, as defined in the 2022 Plan. The options are not transferable except by will or domestic relations order. The option price per share under the 2022 Plan cannot be less than the fair market value of the underlying shares on the date of the grant. The number of shares remaining available for future issuance under the 2022 Plan as of September 30, 2024 was 2,943,750.

During the nine months ended September 30, 2024, we granted non-qualified options to purchase an aggregate of 125,000 shares of common stock under the 2022 Plan at $0.77 per share to certain non-employee directors.

Stock option activity for the nine months ended September 30, 2024 was as follows:

Common Stock Options	Number of Options	Exercise Price Per Share			Weighted Average Exercise Price	Weighted Average Remaining Life	Aggregate Intrinsic Value
Outstanding, December 31, 2023	3,638,122	$ 0.71	- $	10.33	$ 1.49	6.70 years	$ 127,811
Granted	125,000	$0.77			$ 0.77		
Exercised	—						
Canceled and forfeited	(816,590)	$ 0.74	- $	10.33	$ 2.73		
Outstanding, September 30, 2024	2,946,532	$ 0.71	- $	6.74	$ 1.12	6.70 years	$ 148,219
Exercisable, September 30, 2024	1,995,282				$ 1.20		$ 101,109
Vested and expected to vest, September 30, 2024	2,803,845				$ 1.13		$ 141,152

Consolidated stock-based compensation expense for the three and nine months ended September 30, 2024 and 2023 was $41,908 and $131,906 and $68,775 and $174,711, respectively. No tax benefit was recognized related to the stock-based compensation recorded during the period.

At September 30, 2024, the total compensation cost related to unvested stock option awards not yet recognized is $319,544 and this amount will be recognized over a weighted average period of 2.38 years.

Note 11. Related Party Notes

On October 9, 2023, we entered into note subscription agreements with each of John N. Hatsopoulos, a director and principal shareholder of Tecogen, and Earl R. Lewis, III, a director of Tecogen, pursuant to which Mr. Hatsopoulos agreed to provide financing to us of up to $1 million, and Mr. Lewis agreed to provide financing to us of $500,000, and potentially, an additional $500,000 at his discretion. We have the right to determine the amount of the loans at the time of a draw down, subject to the conditions in our agreements with each of Mr. Hatsopoulos and Mr. Lewis discussed below. The loans and terms of the loan agreements were unanimously approved by our board of directors.

The loans bear interest on the outstanding principal at the Internal Revenue Service's Applicable Federal Rate to be determined at the time we issue a promissory note in connection with a loan drawdown. The principal amount and accrued interest of each loan is repayable one year from the date of issuance of the applicable promissory note. A note may be prepaid by us at any time. The principal amount of each loan and accrued interest is subject to mandatory prepayment in the event of a change of control of the registrant. The promissory notes are subject to customary events of default and are transferable provided the conditions to transfer set forth in the promissory notes are satisfied by the noteholder. The proceeds of the loans are expected to be used for general working capital purposes.

On October 10, 2023, we issued a promissory note and borrowed $500,000 from Mr. Hatsopoulos. The loan bears interest at 5.12% per annum. On March 21, 2024, John H. Hatsopoulos amended the terms of the promissory note, dated October 10, 2023, extending the maturity date by one year, making the maturity date October 10, 2025, and agreeing to accept payment in cash or Tecogen common stock. On July 23, 2024, we borrowed an additional $500,000 from Mr. Hatsopoulos, and executed a promissory note with a maturity of one year and interest at 5.06% per annum. On September 18, 2024, we issued a promissory note and borrowed $500,000 from Mr. Lewis. The loan matures on September 18, 2025 and bears interest at 4.57% per annum. At September 30, 2024 our obligation to Mr. Hatsopoulos under the promissory notes, inclusive of $29,466 of accrued and unpaid interest, was $1,029,466 and our obligation to Mr. Lewis under the promissory note, inclusive of $762 of accrued and unpaid interest of, was $500,762.

Note 12. Fair Value Measurements

The fair value topic of the FASB Accounting Standards Codification defines fair value as the exchange price that would be received for an asset or paid to transfer a liability (an exit price) in the principal or most advantageous market for the asset or liability in an orderly transaction between market participants on the measurement date. The accounting guidance also establishes a fair value hierarchy which requires an entity to maximize the use of observable inputs, where available, and minimize the use of unobservable inputs when measuring fair value. There are three levels of inputs that may be used to measure fair value:

Level 1 - Unadjusted quoted prices in active markets for identical assets or liabilities. We currently do not have any Level 1 financial assets or liabilities.

Level 2 - Observable inputs other than quoted prices included in Level 1. Level 2 inputs include quoted prices for identical assets or liabilities in non-active markets, quoted prices for similar assets or liabilities in active markets and inputs other than quoted prices that are observable for substantially the full term of the asset or liability. We have Level 2 financial assets as provided below.

Level 3 - Unobservable inputs reflecting management's own assumptions about the input used in pricing the asset or liability. We have Level 3 liabilities as provided below.

Available-for-sale equity securities

The following tables present the asset reported in "other assets" in the consolidated balance sheet measured at its fair value on a recurring basis as of September 30, 2024 and 2023 by level within the fair value hierarchy.

	Total	Quoted prices in active markets for identical assets Level 1	Significant other observable inputs Level 2	Significant unobservable inputs Level 3	Gains (losses)
September 30, 2024					
Recurring fair value measurements					
Marketable equity securities					
EuroSite Power Inc.	$ 93,744	$ —	$ 93,744	$ —	$ —
Total recurring fair value measurements	$ 93,744	$ —	$ 93,744	$ —	$ —
September 30, 2023					
Recurring fair value measurements					
Marketable equity securities					
EuroSite Power Inc.	$ 74,995	$ —	$ 74,995	$ —	$ (18,749)
Total recurring fair value measurements	$ 74,995	$ —	$ 74,995	$ —	$ (18,749)

We utilize a Level 2 category fair value measurement to value its investment in EuroSite Power, Inc. as a marketable equity security at period end. That measurement is equal to the quoted market closing price at period end. Since this security is not actively traded we classify it as Level 2.

The following table summarizes changes in Level 2 assets which are comprised of marketable equity securities for the nine months ended September 30, 2024 and 2023:

Fair value at December 31, 2023	$ 93,744
Unrealized gains (losses)	—
Fair value at September 30, 2024	$ 93,744
Fair value at December 31, 2022	$ 93,744
Unrealized losses	(18,749)
Fair value at September 30, 2023	$ 74,995

Contingent Contract Consideration

We utilize a Level 3 category fair value measurement to value the contingent contract consideration liability at period end since there are no quoted prices for this liability in non-active markets, there are no quoted prices for similar liabilities in active markets and there are no inputs that are observable for substantially the full term of the liability. The contingent contract consideration calculation requires management to make estimates and assumptions that affect the reported amount of the liability. The contingent contract consideration is payable each calendar quarter through the earlier of the expiration or termination of the relevant maintenance agreements, or the seventh (7th) anniversary of the acquisition date. The consideration is equal to the product of the revenues collected in a calendar quarter multiplied by an applicable percentage. The agreement stipulates quarterly aggregate revenue targets and an applicable percentage, and provides for a higher applicable percentage if revenues exceed the target revenues. The applicable percentage ranges from 5% to 10% over the agreement term. On the date of acquisition, the fair value of the contingent consideration was calculated using a weighted average cost of capital of 15%, discounting the future cash flows to present value.

	Total	Quoted prices in active markets for identical assets Level 1	Significant other observable inputs Level 2	Significant unobservable inputs Level 3	Total gains (losses)
September 30, 2024					
Recurring fair value measurements					
Contingent contract consideration					
Current	$ 284,289	$ —	$ —	$ 284,289	$
Long-term	1,078,829	—	—	1,078,829	
Total recurring fair value measurements	$ 1,363,118	$ —	$ —	$ 1,363,118	$
September 30, 2023					
Recurring fair value measurements					
Contingent contract consideration					
Current	$ 205,246	$ —	$ —	$ 205,246	$
Long-term	1,206,077	—	—	1,206,077	
Total recurring fair value measurements	$ 1,411,323	$ —	$ —	$ 1,411,323	$

Note 13. Segments

As of September 30, 2024, we were organized intothree operating segments through which senior management evaluates our business. These segments, as described in more detail in Note 1, are organized around the products, services and energy production that we provide to customers and represent our reportable segments. The following table presents information by reportable segment for the three and nine months ended September 30, 2024 and 2023:

	Products	Services	Energy Production	Corporate, other and elimination (1)	Total
Three Months Ended September 30, 2024					
Revenue - external customers	$ 1,391,016	$ 3,850,551	$ 388,563	$ —	$ 5,630,130
Intersegment revenue	—	59,156	—	(59,156)	$ —
Total revenue	$ 1,391,016	$ 3,909,707	$ 388,563	$ (59,156)	$ 5,630,130
Gross profit	$ 593,806	$ 1,711,510	$ 175,598	$ —	$ 2,480,914
Identifiable assets	$ 9,200,050	$ 12,414,637	$ 3,077,535	$ 2,788,065	$ 27,480,287
Nine Months Ended September 30, 2024					
Revenue - external customers	$ 3,002,087	$ 11,991,378	$ 1,550,549	$ —	$ 16,544,014
Intersegment revenue	—	258,356	—	(258,356)	$ —
Gross profit	$ 983,353	$ 5,568,264	$ 584,109	$ —	$ 7,135,726
Identifiable assets	$ 9,200,050	$ 12,414,637	$ 3,077,535	$ 2,788,065	$ 27,480,287
Three Months Ended September 30, 2023					
Revenue - external customers	$ 2,938,789	$ 3,842,600	$ 331,141	$ —	$ 7,112,530
Intersegment revenue	—	48,085	—	(48,085)	—
Total revenue	$ 2,938,789	$ 3,890,685	$ 331,141	$ (48,085)	$ 7,112,530
Gross profit	$ 1,269,042	$ 1,496,216	$ 160,763	$ —	$ 2,926,021
Identifiable assets	$ 10,591,087	$ 13,270,545	$ 3,203,776	$ 2,121,337	$ 29,186,745
Nine Months Ended September 30, 2023					
Revenue - external customers	$ 7,094,556	$ 10,931,744	$ 1,214,806	$ —	$ 19,241,106
Intersegment revenue	—	202,442	—	(202,442)	—
Total revenue	$ 7,094,556	$ 11,134,186	$ 1,214,806	$ (202,442)	$ 19,241,106
Gross profit	$ 2,593,785	$ 4,771,889	$ 486,682	$ —	$ 7,852,356
Identifiable assets	$ 10,591,087	$ 13,270,545	$ 3,203,776	$ 2,121,337	$ 29,186,745

(1) Corporate, intersegment revenue, other and elimination includes various corporate assets.

Note 14. Subsequent Events

We have evaluated events through the date of this filing, and, except as described below, have determined that no material subsequent events occurred that would require recognition in the consolidated financial statements or disclosure in the notes thereto.

On October 30, 2024, our Board of Directors authorized management to proceed with an equity offering consisting of a private placement to existing shareholders in an amount of up to $2 million, consisting of one share of common stock, with a warrant to purchase one share of common stock for each share purchased, exercisable within two years.

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

This Management's Discussion and Analysis of Financial Condition and Results of Operations and other parts of this Quarterly Report on Form 10-Q ("Form 10-Q") contain forward-looking statements, within the meaning of the Private Securities Litigation Reform Act of 1995, that involve risks and uncertainties. Any statements contained herein that are not statements of historical fact may be deemed to be forward-looking statements. Forward-looking statements provide current expectations of future events based on certain assumptions and include any statement that does not directly relate to any historical or current fact. Forward-looking statements can also be identified by words such as "future," "anticipates," "believes," "estimates," "expects," "intends," "plans," "predicts," "will," "would," "could," "can," "may," and similar terms. Forward-looking statements are not guarantees of future performance and our actual results may differ significantly from the results discussed in the forward-looking statements. Such forward-looking statements include, among other things, demand for our products and services, the availability of incentives, rebates, and tax benefits relating to our products, changes in the regulatory environment relating to our products, competing technological developments, and the availability of financing to fund our operations and growth. Factors that might cause such differences include, but are not limited to, those discussed in Part I, Item 1A of our Annual Report on Form 10-K for the year ended December 31, 2023 ("2023 Form 10-K"), as supplemented, and Part II, Item 1A of this Form 10-Q, in each case under the heading "Risk Factors." The following discussion should be read in conjunction with the 2023 Form 10-K filed with the Securities and Exchange Commission ("SEC") and the condensed consolidated financial statements and accompanying notes included in Part I, Item 1 of this Form 10-Q. Each of the terms "Tecogen," "we," "our," and "us" as used herein refer collectively to Tecogen Inc. and our wholly owned subsidiaries, unless otherwise stated. While we may elect to update forward-looking statements in the future, we specifically disclaim any obligation to do so, even if our estimates change, and you should not rely on those forward-looking statements as representing ours views as of any date subsequent to the date of the filing of this Form 10-Q.

Recent Developments

Private Placement Offering

On October 30, 2024, our Board of Directors authorized management to proceed with an equity offering consisting of a private placement to existing shareholders in an amount of up to $2 million, consisting of one share of common stock, with a warrant to purchase one share of common stock for each share purchased, exercisable within two years.

Assumption of Aegis Energy Services Maintenance Agreements

On March 15, 2023, we entered into an agreement ("Agreement") with Aegis Energy Services, LLC ("Aegis") pursuant to which Aegis agreed to assign to us and we agreed to assume certain Aegis maintenance agreements, we agreed to purchase certain assets, and related matters ("Acquisition"). On April 1, 2023, the Acquisition closed. Under the Agreement, we agreed to acquire from Aegis and assume Aegis' rights and obligations arising on or after April 1, 2023 under maintenance agreements pursuant to which Aegis provided maintenance services for approximately 200 cogeneration systems, and acquired certain vehicles and inventory used by Aegis in connection with the performance of such maintenance services, and, following closing hired eight (8) Aegis employees to provide services with respect to such maintenance agreements. At closing, we acquired eight (8) Aegis vehicles for consideration consisting of $170,000 in cash. Also, we issued credits against outstanding accounts receivable due from Aegis in the amount of $300,000 for the acquisition of inventory that Aegis used to provide maintenance services.

On February 1, 2024, Tecogen and Aegis amended the Agreement to add eighteen (18) additional maintenance service agreements (the "Amendment"). The Amendment includes an undertaking by Aegis to use commercially reasonable efforts to support and assist our execution of maintenance service agreements for an additional thirty-six (36) cogeneration units sold to customers by Aegis.

On May 1, 2024, Tecogen and Aegis amended the Agreement to add thirty-one (31) additional maintenance contracts (the "Second Amendment"). The Second Amendment includes an undertaking by Aegis to use commercially reasonable efforts to support and assist our execution of maintenance service agreements for an additional forty-eight (48) cogeneration units sold to customers by Aegis.

See Note 7. "Aegis Contract and Related Asset Acquisitions "of the Notes to the Consolidated Financial Statements.

Factory Move

In April, 2024, Tecogen moved its manufacturing operations and corporate offices from 45 First Ave, Waltham, MA to 76 Treble Cove Road, Building 1, North Billerica, MA. As a result of the move, product revenues were impacted during the second and third quarters of 2024. The factory move also necessitated construction activities to install equipment test cells and comply with local regulations. We resumed manufacturing operations during the later-half of the third quarter of 2024.

Impact of Anti-fossil Fuel Sentiment

In some key markets such as New York City, the regulatory push to eliminate fossil fuels from buildings has impacted cogeneration unit sales. The Company believes that as regulations take into account scope 2 emissions, products like our hybrid chiller that can choose the cleanest fuel source will have a significant advantage in decarbonization efforts.

Impact of Utility Power Constraints and Data Center Construction

As more load is added to the utility grid in the form of data centers, EV charging, and other demands for power, customers are facing power constraints. Tecogen believes that these power constrained customers, in particular data centers and industrial facilities represent a significant opportunity for growth. The customer need is driven by ability to expand an existing facility or open a new facility quickly while taking advantage of utility expense savings long term. Our chiller products can reduce the electrical capacity needed on-site by 30% or more. Our InVerde product can provide on-site power generation which allows customers to eliminate long lead times associated with electrical switch gear and bridge any short fall in power from the utility.

Residual Impacts of Covid

Supply chains were adversely impacted during Covid, resulting in significant delays or lack of availability of critical components such as engines. This has continued to have long term impact on product and service margin. The direct impact has been certain costs increasing faster than inflation. The indirect impact is from increased engine related costs in the service segment as replacements were deferred or overhauled components were used due to lack of parts. We have instituted a service price increase and have also been making engineering improvements to increase service intervals to increase gross margins.

Tecochill Hybrid-Drive Air-Cooled Chiller Development

During the third quarter of 2021 we began development of the Tecochill Hybrid-Drive Air-Cooled Chiller. We recognized that there were many applications where the customer wanted an easy to install roof top chiller. Using the inverter design from our InVerde e+ cogeneration module, the system can simultaneously take two inputs, one from the grid or a renewable energy source and one from our natural gas engine. This allows a customer to seek the optimum blend of operational cost savings and greenhouse gas benefits while providing added resiliency from two power sources. We introduced the Tecochill Hybrid-Drive Air-Cooled Chiller at the AHR Expo in February 2023 and received an order on February 8, 2024 for three hybrid-drive air-cooled chillers for a utility company in Florida. A patent application based on this concept was issued by the US Patent and Trademark Office in March 2024.

Controlled Environment Agriculture

On July 20, 2022, we announced our intention to focus on opportunities for the use of our cogeneration equipment in low carbon Controlled Environment Agriculture ("CEA"). We believe that CEA offers an exciting opportunity to apply our expertise in clean cooling, power generation, and greenhouse gas reduction to address critical issues affecting food and energy security.

CEA facilities enable multiple crop cycles (15 to 20 cycles) in one year compared to one or two crop cycles in conventional farming. In addition, growing produce close to the point of sale reduces food spoilage during transportation. Food crops grown in greenhouses typically have lower yields per square foot than in CEA facilities, and the push to situate facilities close to consumers in cities requires minimizing land area and maximizing yield per square foot. Yields are increased in CEA facilities by supplementing or replacing natural light with grow lights in a climate-controlled environment - which requires significant energy use.

In recent years our cogeneration equipment has been used in numerous cannabis cultivation facilities because our systems reduce the facility's need for power, significantly reduce operating costs and the facility GHG footprint, and offer resiliency to grid outages. Our experience providing clean energy solutions to cannabis cultivation facilities has given us significant insight into requirements relating to energy-intensive indoor agriculture applications that we expect to be transferable to CEA facilities for food production.

Related Party Notes

On October 9, 2023, we entered into note subscription agreements with each of John N. Hatsopoulos, a director and principal shareholder of Tecogen, and Earl R. Lewis, III, a director of Tecogen, pursuant to which Mr. Hatsopoulos agreed to provide financing to us of up to $1 million, and Mr. Lewis agreed to provide financing to us of $500,000, and potentially, an additional $500,000 at his discretion. On October 10, 2023, we issued a promissory note and borrowed $500,000 from Mr. Hatsopoulos, which matures on October 10, 2025. The loan bears interest at 5.12% per annum. On July 23, 2024, we borrowed an additional $500,000 from Mr. Hatsopoulos, and executed a promissory note with a maturity of one year and interest at 5.06% per annum. On September 18, 2024, we issued a promissory note and borrowed $500,000 from Mr. Lewis. The loan matures on September 18, 2025 and bears interest at 4.57% per annum. See Note 11."Related Party Notes" of the Notes to the Consolidated Financial Statements.

Impact of the Geopolitical Tensions

We have no operations or customers in Russia, the Ukraine or in the Middle East. The higher energy prices for natural gas as a result of the war may affect the performance of our Energy Production Segment and the cost differential between grid generated energy and natural gas sourced energy using our cogeneration equipment. However, we have also seen higher electricity prices as much of the electricity production in the United States is generated from fossil fuels. If the electricity prices continue to rise, the economic savings generated by our products are likely to increase. In addition to the direct result of changes in natural gas and electricity prices, the war in Ukraine and the conflict in the Middle East may result in higher cybersecurity risks, increased or ongoing supply chain challenges, and volatility related to the trading prices of commodities.

Overview

Tecogen designs, manufactures, markets, and maintains high efficiency, ultra-clean cogeneration products. These include natural gas engine driven combined heat and power (CHP) systems, chillers and heat pumps for multi-family residential, commercial, recreational and industrial use. We are known for products that provide customers with substantial energy savings, resiliency from utility power outages and for significantly reducing a customer's carbon footprint. Our products are sold with our patented Ultera® technology which nearly eliminates all criteria pollutants such as NOx and CO. Our systems are greater than 88% efficient compared to typical electrical grid efficiencies of 40% to 50%. As a result, our greenhouse gas (GHG) emissions per KwH are typically half that of the electrical grid. Our systems generate electricity and hot water or in the case of our Tecochill product, both chilled water and hot water. These result in savings of energy related costs of up to 60% for our customers. Our products are expected to run on Renewable Natural Gas (RNG) as it is introduced into the US gas pipeline infrastructure.

Our products are sold directly to end-users by our in-house sales team and by established sales agents and representatives. We have agreements in place with distributors and sales representatives. Our existing customers include hospitals and nursing homes, colleges and universities, health clubs and spas, hotels and motels, office and retail buildings, food and beverage processors, multi-unit residential buildings, laundries, ice rinks, swimming pools, factories, municipal buildings, military installations and indoor growing facilities. To date we have shipped over 3,200 units, some of which have been operating for almost 35 years.

With the acquisition of American DG Energy Inc. ("ADGE") in May 2017, we added an additional source of revenue. Through ADGE, we install, own, operate and maintain complete distributed generation electricity systems and other complementary systems at customer sites, and sell electricity, hot water, heat and cooling energy under long-term contracts at prices guaranteed to the customer to be below conventional utility rates. Each month we obtain readings from our energy meters to determine the amount of energy produced for each customer. We use a contractually defined formula to multiply these readings by the appropriate published price of energy (electricity, natural gas or oil) from each customer's local energy utility, to derive the value of our monthly energy sale, which includes a negotiated discount. Our revenues per customer on a monthly basis vary based on the amount of energy produced by our energy systems and the published price of energy (electricity, natural gas or oil) from our customer's local energy utility that month.

Our operations are comprised of three business segments. Our Products segment designs, manufactures and sells industrial and commercial cogeneration systems. Our Services segment provides O&M services for our products under long term service contracts. Our Energy Production segment sells energy in the form of electricity, heat, hot water and cooling to our customers under long-term sales agreements.

Results of Operations

Three Months Ended September 30, 2024 Compared to Three Months Ended September 30, 2023

The following table sets forth for the periods indicated, the percentage of net sales represented by certain items reflected in our condensed consolidated statements of operations:

	Three Months Ended	
	September 30, 2024	September 30, 2023
Revenues	100.0 %	100.0%
Cost of sales	55.9 %	58.9%
Gross profit	44.1 %	41.1%
Operating expenses		
General and administrative	47.6 %	38.1%
Selling	7.9 %	6.0%
Research and development	4.2 %	2.3%
Gain on sale of assets	(0.1) %	—%
Total operating expenses	59.6 %	46.3%
Loss from operations	(15.5) %	(5.2) %
Total other expense, net	(0.4) %	(1.1) %
Loss before income taxes	(15.9) %	(6.3) %
Provision for state income taxes	— %	— %
Consolidated net loss	(15.9) %	(6.3) %
Income attributable to the non-controlling interest	(0.6) %	(0.5) %
Net loss attributable to Tecogen, Inc.	(16.5) %	(6.8) %

Revenues

The following table presents revenue for the periods indicated, by segment and the change from the prior year:

	Three Months Ended			
	September 30, 2024	September 30, 2023	Increase (Decrease) $	Increase (Decrease) %
REVENUE:				
Products				
Cogeneration	$ 1,294,453	$ 898,692	$ 395,761	44.0 %
Chiller	37,979	1,935,165	(1,897,186)	(98.0) %
Engineered accessories	58,584	104,932	(46,348)	(44.2) %
Total product revenues	1,391,016	2,938,789	(1,547,773)	(52.7) %
Services	3,850,551	3,842,600	7,951	0.2 %
Energy production	388,563	331,141	57,422	17.3 %
Total revenues	$ 5,630,130	$ 7,112,530	$ (1,482,400)	(20.8) %

Total revenues for the three months ended September 30, 2024 were $5,630,130 compared to $7,112,530 for the same period in 2023, a decrease of $1,482,400 or 20.8% year over year.

Products

Products revenues in the three months ended September 30, 2024 were $1,391,016 compared to $2,938,789 for the same period in 2023, a decrease of $1,547,773, or 52.7%. The decrease in revenue during the three months ended September 30, 2024 is due in part to the relocation of our manufacturing operations to our new facility in April 2024, which significantly reduced our production capacity and caused certain customer order delays, resulting in a decrease in chiller sales of $1,897,186 and a $46,348 decrease in engineered accessory sales, offset partially by a $395,761 increase in cogeneration sales. Our Products sales mix, as well as product revenue, can vary significantly from period to period as our products are high dollar, low volume sales.

Services

Service revenues in the three months ended September 30, 2024 were $3,850,551, compared to $3,842,600 for the same period in 2023, an increase of $7,951, or 0.2%. The increase in revenue during the three months ended September 30, 2024 is due to an increase in existing service contract revenues of $73,322, or 2.3%, offset partially by a $65,371, or 10.8%, decrease in revenue from the acquired Aegis maintenance contracts. Overall service contract revenues were impacted due to maintenance delays which caused certain sites to cease operating the serviced equipment.

Our service operation revenues grow with the sale of installed systems because the majority of our product sales are accompanied by a service contract or time and materials agreements, and by the acquisition of maintenance contracts. As a result, our “fleet” of units being serviced by our service department grows with product sales.

Energy Production

Energy Production revenues in the three months ended September 30, 2024 were $388,563, compared to $331,141 for the same period in 2023, an increase of $57,422, or 17.3%. The increase in Energy Production revenue is due to increased run hours at certain energy production sites.

Cost of Sales

Cost of sales in the three months ended September 30, 2024 was $3,149,216 compared to $4,186,509 for the same period in 2023, a decrease of $1,037,293, or 24.8%. The decrease in cost of sales is due to decreased Product sales and lower service contract maintenance costs. During the three months ended September 30, 2024 our gross margin increased to 44.1% compared to 41.1% for the same period in 2023, a 3.0% increase due to higher service contract margins.

Products

Cost of sales for Products in the three months ended September 30, 2024 was $797,209 compared to $1,669,747 for the same period in 2023, a decrease of $872,538, or 52.3% due to decreased sales of Products. During the three months ended September 30, 2024, our Products gross margin was 42.7% compared to 43.2% for the same period in 2023, a 0.5% decrease. The decrease in margin was a function of unabsorbed labor costs in the three months ended September 30, 2024.

Services

Cost of sales for Services in the three months ended September 30, 2024 was $2,139,042 compared to $2,346,384 for the same period in 2023, a decrease of $207,342, or 8.8%, due to decreased labor and material costs incurred to service the acquired Aegis customer maintenance contracts. During the three months ended September 30, 2024, our Services gross margin increased to 44.4% compared to 38.9% in the same period in 2023, a 5.5% increase. The increase in margin is due to the performance of the Aegis acquired sites and lower costs incurred to replace engines at certain sites compared to 2023.

Supply chains were adversely impacted during Covid resulting in significant delays or lack of availability of critical components such as engines. This has continued to have long term impact on service margin. The direct impact has been certain costs increasing faster than inflation. The indirect impact is from increased engine related costs in the service segment as replacements were deferred or overhauled components were used due to lack of parts. We have instituted a service price increase and have also been making engineering improvements to increase service intervals to increase margins.

Energy Production

Cost of sales for Energy Production in the three months ended September 30, 2024 was $212,965 compared to $170,378 for the same period in 2023, an increase of $42,587, or 25.0%. During the three months ended September 30, 2024 our Energy Production gross margin decreased to 45.2% compared to 48.5% for the same period in 2023, a 3.3% decrease. The decrease in the energy production gross margin is due to increased fuel costs at certain of our Energy Production sites in the three months ended September 30, 2024 compared to the same period in 2023.

Operating Expenses

Operating expenses increased $59,822, or 1.8%, to $3,354,137 in the three months ended September 30, 2024 compared to $3,294,315 in the same period in 2023.

	Three Months Ended			
Operating Expenses	**September 30, 2024**	**September 30, 2023**	**Increase (Decrease) $**	**Increase (Decrease) %**
General and administrative	$ 2,681,558	$ 2,708,817	$ (27,259)	(1.0) %
Selling	442,812	425,465	17,347	4.1 %
Research and development	233,809	160,033	73,776	46.1 %
Gain on disposition of assets	(4,042)	—	(4,042)	— %
Total	$ 3,354,137	$ 3,294,315	$ 59,822	1.8 %

General and administrative expenses consist of executive staff, accounting and legal expenses, office space, general insurance and other administrative expenses. General and administrative expenses for the three months ended September 30, 2024 were $2,681,558 compared to $2,708,817 for the same period in 2023, a decrease of $27,259 or 1.0%, due to a $53,198 decrease in depreciation and amortization costs, a $28,407 decrease in stock-based compensation, offset partially by $47,734 increase in payroll and related expenses.

Selling expenses consist of sales staff, commissions, marketing, travel and other selling related expenses. Selling expenses for the three months ended September 30, 2024 were $442,812 compared to $425,465 for the same period in 2023, an increase of $17,347 or 4.1%, due to a $37,424 increase in payroll and related benefits, offset partially by a $28,046 decrease in sales commissions.

Research and development expenses consist of engineering and technical staff, materials, outside consulting and other related expenses. Research and development expenses for the three months ended September 30, 2024 were $233,809 compared to $160,033 for the same period in 2023, an increase of $73,776 or 46.1%, due to a $37,201 increase in payroll and related benefits and a $42,135 increase in depreciation and amortization costs.

The gain on asset dispositions for three months ended September 30, 2024 was $4,042. There were no asset dispositions during the three months ended September 30, 2023.

Income (loss) from Operations

Our loss from operations for the three months ended September 30, 2024 was $873,223 compared to a loss from operations of $368,294 for the same period in 2023, an increase of $504,929. The increase in the loss from operations is due to lower Products revenues and decreased gross profit, offset partially by a $59,822 decrease in operating expenses.

Other Income (Expense), net

Other expense net for the three months ended September 30, 2024 was $22,707 compared to other expense net of $78,933 for the same period in 2023, a decrease of $56,226, due to unrealized gains on marketable securities of $18,749 recognized in the three months ended September 30, 2024, compared to an unrealized losses on marketable securities of $56,246 recognized in 2023, offset partially by a $16,646 increase in interest due to borrowings under our related party note and lease financing and by a $2,123 increase in currency exchange losses.

Provision for State Income Taxes

No provision for state income taxes was provided for in the three months ended September 30, 2024 and 2023 respectively.

Non-controlling Interest

Income attributable to the non-controlling interest was $34,478 for the three months ended September 30, 2024 which represents the non-controlling interest portion of American DG Energy's 51% owned subsidiary, American DG New York, LLC. For the same period in 2023, income attributable to the non-controlling interest was $34,346.

Net Income (loss) Attributable to Tecogen

The net loss attributable to Tecogen for the three months ended September 30, 2024 was a net loss of $930,408 compared to a net loss of $481,573 for the same period in 2023, an increase of $448,835, or 93.2%. The increase in the net loss is due to lower Products revenue and gross profit and by a $59,822 increase in operating expenses.

Nine Months Ended September 30, 2024 Compared to the Nine Months Ended September 30, 2023

The following table sets forth for the periods indicated, the percentage of net sales represented by certain items reflected in our condensed consolidated statements of operations:

	Nine Months Ended	
	September 30, 2024	September 30, 2023
Revenues	100.0%	100.0%
Cost of sales	56.9%	59.2%
Gross profit	43.1%	40.8%
Operating expenses		
General and administrative	50.9%	43.8%
Selling	8.3%	7.4%
Research and development	4.4%	3.3%
Gain on sale of assets	—%	(0.1)%
Total operating expenses	63.7%	54.3%
Loss from operations	(20.5)%	(13.5)%
Total other income (expense), net	(0.5)%	(0.3)%
Loss before income taxes	(21.0)%	(13.8)%
Income tax provision	0.1%	0.1%
Consolidated net loss	(21.1)%	(14.0)%
Income attributable to the non-controlling interest	(0.5)%	(0.3) %
Net loss attributable to Tecogen, Inc.	(21.6)%	(14.3)%

Revenues

The following table presents revenue for the periods indicated, by segment and the change from the prior year:

	Nine Months Ended			
	September 30, 2024	September 30, 2023	Increase (Decrease) $	Increase (Decrease) %
REVENUE:				
Products				
Cogeneration	$ 2,188,355	$ 1,869,699	$ 318,656	17.0 %
Chiller	695,040	4,692,080	(3,997,040)	(85.2) %
Engineered accessories	118,692	532,777	(414,085)	(77.7) %
Total product revenues	3,002,087	7,094,556	(4,092,469)	(57.7) %
Services	11,991,378	10,931,744	1,059,634	9.7 %
Energy production	1,550,549	1,214,806	335,743	27.6 %
Total revenues	$ 16,544,014	$ 19,241,106	$ (2,697,092)	(14.0) %

Total revenues for the nine months ended September 30, 2024 were $16,544,014 compared to $19,241,106 for the same period in 2023, a decrease of $2,697,092 or 14.0% year over year.

Products

Products revenues in the nine months ended September 30, 2024 were $3,002,087 compared to $7,094,556 for the same period in 2023, a decrease of $4,092,469, or 57.7%. The decrease in revenue during the nine months ended September 30, 2024 is due to the relocation of our manufacturing operations to our new facility in April 2024, which significantly reduced our production capacity and caused certain customer order delays, resulting in a decrease in chiller sales of $3,997,040 and a $414,085 decrease in engineered accessory sales, offset partially by a $318,656 increase in cogeneration sales. Our Products sales mix, as well as product revenue, can vary significantly from period to period as our products are high dollar, low volume sales.

Services

Service revenues in the nine months ended September 30, 2024 were $11,991,378, compared to $10,931,744 for the same period in 2023, an increase of $1,059,634, or 9.7%. The increase in revenue during the nine months ended September 30, 2024 is due to the addition of $717,363 in revenue from the acquired Aegis maintenance contracts, $67,884 of revenue representing our share of the excess cash flows above the minimum threshold for the bi-annual period ended June 30, 2024 and a $274,387, or 0.7%, increase in service contract revenues from existing contracts.

Our service operation revenues grow with the sale of installed systems because the majority of our product sales are accompanied by a service contract or time and materials agreements, and by the acquisition of maintenance contracts. As a result, our "fleet" of units being serviced by our service department grows with product sales.

Energy Production

Energy Production revenues in the nine months ended September 30, 2024 were $1,550,549, compared to $1,214,806 for the same period in 2023, an increase of $335,743, or 27.6%. The increase in Energy Production revenue is due to increased run hours at certain energy production sites.

Cost of Sales

Cost of sales in the nine months ended September 30, 2024 was $9,408,288 compared to $11,388,750 for the same period in 2023, a decrease of $1,980,462, or 17.4%. The decrease in cost of sales is due to decreased Products sales, offset partially by increased service contract maintenance costs due to higher labor and material to replace engines at certain sites in 2024, and increased energy production costs. During the nine months ended September 30, 2024 our gross margin increased to 43.1% compared to 40.8% for the same period in 2023, a 2.3% increase due to higher service contract revenue.

Products

Cost of sales for Products in the nine months ended September 30, 2024 was $2,018,734 compared to $4,500,771 for the same period in 2023, a decrease of $2,482,037, or 55.1% due to decreased sales of Products. During the nine months ended September 30, 2024, our Products gross margin was 32.8% compared to 36.6% for the same period in 2023, a 3.8% decrease. The decrease in margin was function of minimal Products revenue, warranty costs and unabsorbed labor costs in the nine months ended September 30, 2024.

Services

Cost of sales for Services in the nine months ended September 30, 2024 was $6,423,114 compared to $6,159,855 for the same period in 2023, an increase of $263,259, or 4.3%, due to increased labor and material costs as a consequence of the Aegis customer maintenance contracts acquisition. During the nine months ended September 30, 2024, our Services gross margin increased to 46.4% compared to 43.7% in the same period in 2023, a 2.7% increase. The increase in margin is due to decreased cost incurred to service the acquired Aegis customer maintenance, offset by labor and material costs incurred to replace engines at certain sites in 2024.

Supply chains were adversely impacted during Covid resulting in significant delays or lack of availability of critical components such as engines. This has continued to have long term impact on product and service margin. The direct impact has been certain costs increasing faster than inflation. The indirect impact is from increased engine related costs in the service segment as replacements were deferred or overhauled components were used due to lack of parts. We have instituted a service price increase and have also been making engineering improvements to increase service intervals to increase margins.

Energy Production

Cost of sales for Energy Production in the nine months ended September 30, 2024 was $966,440 compared to $728,124 for the same period in 2023, an increase of $238,316, or 32.7%. During the nine months ended September 30, 2024 our Energy Production gross margin decreased to 37.7% compared to 40.1% for the same period in 2023, a 2.4% decrease. The decrease in the energy production gross margin is due to increased fuel and maintenance costs at certain of our Energy Production sites in the nine months ended September 30, 2024 compared to the same period in 2023.

Operating Expenses

Operating expenses increased $82,158, or 0.8%, to $10,532,801 in the nine months ended September 30, 2024 compared to $10,450,643 in the same period in 2023.

	Nine Months Ended			
Operating Expenses	**September 30, 2024**	**September 30, 2023**	**Increase (Decrease) $**	**Increase (Decrease) %**
General and administrative	$ 8,428,119	$ 8,418,581	$ 9,538	0.1 %
Selling	1,377,758	1,426,321	(48,563)	(3.4) %
Research and development	734,994	625,691	109,303	17.5 %
Gain on disposition of assets	(8,070)	(19,950)	11,880	(59.5) %
Total	$ 10,532,801	$ 10,450,643	$ 82,158	0.8 %

General and administrative expenses consist of executive staff, accounting and legal expenses, office space, general insurance and other administrative expenses. General and administrative expenses for the nine months ended September 30, 2024 were $8,428,119 compared to $8,418,581 for the same period in 2023, an increase of $9,538 or 0.1%, due to a $211,854 increase in payroll and related benefits, $161,828 increase in facility costs due to the transition to our new facility, $83,055 of relocation costs, and a $79,830 increase in general office expenses, offset partially by a $125,742 decrease in depreciation and amortization expense, a $114,961 decrease in consulting costs, a $161,367 decrease in operating supplies, a $72,373 reduction in travel expenses, and a $52,586 decrease in business insurance costs.

Selling expenses consist of sales staff, commissions, marketing, travel and other selling related expenses. Selling expenses for the nine months ended September 30, 2024 were $1,377,758 compared to $1,426,321 for the same period in 2023, a decrease of $48,563 or 3.4%, due to a $72,683 decrease in trade show expense, offset partially by a $25,252 increase in sales commissions.

Research and development expenses consist of engineering and technical staff, materials, outside consulting and other related expenses. Research and development expenses for the nine months ended September 30, 2024 were $734,994 compared to $625,691 for the same period in 2023, an increase of $109,303 or 17.5%, due to a $137,129 increase in depreciation and amortization, offset partially by a $67,457 decreased in payroll and related benefits.

The gain on asset dispositions for the nine months ended September 30, 2024 of $8,070 compared to $19,950 for the same period in 2023, represents the excess of insurance proceeds received over the net book value of assets for auto claims filed during the respective periods or the excess of proceeds received over the book value on the sale of vehicles.

Income (loss) from Operations

Our loss from operations for the nine months ended September 30, 2024 was $3,397,075 compared to a loss from operations of $2,598,287 for the same period in 2023, an increase of $798,788, or 30.7%. The increase in the loss from operations is due to lower Products revenues and gross profit.

Other Income (Expense), net

Other expense net for the nine months ended September 30, 2024 was $74,847 compared to other expense net of $63,940 for the same period in 2023, an increase in other expense of $10,907, due to unrealized loss of $18,749 recognized in the nine months ended September 30, 2023, a $50,913 increase in interest due to borrowings under our related party note and lease financing, offset partially by a $21,257 decrease in currency exchange losses recognized in the nine months ended September 30, 2024.

Provision for State Income Taxes

The provision for state income taxes for the nine months ended September 30, 2024 and 2023 was $22,100 and $32,252, respectively, and represents estimated income tax payments, net of refunds, to various states.*Non-controlling Interest*

Income attributable to the non-controlling interest was $80,149 for the nine months ended September 30, 2024 which represents the non-controlling interest portion of American DG Energy's 51% owned subsidiary, American DG New York, LLC. For the same period in 2023, income attributable to the non-controlling interest was $57,232.

Net Income (loss) Attributable to Tecogen

The net loss attributable to Tecogen for the nine months ended September 30, 2024 was a net loss of $3,574,171 compared to a net loss of $2,751,711 for the same period in 2023, an increase in the net loss of $822,460, or 29.9%. The increase in the net loss is due to decreased Products revenue and gross profit and by a $82,158 increase in operating expenses..

Liquidity and Capital Resources

Sources of Liquidity

During the nine months ended September 30, 2024, we incurred a loss from operations of $3,397,075 compared to a loss from operations of $2,598,287 in the same period in 2023. Cash flows from operations increased $903,255 during the nine months ended September 30, 2024 compared to the same period in 2023. As of September 30, 2024, we had cash and cash equivalents of $1,282,238 compared to cash and cash equivalents of $1,351,270 as of December 31, 2023, a decrease of $69,032 or 5.1%, and an accumulated deficit as of September 30, 2024, of $46,453,827. In addition to cash from operations, we have relied upon loans aggregating to $1,500,000 from related parties to help fund operations. The initial loan of $500,000 from Mr. Hatsopoulos is due on October 10, 2025. On July 23, 2024, we borrowed an additional $500,000 from Mr. Hatsopoulos, and executed a promissory note with a maturity of one year and interest at 5.06% per annum. On September 18, 2024, we issued a promissory note and borrowed $500,000 from Mr. Lewis. The loan matures on September 18, 2025 and bears interest at 4.57% per annum with a maturity of one year (*See* "*Note 11. Related Party Notes"* to the Condensed Consolidated Financial Statements included in this Form 10-Q for the quarter ended September 30, 2024 *("Form 10-Q" or "Report")* and "*Liquidity and Capital Resources,"* below.) On October 30, 2024, our Board of Directors authorized management to proceed with an equity offering consisting of a private placement to existing shareholders in an amount of up to $2 million, consisting of one share of common stock, with a warrant to purchase one share of common stock, exercisable within two years. There is no assurance we will be able to raise such financing or upon terms that are acceptable to us. (*See also "Note 2. Revenue"* to the Condensed Consolidated Financial Statements included in this Form 10-Qand *"Note 2. Revenue"* to our Condensed Consolidated Financial Statements for the year ended December 31, 2023, included in our 2023 Form 10-K.) If our cash flows from operations are insufficient to fund our business we must continue to rely upon financing provided by related parties to help fund our operations and we may need to raise additional capital through a debt or equity financing to meet our need for capital to fund operations and future growth.

Cash Flows

The following table presents a summary of our net cash flows from operating, investing and financing activities:

	Nine Months Ended		
Cash Provided by (Used in)	**September 30, 2024**	**September 30, 2023**	**Increase (Decrease)**
Operating activities	$ (116,995)	$ (1,020,250)	$ 903,255
Investing activities	(895,652)	(247,558)	(648,094)
Financing activities	943,615	—	943,615
Cash Provided by (Used in)	$ (69,032)	$ (1,267,808)	$ 1,198,776

Consolidated working capital at September 30, 2024 was $6,328,441 compared to $9,822,546 at December 31, 2023, a decrease of $3,494,105, or 35.6%. Included in working capital were cash and cash equivalents of $1,282,238 at September 30, 2024, compared to $1,351,270 at December 31, 2023, a decrease of $69,032, or 5.1%.

Cash Flows from Operating Activities

Cash used in operating activities for the nine months ended September 30, 2024 was $116,995 compared to $1,020,250 of cash used by operating activities for the same period in 2023, a decrease in cash used of $903,255, or 88.5% Our accounts receivable and unbilled revenue balances were $5,448,364 and $1,139,532, respectively, at September 30, 2024 compared to $6,781,484 and $1,258,532 at December 31, 2023, providing $1,303,300 of cash. During the nine months ended September 30, 2023 we collected the majority of the outstanding Employee Retention Credit receivables, providing $667,121 of cash from operations.

Accounts payable increased to $4,838,395 as of September 30, 2024 from $4,514,415 at December 31, 2023, providing $323,980 in cash flow from operations. The increase in accounts payable was due to extending our supplier payments. Deferred revenue increased to $2,598,302 as of September 30, 2024 compared to $2,016,817 as of December 31, 2023, due to increased customer deposits, providing $581,485 of cash from operations. We expect accounts payable and deferred revenue to fluctuate with routine changes in operations.

Cash Flows from Investing Activities

During the nine months ended September 30, 2024 we used $895,652 in cash from investing activities. We used $838,932 of cash to purchase property, plant and equipment, received $40,255 in proceeds from the disposition of assets, including insurance proceeds and distributed $96,975 to the 49% non-controlling interest holders of American DG New York LLC. Cash used in asset acquisition are for costs incurred during the nine months ended September 30, 2024 for initial improvements required to the North Billerica, Massachusetts leased premises which are estimated to range between $850,000 and $1,000,000.

During the nine months ended September 30, 2023 we used $247,558 in cash from investing activities. We used $170,000 of cash to acquire certain assets as part of the Aegis acquisition, used $31,728 of cash to purchase property, plant and equipment, and distributed $62,693 to the 49% non-controlling interest holders of American DG New York LLC, partially offset by the receipt of $16,863 in proceeds from the disposition of assets.

Cash Flows from Financing Activities

During the nine months ended September 30, 2024 we received proceeds of $1,000,000 under the related party promissory notes and used $56,385 of cash in payment of finance lease principal. There were no cash flows from financing activities in the three months ended September 30, 2023.

Backlog

As of September 30, 2024, our backlog of product and installation projects, excluding service contracts, was $5,023,267, consisting of $3,759,305 of purchase orders received by us and $1,263,962 of projects in which the customer's internal approval process is complete, financial resources have been allocated and the customer has made a firm verbal commitment that the order is in the process of execution. As of September 30, 2023, our backlog of product and installation projects, excluding service contracts, was $7,515,922 consisting of $6,515,323 of purchase orders received by us and $1,000,599 of projects in which the customer's internal approval process is complete, financial resources have been allocated and the customer has made a firm verbal commitment that the order is in the process of execution. Backlog at the beginning of any period is not necessarily indicative of future performance. Our presentation of backlog may differ from other companies in our industry.

Liquidity

At September 30, 2024, we had cash and cash equivalents of $1,282,238, a decrease of $69,032 or 5.1% from the cash and cash equivalents balance at December 31, 2023. During the nine months ended September 30, 2024, our revenues were negatively impacted due to the relocation of our manufacturing operations to our new facility in April 2024, which significantly reduced our production capacity, caused certain customer order delays or deferrals for our products; service delays due to customer facility closures, in some cases for extended periods and a reduction in our energy production revenues due to business closures and increased remote work and learning environments.

On October 30, 2024, our Board of Directors authorized management to proceed with an equity offering consisting of a private placement to existing shareholders in an amount of up to $2 million, consisting of one share of common stock, with a warrant to purchase one share of common stock for each share purchased, exercisable within two years.

On October 9, 2023, we entered into an agreement with each of John N. Hatsopoulos, a director and principal shareholder of Tecogen, and Earl R. Lewis, III, a director of Tecogen, pursuant to which Mr. Hatsopoulos agreed to provide financing to us of up to $1 million, and Mr. Lewis agreed to provide financing to us of $500,000, and potentially an additional $500,000 at his discretion. On October 10, 2023, we issued a promissory note and borrowed $500,000 from Mr. Hatsopoulos. The note, as amended on March 21, 2024, is due and repayable two years from the date of issuance and bears interest at 5.12% per annum payable in full at maturity. The loan is required to be repaid in the event of a change of control of the company and upon the occurrence of an event of default under the note, including upon a failure to pay the principal and interest when due, or the commencement of voluntary or involuntary bankruptcy or insolvency proceeding. The proceeds of the loans are expected to be used for general working capital purpose.

On March 21, 2024, John H. Hatsopoulos amended the terms of the Promissory Note dated October 10, 2023, extending the maturity date by one year, to October 10, 2025, and agreeing to accept payment in cash or Tecogen common stock. On July 23, 2024, we borrowed an additional $500,000 from Mr. Hatsopoulos, and executed a promissory note with a maturity of one year and interest at 5.06% per annum. On September 18, 2024, we borrowed $500,000 from Mr. Lewis, and executed a executed a promissory note with a maturity of one year and interest at 4.57% per annum.

Based on management's analysis, we believe that cash flows from operations, the note agreements and anticipated proceeds from the private placement offering will be sufficient to fund operations over the next twelve months. There can, however, be no assurance we will be able to do so In order to grow our business and fund the development of our hybrid-drive air-cooled chiller and the relocation of our primary facility, we expect that our cash requirements will increase and we may need to raise additional capital through a debt or equity financing to meet our need for capital to fund operations and future growth.

Significant Accounting Policies and Critical Estimates

Our significant accounting policies are discussed in the Notes to our Consolidated Financial Statements in our Annual Report on Form 10-K for the year ended December 31, 2023. The accounting policies and estimates that can have a significant impact upon our operating results, financial position and footnote disclosures are described in the above notes and in the Annual Report.

Significant New Accounting Standards or Updates Not Yet Effective

The Company's critical accounting policies have remained consistent as discussed in our Annual Report on Form 10-K for the year ended December 31, 2023, filed with the SEC on March 25, 2024.

See Note 1, *Description of Business and Basis of Presentation*, to the Condensed Consolidated Financial Statements included elsewhere in this Quarterly Report on Form 10-Q.

Seasonality

The majority of our chilling systems sold are operational during the summer. Demand for our service team is higher in the warmer months when cooling is required. Chiller units are generally shut down in the winter and started up again in the spring. The chiller "busy season" for the service team generally runs from May through the end of September. Our cogeneration sales are not generally affected by seasonality.

Off-Balance Sheet Arrangements

Currently, we do not have any material off-balance sheet arrangements, including any outstanding derivative financial instruments, off-balance sheet guarantees, interest rate swap transactions or foreign currency contracts. We do not engage in trading activities involving non-exchange traded contracts.

Item 3. Quantitative and Qualitative Disclosures About Market Risk.

Not applicable.

Item 4. Controls and Procedures.

Management's Evaluation of Disclosure Controls and Procedures:

As of the end of the period covered by this Report, our Chief Executive Officer and Chief Financial Officer ("Certifying Officer") conducted evaluations of our disclosure controls and procedures. As defined in Rule 13a-15(e) and 15d-15(e) under Securities Exchange Act of 1934, as amended ("Securities Exchange Act"), the term "disclosure controls and procedures" means controls and procedures of an issuer that are designed to ensure the information required to be disclosed by the issuer in the reports that it files or submits under Section 13(a) or 15(d) is recorded, processed, summarized and reported within the time periods specified in the Securities and Exchange Commission's ("SEC") rules and forms. Disclosure controls and procedures include, without limitation, controls and procedures designed to ensure that information required to be disclosed by an issuer in the reports that it files or submits under Section 13(a) or 15(d) of the Securities Exchange Act is accumulated and communicated to the issuer's management, including the Certifying Officer, to allow timely decisions regarding required disclosure.

Our disclosure controls and procedures are designed to provide reasonable assurance that the control system's objectives will be met. Our management, including our Chief Executive Officer and Chief Financial Officer, after evaluating the effectiveness of our disclosure controls and procedures as of the end of the period covered by this Report, has concluded that our disclosure controls and procedures were not effective due to a material weakness with respect to a small number of individuals dealing with general controls over information technology. Management will continue to evaluate the above weaknesses and we are taking steps to remediate the weaknesses as resources become available.

Changes in Internal Control over Financial Reporting:

There were no changes in our internal controls over financial reporting (as such term is defined in Rules 13a-15(f) and 15d-15(f) under the Securities Exchange Act) during the period covered by this Report that have materially affected, or are reasonably likely to materially affect, our internal controls over financial reporting.

PART II - OTHER INFORMATION

Item 1. Legal Proceedings

Except as described below, there are no material pending legal proceedings, other than ordinary routine litigation incidental to the business, to which we are a party or of which any of our property is the subject.

On November 23, 2022, we were served with a suit filed against us on August 24, 2022 in the Ontario Superior Court of Justice by The Corporation of the Town of Milton, Milton Energy Generation Solutions Inc. and Milton Hydro Distribution Inc ("Plaintiffs"), all of whom are municipal corporations incorporated in the Province of Ontario. The plaintiffs sued for damages in the amount of CDN $1,000,000, pre-judgment and post-judgment interest, legal fees, alleging breach of contract, breach of warranty, negligent misrepresentations and nuisance. Plaintiffs allege that on or about July 10, 2022, a Tecogen cogenerator installed by us at the plaintiffs' facility caught fire, causing damage to the cogenerator and the plaintiff's facility. We have filed a response denying liability and are represented by Canadian counsel. For the year ended December 31, 2022, we reserved $150,000 for anticipated damages which may not be covered by our insurance and continue to maintain the reserve at September 30, 2024.

Item 1A. Risk Factors

In addition to the risks described below, you should carefully consider the factors discussed under "Item1A - Risk Factors" in our Annual Report on Form 10-K for our fiscal year ended December 31, 2023 ("2023 Form 10-K") The risks discussed in our 2023 Form 10-K could materially affect our business, financial condition and future results. The risks described in our 2023 Form 10-K and below are not the only risks we face. Additional risks and uncertainties not currently known to us or that we currently deem to be immaterial also may materially and adversely affect our business, financial condition or operating results.

We incurred a net loss from operations of $3,397,075 during the nine months ended September 30, 2024, compared to a net loss from operations of $2,598,287 in the same period in 2023. We have a history of incurring losses from our operations and there can be no assurance we will be able to increase our revenues, manage our expenses and cash flows, and become profitable in the future.

We incurred a net loss from operations of $3,397,075 during the nine months ended September 30, 2024, compared to a net loss from operations of $2,598,287 in the nine months ended September 30, 2023. Historically, we have incurred net losses from operations, including a net loss of $4,598,103 in the year ended December 31, 2023, and, as of September 30, 2024, we had an accumulated deficit of $46,453,827. Our business is capital intensive and, because our products are built to order with customized configurations, the lead time to build and deliver a unit can be significant. We may be required to purchase key components long before we can deliver a unit and receive payment. Changes in customer orders or lack of demand may also impact our profitability. There can be no assurance we will be able to increase our sales and achieve and sustain profitability in the future. On October 30, 2024, our Board of Directors authorized management to proceed with an equity offering consisting of a private placement to existing shareholders in an amount of up to $2 million, consisting of one share of common stock, with a warrant to purchase one share of common stock for each share purchsed, exercisable within two years. Based on management's analysis, we believe that cash flows from operations, the note agreements and anticipated proceeds from the private placement offering will be sufficient to fund operations over the next twelve months. There can, however, be no assurance we will be able to do so. If our cash flows from operations are insufficient to fund our business we must continue to rely upon financing provided by related parties to help fund our operations and we may need to raise additional capital through a debt or equity financing to meet our need for capital to fund operations and future growth. (*See* "*Note 11 to the Condensed Consolidated Financial Statements"* and *"Liquidity and Capital Resources-Liquidity."*)

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

The Company did not purchase any equity securities during the three months ended September 30, 2024.

Item 3. Defaults Upon Senior Securities

None.

Item 4. Mine Safety Disclosures

Not applicable.

Item 5. Other Information

Securities Trading Plans of Directors and Executive Officers

During the three months ended September 30, 2024, no director or officer of the Company, as defined in Section 16 of the Securities Exchange Act of 1934 and the rules adopted thereunder,adopted or terminated any contract, instruction or written plan for the purchase or sale of Company securities that was intended to satisfy the affirmative defense conditions of Rule 10b5-1(c) or pursuant to any "non-Rule 10b5-1 trading arrangement" as defined under Item 408(a) of Regulation S-K.

Item 6. Exhibits

Exhibit No.	Description of Exhibit
31.1*	Certification of Chief Executive Officer Pursuant to Rule 13a-14(a), as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
32.1**	Certification of Chief Executive Officer and Chief Financial Officer Pursuant to 18 U.S.C. 1350, as adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002
101.INS**	XBRL Instance Document
101.SCH**	XBRL Taxonomy Extension Schema
100.CAL**	XBRL Taxonomy Extension Calculation Linkbase
100.DEF**	XBRL Taxonomy Extension Definition Linkbase
101.LAB**	XBRL Taxonomy Extension Label Linkbase
101.PRE**	XBRL Taxonomy Extension Presentation Linkbase

* Filed herewith
** Furnished herewith
\+ Compensatory plan or arrangement

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 thereto duly authorized.

TECOGEN INC.
(Registrant)

Dated: November 14, 2024

By: /s/ Abinand Rangesh
Abinand Rangesh
Chief Executive and Financial Officer
(Principal Executive and Financial Officer)

EXHIBIT 31.1

TECOGEN INC.
CERTIFICATION REQUIRED BY EXCHANGE ACT RULES 13a-14(a) and 15d-14(a),
AS ADOPTED PURSUANT TO
SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002

I, Abinand Rangesh, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of Tecogen Inc.;

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

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

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

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

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

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

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

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

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

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

Date: November 14, 2024

/s/ Abinand Rangesh
Abinand Rangesh
Chief Executive and Financial Officer

EXHIBIT 32.1

TECOGEN INC.
CERTIFICATION REQUIRED BY EXCHANGE ACT RULES 13a-14(b) and 15d-14(b),
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

I, Abinand Rangesh, Chief Executive and Financial Officer, of Tecogen Inc., or the Company, certify, pursuant to Section 1350, Chapter 63 of Title 18, United States Code that, to his knowledge:

1. The Quarterly Report on Form 10-Q of the Company for the quarter ended September 30, 2024 (the "Report") fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934 (15 U.S.C. 78 m or 78o(d)); and
2. The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Date: November 14, 2024

/s/ Abinand Rangesh
Abinand Rangesh
Chief Executive and Financial Officer