

SPIRE Corp  
Form 10-Q  
November 19, 2013

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

FORM 10-Q

R Quarterly Report Pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934  
For the quarterly period ended September 30, 2013; or

£ Transition Report Pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934  
For the transition period from \_\_\_\_\_ to \_\_\_\_\_

Commission file number: 0-12742

Spire Corporation  
(Exact name of registrant as specified in its charter)

Massachusetts 04-2457335  
(State or other jurisdiction of incorporation or (I.R.S. Employer Identification Number)  
organization)

One Patriots Park, Bedford, Massachusetts 01730-2396  
(Address of principal executive offices) (Zip Code)  
781-275-6000  
(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 R No £

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

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

Large accelerated filer £      Accelerated filer £      Non-accelerated filer £      Smaller reporting company R

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(Do not check if a smaller reporting  
company)

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

The number of shares of the registrant's common stock outstanding as of November 11, 2013 was 9,207,874.

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## PART I. FINANCIAL INFORMATION

## Item 1. Unaudited Condensed Consolidated Financial Statements

## SPIRE CORPORATION AND SUBSIDIARIES

## UNAUDITED CONDENSED CONSOLIDATED BALANCE SHEETS

(in thousands, except share amounts)

	September 30, 2013	December 31, 2012
Assets		
Current assets		
Cash and cash equivalents	\$5,897	\$3,030
Restricted cash	170	—
Accounts receivable – trade, net	1,363	2,137
Inventories, net	4,656	5,316
Deferred cost of goods sold	92	185
Deposits on equipment for inventory	115	69
Prepaid expenses and other current assets	821	617
Current assets of discontinued operations	—	718
Total current assets	13,114	12,072
Property and equipment, net	959	1,197
Intangible and other assets, net	397	393
Available-for-sale investments, at quoted market value (cost of \$2,898 and \$2,741 at September 30, 2013 and December 31, 2012, respectively)	3,225	2,963
Total assets	\$17,695	\$16,625
Liabilities and Stockholders' Equity		
Current liabilities		
Current portion of capital lease obligation	\$11	\$13
Revolving lines of credit	581	590
Current portion of term loan	745	—
Accounts payable	1,712	1,424
Accrued liabilities	3,280	2,221
Advances on contracts in progress	1,046	1,037
Liabilities of discontinued operations	21	171
Total current liabilities	7,396	5,456
Long-term portion of capital lease obligation	—	8
Long-term portion of term loan	5,255	—
Deferred compensation	3,225	2,963
Other long-term liabilities	731	746
Total long-term liabilities	9,211	3,717
Total liabilities	16,607	9,173
Stockholders' equity		
Common stock, \$0.01 par value; 20,000,000 shares authorized; 9,207,874 and 9,062,633 shares issued and outstanding on September 30, 2013 and December 31, 2012, respectively	93	91
Additional paid-in capital	23,255	23,084
Accumulated deficit	(22,400)	(15,945)
Accumulated other comprehensive income	327	222

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Total Spire Corporation stockholders' equity	1,275	7,452
Noncontrolling interest	(187	) —
Total stockholders' equity	1,088	7,452
Total liabilities and stockholders' equity	\$17,695	\$16,625

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

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SPIRE CORPORATION AND SUBSIDIARIES  
 UNAUDITED CONDENSED CONSOLIDATED STATEMENTS OF OPERATIONS  
 (in thousands, except share and per share amounts)

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2013	2012	2013	2012
Net sales and revenues				
Sales of goods	\$ 1,776	\$ 1,858	\$ 4,213	\$ 11,796
Contract research and service revenues	2,378	2,370	6,753	6,527
Total net sales and revenues	4,154	4,228	10,966	18,323
Cost of sales and revenues				
Cost of goods sold	1,868	2,048	5,561	10,470
Cost of contract research and services	1,101	1,228	3,482	3,702
Total cost of sales and revenues	2,969	3,276	9,043	14,172
Gross margin	1,185	952	1,923	4,151
Operating expenses				
Selling, general and administrative expenses	3,381	2,934	8,466	9,338
Internal research and development expenses	15	36	38	227
Total operating expenses	3,396	2,970	8,504	9,565
Operating loss from continuing operations	(2,211	) (2,018	) (6,581	) (5,414
Interest expense, net	(20	) (30	) (49	) (97
Foreign exchange loss	—	(9	) (9	) (6
Total other expense, net	(20	) (39	) (58	) (103
Loss from continuing operations before income tax benefit (provision)	(2,231	) (2,057	) (6,639	) (5,517
Income tax benefit (provision) - continuing operations	(1	) 24	(3	) 2,016
Loss from continuing operations	(2,232	) (2,033	) (6,642	) (3,501
Loss from discontinued operations before sale of business unit	—	(250	) —	(680
Gain on sale of business unit, net of transaction expenses	—	—	—	5,449
Income tax provision - discontinued operations	—	—	—	(2,008
Income (loss) from discontinued operations, net of tax	—	(250	) —	2,761
Net loss	(2,232	) (2,283	) (6,642	) (740
Less: Net loss attributable to noncontrolling interest	(187	) —	(187	) —
Net loss attributable to common stockholders	\$ (2,045	) \$ (2,283	) \$ (6,455	) \$ (740
Basic and diluted income (loss) per share:				
From continuing operations, net of tax	\$ (0.22	) \$ (0.24	) \$ (0.70	) \$ (0.41
From discontinued operations, net of tax	—	(0.03	) —	0.32
Basic and diluted income (loss) per share	\$ (0.22	) \$ (0.27	) \$ (0.70	) \$ (0.09
	9,207,874	8,562,633	9,165,844	8,562,633

Weighted average number of common and common  
equivalent shares outstanding – basic and diluted

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

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SPIRE CORPORATION AND SUBSIDIARIES  
 UNAUDITED CONDENSED CONSOLIDATED STATEMENTS OF COMPREHENSIVE LOSS  
 (in thousands)

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2013	2012	2013	2012
Comprehensive loss:				
Net loss	(2,232	) (2,283	) (6,642	) (740
Other comprehensive income (loss):				
Change in fair value of available for sale marketable securities, net of tax	(2	) 107	105	216
Total comprehensive loss	(2,234	) (2,176	) (6,537	) (524
Less: Comprehensive loss attributable to noncontrolling interests	(187	) —	(187	) —
Comprehensive loss attributable to common stockholders	\$(2,047	) \$(2,176	) \$(6,350	) \$(524

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



SPIRE CORPORATION AND SUBSIDIARIES  
 UNAUDITED CONDENSED CONSOLIDATED STATEMENTS OF CASH FLOWS  
 (in thousands)

	Nine Months Ended September	
	30,	2012
	2013	2012
Cash flows from operating activities:		
Net loss	\$(6,642	) \$(740
Less: Net income from discontinued operations, net of tax	—	2,761
Loss from continuing operations	(6,642	) (3,501
Adjustments to reconcile net loss to net cash used in operating activities:		
Depreciation and amortization	364	641
Deferred tax benefit	—	(2,008
Deferred compensation	105	216
Share-based compensation	88	169
Provision for accounts receivable reserve	18	17
Provision for inventory reserve	191	257
Changes in assets and liabilities:		
Restricted cash	(170	) 21
Accounts receivable	756	1,613
Inventories	469	1,137
Deferred cost of goods sold	93	86
Deposits, prepaid expenses and other current assets	(250	) 573
Accounts payable, accrued liabilities and other liabilities	1,417	(2,873
Deposit - related party	—	300
Advances on contracts in progress	9	(1,187
Net cash used in operating activities of continuing operations	(3,552	) (4,539
Net cash used in operating activities of discontinued operations	(150	) (1,726
Net cash used in operating activities	(3,702	) (6,265
Cash flows from investing activities:		
Purchase of property and equipment	(86	) (129
Additions to intangible and other assets	(44	) (11
Net cash used in investing activities of continuing operations	(130	) (140
Net cash provided by investing activities of discontinued operations	718	6,859
Net cash provided by investing activities	588	6,719
Cash flows from financing activities:		
Principal payments on capital lease obligations	(10	) (34
Principal borrowings on term loan	6,000	—
Net payments on revolving lines of credit	(9	) —
Net cash provided by (used in) financing activities	5,981	(34
Net increase in cash and cash equivalents	2,867	420
Cash and cash equivalents, beginning of period	3,030	4,758
Cash and cash equivalents, end of period	\$5,897	\$5,178
Supplemental disclosures of cash flow information:		
Interest paid	\$49	\$97

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Income taxes paid	\$1	\$10
Supplemental disclosures of non-cash flow information:		
Liabilities settled with common stock	\$84	\$—
Inventory transferred to property and equipment	\$—	\$405
Deemed dividend	\$9,540	\$—

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

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SPIRE CORPORATION AND SUBSIDIARIES  
NOTES TO UNAUDITED CONDENSED CONSOLIDATED FINANCIAL STATEMENTS

September 30, 2013 and 2012

1. Description of the Business

Spire Corporation ("Spire" or the "Company") and its subsidiaries along with its variable interest entity develop, manufacture and market highly-engineered products and services in two principal business areas: (i) capital equipment and systems for the photovoltaic solar industry and (ii) biomedical, through its variable interest entity, N2 Biomedical LLC ("N2 Bio"), generally bringing to bear expertise in materials technologies, surface science and thin films across both business areas, discussed below.

In the photovoltaic solar area, the Company develops, manufactures and markets specialized equipment for the production of terrestrial photovoltaic modules from solar cells and provide photovoltaic systems for grid connected applications in the commercial markets. The Company's equipment has been installed in approximately 200 factories in 50 countries. The equipment market is very competitive with major competitors located in the U.S., Japan and Europe. The Company's flagship product is its Sun Simulator which tests module performance. The Company's other product offerings include turn-key module lines and to a lesser extent other individual equipment. To compete the Company offers other services such as training and assistance with module certification. The Company also provides turn-key services to its customers to backward integrate to solar cell manufacturing.

In the biomedical area, through its variable interest entity, N2 Bio, the Company provides value-added surface treatments to manufacturers of orthopedic and other medical devices that enhance the durability, antimicrobial characteristics or other material characteristics of their products; and performs sponsored research programs into practical applications of advanced biomedical technologies.

Transactions

On September 18, 2013, the Company, Spire Biomedical, Inc. (the "Subsidiary" and together with the Company, "Spire Bio") entered into an Asset Purchase Agreement (the "Purchase Agreement") with N2 Bio pursuant to which N2 Bio agreed to (i) acquire substantially all of the assets of the Subsidiary's biomedical business (the "Bio Business Unit") and (ii) assume and pay certain liabilities related to the purchased assets as set forth in the Purchase Agreement (collectively, the "Transaction"). The Transaction closed on September 18, 2013. The purchase price for the Bio Business Unit was \$10.5 million plus the assumption of liabilities of approximately \$100 thousand, with \$6.0 million paid in cash at closing, a \$2.4 million subordinated convertible promissory note, and 310,549 Series A Convertible Preferred Units of N2 Bio valued at approximately \$2.1 million (\$6.72 per share). The assets and liabilities of the Subsidiary's biomedical business are under common control and requires carryover basis for financial reporting. The difference between the consideration paid and the carrying value of the assets and liabilities acquired by N2 Bio was recorded as a deemed dividend to the Company in the amount of \$9.5 million and has been eliminated in consolidation. Mark C. Little was the Chief Executive Officer of the Subsidiary, is a director of the Company and is the Chief Executive Officer of N2 Bio. Mark C. Little is the son of Roger G. Little, Chief Executive Officer of the Company.

The Company has determined that N2 Bio is a variable interest entity ("VIE") because the equity investment at risk from the majority shareholders of N2 Bio is not sufficient to permit N2 Bio to finance its activities without additional subordinated financial support from the Company. As discussed above, N2 Bio is subject to a subordinated convertible promissory note. Additionally, Mark Little is the Chief Executive Officer of N2 Bio and also a director of the Company which qualifies as a related party. The Company has also determined that the Company has the

obligation to absorb losses and the right to receive benefits from N2 Bio that could potentially be significant to it. Therefore, the Company has determined that N2 Bio is a VIE and must consolidate the financial condition, results of operations and cash flows of N2 Bio with those of its own. See Note 14 to the unaudited condensed consolidated financial statements.

The subordinated convertible promissory note (i) bears interest at 9% per annum until paid in full, (ii) is convertible, at Company's option, into Common Units of N2 Bio at a conversion price of \$6.72 per share, (iii) has a seven year term, (iv) is unsecured and (v) is subordinate in right of payment to all senior bank indebtedness of N2 Bio.

The Series A Convertible Preferred Units (i) represent an equity ownership interest of 19.9% in N2 Bio, (ii) are governed by the terms of the Amended and Restated Limited Liability Company Agreement of N2 Bio dated September 18, 2013, (iii) rank senior to the Common Units on liquidation, dissolution and winding up, and (iv) vote together with the Common Units on an as-converted basis. The Company has the right to appoint one director to the Board of Directors of N2 Bio. N2 Bio is subject to certain affirmative and negative operating covenants in favor of the holder of Series A Preferred Units.

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On September 18, 2013, the Company and N2 Bio entered into a Shared Services Agreement whereby the Company will provide N2 Bio certain services (the "Shared Services") for a period of three years. It is the intent of the parties that the aggregate fees for the Shared Services shall equal approximately \$500 thousand during the first year. Following the first anniversary, N2 Bio may terminate any specific Shared Service with 20 days' written notice to the Company.

On September 18, 2013, the lease agreement between SPI-Trust and the Company for the premises in Bedford, Massachusetts where the Business is located was amended, by reducing the Company's leased space and annual base rent by approximately 19%. All other material terms and conditions related to the lease remain unchanged as of such date.

On September 18, 2013, N2 Bio entered into a Lease Agreement (the "N2 Bio Bedford Lease") with SPI-Trust with respect to 27 thousand square feet of space in the premises in Bedford, Massachusetts. The term of the N2 Bio Bedford Lease commenced on September 18, 2013 and is set to expire on November 30, 2020. The annual rental rate prorated for September 18, 2013 to November 30, 2013 is \$16.00 per square foot on a triple net basis, whereby the tenant is responsible for operating expenses, taxes and maintenance of the building. The annual rental rate increases on December 1, 2013 and each anniversary thereafter by \$0.50 per square foot.

The Purchase Agreement includes a five-year commitment of (i) the Company not to compete with the Bio Business Unit services and (ii) N2 Bio not to compete with the consumer electronic products business of the Company. Both the Company and N2 Bio agreed not to solicit the officers or employees of the other party for a one-year period.

On March 9, 2012, the Company completed the sale of its semiconductor business unit, which provided semiconductor foundry services, operated a semiconductor foundry and fabrication facility and was engaged in the business of wafer epitaxy, foundry services, and device fabrication for the defense, medical, telecommunications and consumer products markets (the "Semiconductor Business Unit"), to Masimo Corporation ("Masimo"). Accordingly, the results of operations and assets and liabilities of the Semiconductor Business Unit are being presented herein as discontinued operations. See Note 13 to the unaudited condensed consolidated financial statements.

## Liquidity

Operating results will depend upon revenue growth or decline and product mix, as well as the timing of shipments of higher priced products from the Company's solar equipment line and delivery of solar systems. Export sales, which amounted to 27% and 31% of net sales and revenues for the three and nine months ended September 30, 2013, respectively, and 29% and 57% of net sales and revenues for both the three and nine months ended September 30, 2012, respectively, continue to constitute a significant portion of the Company's net sales and revenues.

The Company has incurred operating losses from continuing operations. Operating loss from continuing operations was \$2.2 million and \$6.6 million for the three and nine months ended September 30, 2013, respectively. Operating loss from continuing operations was \$2.0 million and \$5.4 million for the three and nine months ended September 30, 2012, respectively. Net cash used in operating activities was \$3.7 million for the nine months ended September 30, 2013, which includes \$150 thousand of cash used in operating activities of discontinued operations. Net cash used in operating activities was \$6.3 million for the nine months ended September 30, 2012, which includes \$1.7 million of cash used in operating activities of discontinued operations. As of September 30, 2013, the Company had unrestricted cash and cash equivalents of \$5.9 million compared to \$3.0 million as of December 31, 2012. The maturity date of the Company's credit facilities with Silicon Valley Bank is April 30, 2014. The maturity date of N2 Bio's revolving credit facility with Middlesex Savings Bank is September 18, 2014. These factors raise substantial doubt about the Company's ability to continue as a going concern. The Company currently believes that its existing cash resources at September 30, 2013, will be sufficient to fund its operations into the first half of 2014; however, the Company cannot

assure you of this.

The Company has various options on how to fund future operational losses and working capital needs, including but not limited to sales of equity, bank debt, the sale or license of assets and technology, or joint ventures involving cash infusions, as it has done in the past; however, there are no assurances that the Company will be able to sell equity, obtain or access bank debt, sell or license assets or technology or enter into such joint ventures on a timely basis and at appropriate values. The Company has developed several plans including potential strategic alternatives, cost reduction efforts and expanding revenue in other solar markets to offset a decline in business due to global economic conditions. The Company's inability to successfully implement its cost reduction strategies, expand revenue in other solar markets or to renew its credit facilities, could adversely impact the Company's ability to continue as a going concern.

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Based on the forecasts and estimates underlying the Company's current operating plan, the financial statements do not include any adjustments that might be necessary if the Company is unable to continue as a going concern.

## 2. Interim Financial Statements

The accompanying unaudited condensed consolidated financial statements have been prepared in accordance with the rules and regulations of the Securities and Exchange Commission ("SEC") regarding interim financial reporting. Certain information and footnote disclosures normally included in consolidated financial statements prepared in accordance with accounting principles generally accepted in the United States of America have been condensed or omitted in accordance with such rules and regulations. These unaudited condensed consolidated financial statements should be read in conjunction with the annual audited consolidated financial statements and notes thereto for the year ended December 31, 2012, included in the Company's Annual Report on Form 10-K filed with the SEC.

In the opinion of management, the accompanying unaudited condensed consolidated financial statements contain all adjustments (consisting of normal recurring adjustments) necessary to fairly present the Company's financial position as of September 30, 2013 and December 31, 2012 and the results of their operations for the three and nine months ended September 30, 2013 and 2012. The results of operations for the three and nine months ended September 30, 2013 are not necessarily indicative of the results to be expected for the fiscal year ending December 31, 2013. The unaudited condensed consolidated balance sheet as of December 31, 2012 has been derived from audited financial statements as of that date. During the second quarter of 2009, the Company began pursuing an exclusive sales process of its Medical Products Business Unit. On December 14, 2009, the Company completed the sale of the Medical Products Business Unit to Bard. During the first quarter of 2012, the Company began pursuing an exclusive sales process of its Semiconductor Business Unit and on March 9, 2012, the Company completed the sale of the Semiconductor Business Unit to Masimo. Accordingly, the results of operations and assets and liabilities of the Semiconductor Business Unit and the liabilities of the Medical Products Business Unit are being presented herein as discontinued operations. See Note 13 to the unaudited condensed consolidated financial statements.

On September 18, 2013, the Company completed the sale of the Bio Business Unit to N2 Bio, whereas, the Company has a controlling financial interest in N2 Bio and is less than wholly-owned by the Company. Accordingly, the unaudited condensed consolidated financial statements of the Company include the accounts of N2 Bio. The N2 Bio holding of equity interest is referred to as a noncontrolling interest. The portion of the net loss attributable to the noncontrolling interest of N2 Bio is presented as net loss attributable to noncontrolling interest in the unaudited condensed consolidated statements of operations and the portion of comprehensive loss attributable to the noncontrolling interest of N2 Bio is presented as comprehensive loss attributable to noncontrolling interests in the unaudited condensed consolidated statements of comprehensive loss. The portion of stockholders' equity of N2 Bio attributable to the noncontrolling interest of N2 Bio is presented as noncontrolling interest in the unaudited condensed consolidated balance sheets.

### Summary of Significant Accounting Policies

With the exception of the Company's principals of consolidation which has been updated below, the significant accounting policies followed by the Company are set forth in Note 2 to the Company's consolidated financial statements in its Annual Report on Form 10-K for the year ended December 31, 2012, filed with the SEC.

### Principles of Consolidation

The consolidated financial statements include the accounts of the Company and its wholly-owned subsidiaries along with its variable interest entity. All significant intercompany balances and transactions have been eliminated in

consolidation. The portion of the net loss attributable to the noncontrolling interest of N2 Bio is presented as net loss attributable to noncontrolling interest in the unaudited condensed consolidated statements of operations and the portion of comprehensive loss attributable to the noncontrolling interest of N2 Bio is presented as comprehensive loss attributable to noncontrolling interests in the unaudited condensed consolidated statements of comprehensive loss. The portion of stockholders' equity of N2 Bio attributable to the noncontrolling interest of N2 Bio is presented as noncontrolling interest in the unaudited condensed consolidated balance sheets.

#### New Accounting Pronouncements

In July 2013, the Financial Accounting Standards Board ("FASB") issued Accounting Standard Update ("ASU") No. 2013-11 ("ASU 2013-11"), Presentation of an Unrecognized Tax Benefit When a Net Operating Loss Carryforward, a Similar Tax Loss, or a Tax Credit Carryforward Exists. The update requires, unless certain conditions exist, an unrecognized tax benefit, or a portion of an unrecognized tax benefit, to be presented in the financial statements as a reduction to a deferred tax asset for a net operating loss carryforward, similar tax loss, or a tax credit carryforward. ASU 2013-11 is effective prospectively for reporting

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periods beginning after December 15, 2013, with early adoption permitted. Retrospective application is permitted. The Company is currently evaluating the impact of ASU 2013-11 yet there are no uncertain tax positions included in the unaudited condensed consolidated financial statements.

In December 2011, the FASB issued ASU No. 2011-11 ("ASU 2011-11"), Disclosures about Offsetting Assets and Liabilities. The update requires companies to disclose information about financial instruments that have been offset and related arrangements to enable users of their financial statements to understand the effect of those arrangements on their financial position. Companies will be required to provide both net (offset amounts) and gross information in the notes to the financial statements for relevant assets and liabilities that are offset. In January 2013, the FASB issued ASU No. 2013-01 (ASU 2013-01"), Clarifying the Scope of Disclosures About Offsetting Assets and Liabilities. The update limits the scope of the offsetting disclosures required by ASU 2011-11. ASU 2011-11 and ASU 2013-01 is effective for interim and annual periods beginning after December 31, 2012. As the requirements of these ASUs relate only to disclosures, the application of the updates did not have a material impact on the Company's unaudited condensed consolidated financial statements.

In December 2011, the FASB issued ASU No. 2011-12 ("ASU 2011-12"), Comprehensive Income: Deferral of the Effective Date for Amendments to the Presentation of Reclassifications of Items Out of Accumulated Other Comprehensive Income in Accounting Standards Update No. 2011-05. ASU 2011-12 deferred the effective date of the specific requirement to present items that are reclassified out of accumulated other comprehensive income to net income alongside their respective components of net income and other comprehensive income. As part of this update, the FASB did not defer the requirement to report comprehensive income in either a single continuous statement or in two separate but consecutive statements. In February 2013, the FASB issued ASU No. 2013-02 ("ASU 2013-02"), Comprehensive Income: Reporting of Amounts Reclassified Out of Accumulated Other Comprehensive Income. ASU 2013-02 is effective for interim and annual periods beginning after December 31, 2012. As ASU 2013-02 relates to disclosure requirements only, the application of this update did not have a material impact on the Company's unaudited condensed consolidated financial statements.

### 3. Accounts Receivable/Advances on Contracts in Progress

Net accounts receivable, trade and advances on contracts in progress consists of the following:

(in thousands)	September 30, 2013	December 31, 2012
Amounts billed	\$1,365	\$1,927
Accrued revenue	18	238
Gross accounts receivable - trade	1,383	2,165
Less: Allowance for doubtful accounts	(20	) (28
Net accounts receivable - trade	\$1,363	\$2,137
Advances on contracts in progress	\$1,046	\$1,037

Accrued revenue represents revenues recognized on contracts for which billings have not been presented to customers as of the balance sheet date. These amounts are billed and generally collected within one year.

The Company maintains allowances for doubtful accounts for estimated losses resulting from the inability of its customers to pay amounts due. The Company actively pursues collection of past due receivables as the circumstances warrant. Customers are contacted to determine the status of payment and senior accounting and operations management are included in these efforts as is deemed necessary. A specific reserve will be established for past due accounts when it is probable that a loss has been incurred and the Company can reasonably estimate the amount of the loss. The Company does not record an allowance for government receivables and invoices backed by letters of credit as collection is reasonably assured. Bad debts are written off against the allowance when identified. There is no dollar threshold for account balance write-offs. While rare, a write-off is only recorded when all efforts to collect the

receivable have been exhausted. The Company received payments of \$24 thousand and \$10 thousand for the nine months ended September 30, 2013 and 2012, respectively, against amounts which had been previously reserved for in allowance for doubtful accounts.

Advances on contracts in progress represent billings that have been presented to the customer, as either deposits or progress payments against future shipments, but revenue has not been recognized.

#### 4. Inventories and Deferred Costs of Goods Sold

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Inventories, net of \$1.1 million and \$860 thousand of reserves at September 30, 2013 and December 31, 2012, respectively, and deferred cost of goods sold consist of the following at:

(in thousands)	September 30, 2013	December 31, 2012
Raw materials	\$1,489	\$1,784
Work in process	1,923	2,103
Finished goods	1,244	1,429
Net inventory	\$4,656	\$5,316
Deferred cost of goods sold	\$92	\$185

The Company wrote-off \$29 thousand of excess and obsolete inventory for the nine months ended September 30, 2012 and had no write-offs for the nine months ended September 30, 2013.

Deferred cost of goods sold represents costs of equipment that has shipped to the customer and title has passed but not all revenue recognition criteria have yet been met. The Company defers these costs until the related revenue is recognized.

#### 5. Income (Loss) Per Share

The following table provides a reconciliation of the denominators of the Company's reported basic and diluted income (loss) per share computations for the periods ended:

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2013	2012	2013	2012
Weighted average number of common and common equivalent shares outstanding – basic	9,207,874	8,562,633	9,165,844	8,562,633
Add: Net additional common shares upon assumed exercise of common stock options	—	—	—	—
Adjusted weighted average number of common and common equivalents shares outstanding – diluted	9,207,874	8,562,633	9,165,844	8,562,633

For the three and nine months ended September 30, 2013, 1,152 and 3,708 shares of common stock, respectively, and for the three and nine months ended September 30, 2012, 220 and 1,335 shares of common stock, respectively, issuable relative to stock options were excluded from the calculation of diluted shares because their inclusion would have been anti-dilutive, due to the Company's net loss position.

In addition, for the three and nine months ended September 30, 2013, 559,571 and 535,571 shares of common stock, respectively, and for the three and nine months ended September 30, 2012, 629,446 and 619,446 shares of common stock, respectively, issuable relative to stock options were excluded from the calculation of diluted shares because their inclusion would have been anti-dilutive, due to the Company's net loss position and their exercise prices exceeding the average market price of the stock for the period.

#### 6. Operating Segments and Related Information

The Company's operations are focused on two primary business areas: Spire Solar (comprised of solar equipment, solar systems and solar research) and Spire Biomedical (comprised of biomedical surface treatments and biophotonics research). Spire Solar and Spire Biomedical operate out of the Company's facility in Bedford, Massachusetts. Each business area is independently managed and has separate financial results that are reviewed by the Board of Directors

and Chief Executive Officer and the chief executive officers of each operating division.

On September 18, 2013, the Company completed the sale of the Bio Business Unit to N2 Bio, whereas, the Company has a controlling financial interest in N2 Bio and is less than wholly-owned by the Company. N2 Bio qualifies as a variable interest entity and the Company is determined to be the primary beneficiary, therefore assets, liabilities and results of operations of N2 Bio are consolidated into the Company's financial statements. The Bio Business Unit is being reported in our biomedical segment. See Note 14 to the unaudited condensed consolidated financial statements.

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During the first quarter of 2012, the Company began pursuing an exclusive sales process of our semiconductor business and on March 9, 2012, the Company completed the sale of the Semiconductor Business Unit to Masimo Corporation. The Company reported the Semiconductor Business Unit as discontinued operations beginning with our financial results presented in our Quarterly Report on Form 10-Q for the first quarter of fiscal 2012. The Semiconductor Business Unit was previously reported as our optoelectronics segment. Accordingly, the results of operations and assets and liabilities of the Semiconductor Business Unit are being presented herein as discontinued operations and are not included in the table below. See Note 13 to the unaudited condensed consolidated financial statements.

The following table presents certain continuing operating division information in accordance with the provisions of ASC 280, Segments Reporting.

(in thousands)	Solar	Biomedical	Consolidated
For the three months ended September 30, 2013			
Net sales and revenues	\$2,445	\$1,709	4,154
Operating loss from continuing operations	\$(1,462)	) \$(749)	) (2,211)
For the three months ended September 30, 2012			
Net sales and revenues	\$2,485	\$1,743	4,228
Operating income (loss) from continuing operations	\$(2,197)	) \$179	(2,018)
For the nine months ended September 30, 2013			
Net sales and revenues	\$5,783	\$5,183	\$10,966
Operating loss from continuing operations	\$(6,192)	) \$(389)	) \$(6,581)
For the nine months ended September 30, 2012			
Net sales and revenues	\$13,219	\$5,104	\$18,323
Operating income (loss) from continuing operations	\$(5,740)	) \$326	\$(5,414)

Operating loss from continuing operations is net sales less cost of sales and selling, general and administrative expenses, but is not affected by non-operating income (expense), by income taxes or by net income (loss) from discontinued operations. In calculating operating loss from continuing operations for individual business units, substantial administrative expenses incurred at the operating level that are common to more than one segment are allocated on a net sales basis. Certain corporate expenses of an operational nature are also allocated to the divisions based on factors including occupancy, employment, and purchasing volume. All intercompany transactions have been eliminated. Included in the Biomedical segment are costs associated with the sale of the biomedical assets to N2 Bio.

The following table shows net sales and revenues by geographic area (based on customer location):

(in thousands)	Three Months Ended September 30,				Nine Months Ended September 30,			
	2013	%	2012	%	2013	%	2012	%
United States	\$3,042	73	\$3,005	71	\$7,576	69	\$7,955	43
Europe/Africa	874	21	376	9	1,664	15	3,062	17
Asia	238	6	839	20	1,509	14	7,246	40
Rest of the world	—	—	8	—	217	2	60	—
	\$4,154	100	\$4,228	100	\$10,966	100	\$18,323	100

Revenues from contracts with United States government agencies for the three months ended September 30, 2013 and 2012 were approximately \$61 thousand and \$392 thousand or 1% and 9% of total net sales and revenues, respectively.

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Revenues from contracts with United States government agencies for the nine months ended September 30, 2013 and 2012 were approximately \$704 thousand and \$1.3 million or 6% and 7% of total net sales and revenues, respectively.

Revenues from the delivery of biomedical services to one customer accounted for 17% of total net sales and revenues for the three month period ended September 30, 2013. Revenues from the delivery of solar equipment to one customer accounted for 13% of total net sales and revenues for the three month period ended September 30, 2013. Revenues from the delivery of solar

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equipment research and development to one customer accounted for 14% of total net sales and revenues for the three month period ended September 30, 2013. Revenues from the delivery of solar systems to one customer accounted for 15% of total net sales and revenues for the three month period ended September 30, 2013.

Revenues from the delivery of biomedical services to two customers accounted for 20% and 11% of total net sales and revenues for the nine month period ended September 30, 2013.

Revenues from the delivery of biomedical services to one customer accounted for 19% of total net sales and revenues for the three month period ended September 30, 2012.

Revenues from the delivery of solar equipment to two customers account for 12% and 10% of total net sales and revenues for the nine month period ended September 30, 2012. Revenues from the delivery of biomedical services to one customer accounted for 12% of total net sales and revenues for the nine month period ended September 30, 2012.

Three customers represented approximately 25%, 17% and 20%, respectively, of net accounts receivable, trade at September 30, 2013 and one customer represented approximately 24% of net accounts receivable, trade at December 31, 2012.

## 7. Intangible and Other Assets

Patents amounted to \$74 thousand and \$111 thousand, net of accumulated amortization of \$859 thousand and \$822 thousand, at September 30, 2013 and December 31, 2012, respectively. Licenses amounted to \$56 thousand and \$60 thousand, net of accumulated amortization of \$19 thousand and \$15 thousand, at September 30, 2013 and December 31, 2012, respectively. Patent cost is primarily composed of costs associated with securing and registering patents that the Company has been awarded or that have been submitted to, and the Company believes will be approved by the government. License cost is composed of the cost to acquire rights to the underlying technology or know-how. These costs are capitalized and amortized over their useful lives or terms, ordinarily five years using the straight-line method. There are no expected residual values related to these patents. Amortization expense from continuing operations, relating to patents and licenses, was approximately \$14 thousand and \$44 thousand for the three months ended September 30, 2013 and 2012, respectively. Amortization expense from continuing operations, relating to patents and licenses, was approximately \$41 thousand and \$84 thousand for the nine months ended September 30, 2013 and 2012, respectively.

For disclosure purposes, the table below includes future amortization expense for patents and licenses owned by the Company as well as estimated amortization expense related to patents that remain pending at September 30, 2013 of \$117 thousand. This estimated expense for patents pending assumes that the patents are issued immediately, and therefore are being amortized over five years on a straight-line basis. Estimated amortization expense for the periods ending December 31, is as follows:

(in thousands)	Amortization Expense
2013 remaining 3 months	\$21
2014	69
2015	50
2016	28
2017	28
2018	23
Thereafter	28
	\$247

Also included in other assets are refundable deposits made by the Company of approximately \$150 thousand and \$154 thousand at September 30, 2013 and December 31, 2012, respectively.

#### 8. Available-for-Sale Investments

Available-for-sale investments consist of assets held as part of the Spire Corporation Non-Qualified Deferred Compensation Plan. These investments have been classified as available-for-sale investments and are reported at fair value, with unrealized gains and losses included in accumulated other comprehensive income. The unrealized gain on these marketable securities was \$327 thousand and \$222 thousand as of September 30, 2013 and December 31, 2012, respectively. Additionally, the Company settled \$84 thousand of accrued liabilities through issuance of common stock to the Spire Corporation Non-Qualified Deferred Compensation Plan during the nine month period ended September 30, 2013.

#### 9. Fair Value Measurements



The hierarchy established under ASC 820-10, Fair Value Measures and Disclosures ("ASC 820-10") gives the highest priority to unadjusted quoted prices in active markets for identical assets or liabilities (Level 1) and the lowest priority to unobservable inputs (Level 3). As required by ASC 820-10, the Company's available-for-sale investments are classified within the fair value hierarchy based on the lowest level of input that is significant to the fair value measurement. The three levels of the fair value hierarchy under ASC 820-10, and its applicability to the Company's available-for-sale investments, are described below:

Level 1 - Pricing inputs are quoted prices available in active markets for identical investments as of the reporting date. As required by ASC 820-10, the Company does not adjust the quoted price for these investments, even in situations where the Company holds a large position and a sale could reasonably impact the quoted price.

Level 2 - Pricing inputs are quoted prices for similar investments, or inputs that are observable, either directly or indirectly, for substantially the full term through corroboration with observable market data. Level 2 includes investments valued at quoted prices adjusted for legal or contractual restrictions specific to these investments.

Level 3 - Pricing inputs are unobservable for the investment, that is, inputs that reflect the reporting entity's own assumptions about the assumptions market participants would use in pricing the asset or liability. Level 3 includes investments that are supported by little or no market activity.

#### Valuation Techniques

Fair value is a market-based measure considered from the perspective of a market participant who would buy the asset or assume the liability rather than the Company's own specific measure. All of the Company's fixed income securities are priced using a variety of daily data sources, largely readily-available market data and broker quotes. To validate these prices, the Company compares the fair market values of the Company's fixed income investments using market data from observable and corroborated sources. The Company also performs the fair value calculations for its common stock and mutual fund securities using market data from observable and corroborated sources. In periods of market inactivity, the observability of prices and inputs may be reduced for certain instruments. This condition could cause an instrument to be reclassified from Level 1 to Level 2 or from Level 2 to Level 3. During the nine months ended September 30, 2013, none of the Company's instruments were reclassified between Level 1, Level 2, Level 3 and there have been no changes in valuation techniques.

The following table presents the financial instruments related to the Company's available-for-sale investment carried at fair value on a recurring basis as of September 30, 2013 and December 31, 2012 by ASC 820-10 valuation hierarchy (as defined above).

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(in thousands)	Balance as of September 30, 2013	Level 1	Level 2	Level 3	
Cash and short term investments	\$87	\$87	\$—	\$—	
Common stock					
Basic Materials	22	22	—	—	
Consumer Goods	143	143	—	—	
Energy	120	120	—	—	
Financial	149	149	—	—	
Healthcare	138	138	—	—	
Industrial Goods	158	158	—	—	
Services	34	34	—	—	
Technology	464	464	—	—	
Transportation	—	—	—	—	
Utilities	14	14	—	—	
Total Common Stock	1,242	1,242	—	—	
Mutual Fund					
Diversified Emerging Markets	289	—	289	—	
Foreign Large Blend	265	—	265	—	
Foreign Large Growth	273	—	273	—	
Large Growth	250	—	250	—	
Small Blend	293	293	—	—	
Global High Yield Income Fund	56	—	56	—	
Total Mutual Fund	1,426	293	1,133	—	
Fixed Income					
Domestic	421	—	421	—	
International	49	—	49	—	
Total Fixed Income	470	—	470	—	
Total available-for-sale investments <sup>(1)</sup>	\$3,225	\$1,622	\$1,603	\$—	
Percent of total	100	% 50	% 50	% —	%

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(in thousands)	Balance as of December 31, 2012	Level 1	Level 2	Level 3
Cash and short term investments	\$32	\$32	\$—	\$—
Common Stock				
Basic Materials	15	15	—	—
Consumer Goods	58	58	—	—
Energy	29	29	—	—
Financial	61	61	—	—
Healthcare	52	52	—	—
Industrial Goods	51	51	—	—
Services	32	32	—	—
Technology	376	376	—	—
Transportation	8	8	—	—
Utilities	26	26	—	—
Total Common Stock	708	708	—	—
Mutual Fund				
Diversified Emerging Markets	187	—	187	—
Precious Metals Fund	49	—	49	—
Foreign Large Blend	244	—	244	—
Foreign Large Growth	250	—	250	—
Large Growth	220	—	220	—
Small Blend Total	525	525	—	—
Global High Yield Income Fund	52	—	52	—
Total Mutual Funds	1,527	525	1,002	—
Fixed Income				
Domestic	678	—	678	—
International	18	—	18	—
Total Fixed Income	696	—	696	—
Total available for-sale-investments <sup>(1)</sup>	\$2,963	\$1,265	\$1,698	\$—
Percent of total	100	% 43	% 57	% —

(1) Changes in the fair value of available-for-sale investments are recorded in accumulated other comprehensive income, a component of stockholders' equity, in the Company's unaudited condensed consolidated balance sheets.

The carrying amounts reflected in the Company's unaudited condensed consolidated balance sheets for cash, accounts receivable, prepaid expenses and other current assets, accounts payable, accrued expenses, and capital lease obligations approximate fair value due to their short-term maturities. The fair value of the Company's term loan and revolving lines of credit have been estimated by management based on the terms that it believes it could obtain in the current market for debt of the same terms and similar remaining maturities. Due to the short-term nature of the remaining maturities, recent issuances, frequency of amendments to its terms and the variable interest rates, the carrying value of the term loan and revolving lines of credit approximate fair value at September 30, 2013 and December 31, 2012.

#### 10. Notes Payable and Credit Arrangements

The Company has two separate credit facilities with Silicon Valley Bank (the "Bank" or "SVB"): (i) a Second Amended and Restated Loan and Security Agreement (as amended, the "Revolving Credit Facility") and (ii) an Amended and

Restated Export-Import Bank Loan and Security Agreement (as amended, the "Ex-Im Facility") pursuant to which outstanding amounts under this facility are guaranteed by the Export-Import Bank of the United States (the "EXIM Bank"). The credit facilities provide

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an aggregate amount of \$1.5 million under both facilities, with up to \$1.0 million available under the Revolving Credit Facility and up to \$1.5 million available under the Ex-Im Facility. In addition, a guidance line supports letters of credit in an aggregate amount of up to \$1.5 million through April 30, 2014. If the Company achieves certain levels of liquidity, based on cash on hand and availability under the credit facility, the Company will not be required to cash collateralize letters of credit issued under this guidance line.

On September 3, 2013, the Company and the Bank entered into (i) the Sixth Loan Modification Agreement amending certain terms of the Second Amended and Restated Loan and Security Agreement dated as of November 16, 2009 (as amended, the "Revolving Credit Facility") and (ii) the Sixth Loan Modification Agreement amending certain terms of the Amended and Restated Export-Import Bank Loan and Security Agreement dated as of November 16, 2009 (as amended, the "Ex-Im Facility"). Pursuant to the terms of the Sixth Loan Modification Agreements, the Company and the Bank agreed to extend the maturity date of the Revolving Credit Facility and the Ex-Im Facility to October 29, 2013.

On November 18, 2013, the Company and the Bank entered into (i) the Seventh Loan Modification Agreement amending certain terms of the Second Amended and Restated Loan and Security Agreement dated as of November 16, 2009 (as amended, the "Revolving Credit Facility") and (ii) the Seventh Loan Modification Agreement amending certain terms of the Amended and Restated Export-Import Bank Loan and Security Agreement dated as of November 16, 2009 (as amended, the "Ex-Im Facility"). Pursuant to the terms of the Seventh Loan Modification Agreements, the Company and the Bank agreed to (i) extend the maturity date of the Revolving Credit Facility and the Ex-Im Facility to from October 29, 2013 to April 30, 2014, (ii) effective November 18, 2013 amend the definition of the Financial Covenant by deleting the requirement to maintain liquidity of at least \$1.25 million at all times based on cash on hand and availability under the credit facility and replacing it with a newly defined covenant whereby the Company shall maintain cash on hand of at least \$2.5 million at all times, as long as any commitment remains outstanding under the facilities, and (iii) amend the definition of Streamline Facility Eligible to increase the liquidity requirement from \$2.5 million to \$3.5 million.

The Company's obligations under these two credit facilities, as well as the guidance line, are secured by substantially all of the assets of the Company. Advances under the Revolving Credit Facility are limited to 80% of eligible receivables. Advances under the Ex-Im Facility are limited to (i) 90% of eligible receivables subject to a suitable foreign currency hedge agreement if applicable, plus (ii) 75% of all other eligible receivables billed in foreign currency, plus (iii) 50% of the value of eligible inventory, as defined. In addition, until all amounts under the credit facilities with the Bank are repaid, covenants under the credit facilities impose restrictions on the Company's ability to, among other things, incur additional indebtedness, create or permit liens on the Company's assets, merge, consolidate or dispose of assets (other than in the ordinary course of business), make dividend and other restricted payments, make certain debt or equity investments, make certain acquisitions, engage in certain transactions with affiliates or change the business conducted by the Company. Any failure by the Company to comply with the covenants and obligations under the credit facilities could result in an event of default, in which case the Bank may be entitled to declare all amounts owed to be due and payable immediately.

Under the credit facilities, interest on outstanding borrowings accrues at a rate per annum equal to the greater of (i) the prime rate plus 2.5% or (ii) 7.0%. In addition, if the Company achieves certain levels of liquidity, based on cash on hand and availability under the credit facility, the Company will have a 0.5% lower interest rate.

N2 Bio has two separate agreements under one credit facility with Middlesex Savings Bank ("MSB"): (i) a Secured Term Loan and (ii) a Secured Revolving Demand Note. Under the Secured Term Loan, N2 Bio borrowed \$6.0 million on September 18, 2013 to finance the purchase of the Bio Business Unit from the Company. The advance made under the Secured Term Loan will bear interest at a fixed rate of 4.5% per annum in eighty-four (84) consecutive monthly payments starting on October 18, 2013. If not sooner paid, the Secured Term Loan shall be due and payable in full on September 18, 2020. The Secured Revolving Demand Note provides an amount available of up to \$1.0 million.

Advances made under the Secured Revolving Demand Note will bear interest at MSB's prime rate, as determined, plus 0.5% per annum but in no event shall the interest rate be less than 3.75% per annum. The maturity date of the Secured Revolving Demand Note is September 18, 2014.

N2 Bio's obligations under the credit facility, is secured by substantially all of the assets of N2 Bio. Advances under the Secured Revolving Demand Note are limited to 75% of eligible receivables. In addition, until all amounts under the credit facilities with MSB are repaid, covenants under the credit facilities impose restrictions on the N2 Bio's ability to, among other things, incur additional indebtedness, create or permit liens on the N2 Bio's assets, merge, consolidate or dispose of assets (other than in the ordinary course of business), make dividend and other restricted payments, make certain debt or equity investments, make certain acquisitions, engage in certain transactions with affiliates or change the business conducted by the N2 Bio. Any failure by N2 Bio to comply with the covenants and obligations under the credit facilities could result in an event of default, in which case MSB may be entitled to declare all amounts owed to be due and payable immediately.

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Advances outstanding under the Company's Revolving Credit Facility were \$144 thousand and \$449 thousand at September 30, 2013 and December 31, 2012, respectively. Advances outstanding under the Company's Ex-Im Facility were zero and \$141 thousand at September 30, 2013 and December 31, 2012, respectively. Advances outstanding under the N2 Bio Secured Term Loan were \$6.0 million at September 30, 2013. Advances outstanding under the N2 Bio Secured Revolving Demand Note were \$437 thousand at September 30, 2013. As of September 30, 2013, the interest rate per annum on the Company's Revolving Credit Facility and Ex-Im Facility was 6.5% and 6.5%, respectively. The interest rate per annum on the N2 Bio Secured Term Loan and Secured Revolving Demand Note on September 30, 2013 was 4.5% and 3.75%, respectively. The Company had utilized \$675 thousand of the guidance line at December 31, 2012. Combined availability under the Revolving Credit Facility, the Ex-Im Facility and the Secured Revolving Demand Note was \$262 thousand as of September 30, 2013.

## 11. Share-Based Compensation

The Company has recognized share-based compensation expense from continuing operations of approximately \$11 thousand and \$48 thousand for the three months ended September 30, 2013 and 2012, respectively. The Company has recognized share-based compensation expense from continuing operations of approximately \$88 thousand and \$169 thousand for the nine months ended September 30, 2013 and 2012, respectively. The total non-cash, share-based compensation expense from continuing operations included in the unaudited condensed consolidated statements of operations for the periods presented is included in the following expense categories:

(in thousands)	Three Months Ended September		Nine Months Ended September	
	30, 2013	2012	30, 2013	2012
Cost of contract research, services	\$1	\$6	\$11	\$16
Cost of goods sold	—	6	7	31
Administrative and selling	10	36	70	122
Total share-based compensation	\$11	\$48	\$88	\$169

There was no share-based compensation expense from discontinued operations for the three and nine months ended September 30, 2013. Share-based compensation expense from discontinued operations was zero and \$(7) thousand for the three and nine months ended September 30, 2012, respectively. No share-based compensation expense was capitalized during the nine months ended September 30, 2013 and 2012. Compensation expense related to stock options to be charged in future periods amounts to approximately \$27 thousand at September 30, 2013 and will be recognized over a weighted-average period of 0.83 years as follows:

For the years ended December 31,	Expected Compensation Expense (in thousands)
2013	\$8
2014	19
	\$27

The Company estimates forfeitures at the time of grant and revises, if necessary, in subsequent periods if actual forfeitures differ from those estimates in order to derive the Company's best estimate of awards ultimately expected to vest. Forfeitures represent only the unvested portion of a surrendered option and are typically estimated based on historical experience.

At September 30, 2013, the Company had outstanding options under two option plans: the 1996 Equity Incentive Plan (the "1996 Plan") and the 2007 Stock Equity Plan (the "2007 Plan", together the "Plans"). Both Plans were approved by stockholders and provided that the Board of Directors may grant options to purchase the Company's common stock to key employees and directors of the Company. Incentive and non-qualified options must be granted at least at the fair market value of the common stock or, in the case of certain optionees, at 110% of such fair market value at the time of grant. The options may be exercised, subject to certain vesting requirements, for periods up to ten years from the date of issue. The 1996 Plan expired with respect to the issuance of new grants as of December 10, 2006. Accordingly, future grants may be made only under the 2007 Plan.

A summary of options outstanding under the Plans as of September 30, 2013 and changes during the nine-month period ended September 30, 2013 is as follows:

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	Number of Shares	Weighted-Average Exercise Price	Average Remaining Contractual Life (Years)	Aggregate Intrinsic Value (in thousands)
Options Outstanding at December 31, 2012	644,446	\$ 6.21		
Granted	26,000	\$ 0.48		
Exercised	—	\$ —		
Cancelled/expired	(102,875 )	\$ 5.71		
Options outstanding at September 30, 2013	567,571	\$ 6.04	5.38	\$ 1
Options vested and exercisable at September 30, 2013	553,821	\$ 6.08	5.34	\$ 1
Option vested and expected to vest at September 30, 2013	567,096	\$ 6.07	5.34	\$—
Options available for future grant at September 30, 2013	438,434			

The aggregate intrinsic value in the table above represents the total intrinsic value, based on the Company's closing stock price of \$0.37 as of September 30, 2013, which would have been received by the option holders had all option holders exercised their options as of that date. The total intrinsic value of options exercised was approximately zero and zero for the nine months ended September 30, 2013 and 2012, respectively. The total intrinsic value of options expected to vest at September 30, 2013 was approximately zero, and the weighted average remaining contractual life of outstanding options that are expected to vest is 5.28 years.

The per-share weighted-average fair value of stock options granted during the three and nine months ended September 30, 2013 was \$0.26 and \$0.55, respectively, and \$0.48 and \$1.29 for the three and nine months ended September 30, 2012, respectively, on the date of grant using the Black-Scholes option-pricing model with the following weighted-average assumptions:

Year	Expected Dividend Yield	Risk-Free Interest Rate	Expected Option Life	Expected Volatility Factor
2013	—	1.40%	5.1 years	99.8%
2012	—	0.62%	5.1 years	92.1%

The risk free interest rate reflects treasury yields rates over a term that approximates the expected option life. The expected option life is calculated based on historical lives of all options issued under the Plans. The expected volatility factor is determined by measuring the actual stock price volatility over a term equal to the expected life of the options granted.

## 12. Accumulated Other Comprehensive Income

Changes in accumulated other comprehensive income balances by component for the nine months ended September 30, 2013 consist of the following:

(in thousands)	Unrealized Gains (Losses) on Available for Sale Securities
Balance, December 31, 2012	\$ 222
Other comprehensive income before reclassification	170
Amounts reclassified from accumulated other comprehensive income	(65 )

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Net current-period other comprehensive income	105
Balance, September 30, 2013	\$ 327

Reporting reclassifications out of accumulated other comprehensive income for the nine months ended September 30, 2013 consist of the following:

Details about Accumulated Other Comprehensive Income Components	Amount Reclassified from Accumulated Other Comprehensive Income (in thousands)	Affected Line Item in the Statement Where Net Income is Resented
Unrealized gains (losses) on available-for-sale investments	\$ (65	) Selling, general and administrative expenses

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### 13. Discontinued Operations and Assets Held for Sale

The accompanying unaudited condensed consolidated balance sheets, statements of operations and cash flows present the results of operations and assets and liabilities of the Semiconductor Business Unit and the liabilities of the Medical Products Business Unit as discontinued operations.

#### Sales of Medical Products Business Unit

On December 14, 2009, the Company completed the sale of its medical products business unit, which developed and marketed coated and uncoated hemodialysis catheters and related devices for the treatment of chronic kidney disease (the "Medical Products Business Unit"), to Bard Access Systems, Inc. ("Bard"). Accordingly, the liabilities of the Medical Products Business Unit are being presented herein as discontinued operations.

The Company recorded a loss from discontinued operations before the sale of the Medical Products Business Unit of zero and \$250 thousand for the nine months ended September 30, 2013 and 2012, respectively.

#### Sale of Semiconductor Business Unit

During the first quarter of 2012, the Company began pursuing an exclusive sales process of the Company's Semiconductor Business Unit. The Company (i) determined that the Semiconductor Business Unit was a separate component of the Company's business as, historically, management reviewed separately the Semiconductor Business Unit's financial results apart from the Company's ongoing continuing operations, (ii) eliminated the Semiconductor Business Unit's financial results from ongoing operations and (iii) determined that the Company will have no further continuing involvement in the operations of the Semiconductor Business Unit or cash flows from the Semiconductor Business Unit after the sale.

On March 9, 2012, the Company completed the sale of the Semiconductor Business Unit to Masimo. The asset purchase agreement provided that the aggregate purchase price for the Semiconductor Business Unit was \$8.0 million plus the assumption of \$500 thousand in liabilities, with the cash portion of the purchase price being reduced by retained cash, accounts receivable and liabilities assumed by Masimo in excess of the agreed upon assumed liabilities. As a result, in the first quarter of 2012 the Company received approximately \$7.3 million in cash (less the escrow described below) and incurred legal and transaction related fees of \$425 thousand and Masimo assumed approximately \$1.2 million in liabilities. Of the purchase price, approximately \$718 thousand was deposited into an indemnity escrow account for fifteen months to partially secure the Company's obligations for any indemnity claims under the asset purchase agreement. There were no indemnity claims related to the asset purchase agreement and the Company received full payment from the indemnity escrow account in June 2013. In connection with this transaction, the lease for the premises in Hudson, New Hampshire where the Semiconductor Business Unit was located, was terminated on March 9, 2012, and the Company was released from all future obligations under the lease as of such date.

The Company recorded a loss from discontinued operations before the sale of the Semiconductor Business Unit of zero and \$430 thousand for the nine months ended September 30, 2013 and 2012, respectively.

#### Summarized Financial Information of the Discontinued Operations

The assets and liabilities of the Semiconductor Business Unit and the liabilities of the Medical Products Business Unit as of September 30, 2013 and December 31, 2012 are as follows:



(in thousands)	September 30, 2013	December 31, 2012
Assets of Discontinued Operations		
Current Assets		
Restricted cash	\$—	\$718
Total current assets of discontinued operations	—	718
Total assets of discontinued operations	\$—	\$718
Liabilities of Discontinued Operations		
Current liabilities of discontinued operations		
Accrued liabilities	\$21	\$171
Total current liabilities of discontinued operations	21	171
Total liabilities of discontinued operations	\$21	\$171

Condensed results of operations relating to the Medical Products Business Unit for the three months ended September 30, 2013 and 2012 and condensed results of operations relating to the Medical Products Business Unit and the Semiconductor Business Unit for the nine months ended September 30, 2013 and 2012 are as follows:

(in thousands)	Three Months Ended		Nine Months Ended	
	September 30,		September 30,	
	2013	2012	2013	2012
Net sales and revenues	\$—	\$—	\$—	\$425
Gross margin	\$—	\$—	\$—	\$(296 )
Loss from discontinued operations before sale of business unit	\$—	\$(250 )	\$—	\$(680 )
Gain on sale of business unit, net of transaction expenses	—	—	—	5,449
Income tax provision	—	—	—	(2,008 )
Net income from discontinued operations, net of tax	\$—	\$(250 )	\$—	\$2,761

#### 14. Variable Interest Entity

The Company has interests in N2 Bio which is a VIE. If the Company is the primary beneficiary of a VIE, the Company is required to consolidate it. To determine if the Company is the primary beneficiary, the Company evaluates whether the Company has the power to direct the activities that most significantly impact the VIE's economic performance and the obligation to absorb losses or the right to receive benefits of the VIE that could potentially be significant to the VIE. The Company's evaluation includes identification of significant activities and an assessment of the Company's ability to direct those activities based on governance provisions and arrangements to provide or receive product and process technology, product supply, operations services, equity funding, financing and other applicable agreements and circumstances. The Company's assessments of whether the Company is the primary beneficiary of its VIE require significant assumptions and judgments.

On September 18, 2013, the Company, Spire Biomedical, Inc. (the "Subsidiary" and together with the Company, "Spire Bio") entered into an Asset Purchase Agreement (the "Purchase Agreement") with N2 Biomedical LLC ("N2 Bio") pursuant to which N2 Bio agreed to (i) acquire substantially all of the assets of Spire Bio's biomedical business (the "Bio Business Unit") and (ii) assume and pay certain liabilities related to the purchased assets as set forth in the Purchase Agreement (collectively, the "Transaction"). The Transaction closed on September 18, 2013. The purchase price for the Bio Business Unit was \$10.5 million plus the assumption of liabilities of approximately \$100 thousand, with \$6.0 million paid in cash at closing, a \$2.4 million subordinated convertible promissory note, and 310,549 Series A Convertible Preferred Units of N2 Bio valued at approximately \$2.1 million (\$6.72 per share). The difference between the consideration paid and the carrying value of the assets and liabilities acquired by N2 Bio was recorded as a deemed dividend to the Company in the amount of \$9.5 million and has been eliminated in consolidation. Mark C.

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Little was the Chief Executive Officer of the Subsidiary, is a director of the Company and is the Chief Executive Officer of N2 Bio. Mark C. Little is the son of Roger G. Little, Chief Executive Officer of the Company.

On September 18, 2013, N2 Bio entered into a Lease Agreement (the "N2 Bio Bedford Lease") with SPI-Trust with respect to 27 thousand square feet of space which represents approximately 19% of space in the Bedford, Massachusetts premises. The

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term of the N2 Bio Bedford Lease commenced on September 18, 2013 and is set to expire on November 30, 2020. The annual rental rate prorated for September 18, 2013 to November 30, 2013 is \$16.00 per square foot on a triple net basis, whereby the tenant is responsible for operating expenses, taxes and maintenance of the building. The annual rental rate increases on December 1, 2013 and each anniversary thereafter by \$0.50 per square foot.

The Company has determined that N2 Bio is a VIE because the equity investment at risk from the majority shareholders of N2 Bio is not sufficient to permit N2 Bio to finance its activities without additional subordinated financial support from the Company. As discussed above, N2 Bio is subject to a subordinated convertible promissory note. Additionally, Mark Little is the Chief Executive Officer of N2 Bio and also a director of the Company which qualifies as a related party. The Company has also determined that the Company has the obligation to absorb losses and the right to receive benefits from N2 Bio that could potentially be significant to it. Therefore, the Company has determined that N2 Bio is a VIE and must consolidate the financial condition, results of operations and cash flows of N2 Bio with those of its own.

The assets and liabilities with carryover basis as noted above from the VIE included in the condensed consolidated balance sheets as of September 30, 2013 are as follows:

(in thousands)	September 30, 2013
Assets of VIE	
Current Assets	
Cash and cash equivalents	\$276
Accounts receivable trade, net	753
Inventories, net	111
Prepaid expenses and other current assets	71
Total current assets of VIE	1,211
Property and equipment, net	211
Intangible & other assets, net	88
Total assets of VIE	\$1,510
Liabilities of VIE	
Current liabilities	
Current portion of term loan	\$744
Revolving line of credit	438
Accounts payable	91
Due to related parties	4
Accrued liabilities	197
Total current liabilities of VIE	1,474
Long-term portion of term loan	5,255
Long-term note payable to related party	2,400
Total liabilities of VIE	\$9,129

#### 15. Subsequent Events

The Company evaluated subsequent events through the date of this filing. Except for the Seventh Loan Modification Agreement as disclosed in Note 10, there are no subsequent events to report.





## 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 section and other parts of this Report contain forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended (the "Securities Act"), and Section 21E of the Securities Exchange Act of 1934, as amended (the "Exchange Act"), which statements involve risks and uncertainties. These statements relate to our future plans, objectives, expectations and intentions. These statements may be identified by the use of words such as "may", "could", "would", "should", "will", "expects", "anticipates", "intends", "plans", "believes", "estimates", and similar expressions. Our actual results and the timing of certain events may differ significantly from the results and timing described in the forward-looking statements. Factors that could cause or contribute to such differences include, but are not limited to, those factors discussed or referred to in the Annual Report on Form 10-K for the year ended December 31, 2012 and in subsequent period reports filed with the Securities and Exchange Commission, including this report. The following discussion and analysis of our financial condition and results of operations should be read in light of those factors and in conjunction with our accompanying Consolidated Financial Statements, including the Notes thereto.

### Overview

We and our subsidiaries along with our variable interest entity develop, manufacture and market highly-engineered products and services in two principal business areas: (i) capital equipment and systems for the photovoltaic solar industry and (ii) biomedical, through our variable interest entity, N2 Biomedical LLC ("N2 Bio"), generally bringing to bear expertise in materials technologies, surface science and thin films across both business areas, discussed below.

In the photovoltaic solar area, we develop, manufacture and market specialized equipment for the production of terrestrial photovoltaic modules from solar cells and provide photovoltaic systems for grid connected applications in the commercial markets. Our equipment has been installed in approximately 200 factories in 50 countries. The equipment market is very competitive with major competitors located in the U.S., Japan and Europe. Our flagship product is our Sun Simulator which tests module performance. Our other product offerings include turn-key module lines and to a lesser extent other individual equipment. To compete we offer other services such as training and assistance with module certification. We also provides turn-key services to our customers to backward integrate to solar cell manufacturing.

In the biomedical area, through our variable interest entity, N2 Bio, we provide value-added surface treatments to manufacturers of orthopedic and other medical devices that enhance the durability, antimicrobial characteristics or other material characteristics of their products; and performs sponsored research programs into practical applications of advanced biomedical technologies.

### Transactions

On September 18, 2013, we, Spire Biomedical, Inc. (the "Subsidiary" and together with us, "Spire Bio") entered into an Asset Purchase Agreement (the "Purchase Agreement") with N2 Bio pursuant to which N2 Bio agreed to (i) acquire substantially all of the assets of the Subsidiary's biomedical business (the "Bio Business Unit") and (ii) assume and pay certain liabilities related to the purchased assets as set forth in the Purchase Agreement (collectively, the "Transaction"). The Transaction closed on September 18, 2013. The purchase price for the Bio Business Unit was \$10.5 million plus the assumption of liabilities of approximately \$100 thousand, with \$6.0 million paid in cash at closing, a \$2.4 million subordinated convertible promissory note, and 310,549 Series A Convertible Preferred Units of N2 Bio valued at approximately \$2.1 million (\$6.72 per share). The assets and liabilities of the Subsidiary's biomedical business are under common control and requires carryover basis for financial reporting. The difference between the consideration paid and the carrying value of the assets and liabilities acquired by N2 Bio was recorded as a deemed dividend by us in the amount of \$9.5 million and has been eliminated in consolidation. Mark C. Little was the Chief Executive

Officer of the Subsidiary, is one of our director's and is the Chief Executive Officer of N2 Bio. Mark C. Little is the son of Roger G. Little, our Chief Executive Officer.

We have determined that N2 Bio is a VIE because the equity investment at risk from the majority shareholders of N2 Bio is not sufficient to permit N2 Bio to finance its activities without additional subordinated financial support from us. As discussed above, N2 Bio is subject to a subordinated convertible promissory note. Additionally, Mark Little is the Chief Executive Officer of N2 Bio and also one of our director's which qualifies as a related party. We have also determined that we have the obligation to absorb losses and the right to receive benefits from N2 Bio that could potentially be significant to it. Therefore, we have determined that N2 Bio is a VIE and must consolidate the financial condition, results of operations and cash flows of N2 Bio with those of our own. See Note 14 to the unaudited condensed consolidated financial statements.

The subordinated convertible promissory note (i) bears interest at 9% per annum until paid in full, (ii) is convertible, at our option, into Common Units of N2 Bio at a conversion price of \$6.72 per share, (iii) has a seven year term, (iv) is unsecured and (v) is subordinate in right of payment to all senior bank indebtedness of N2 Bio.

The Series A Convertible Preferred Units (i) represent an equity ownership interest of 19.9% in N2 Bio, (ii) are governed by the terms of the Amended and Restated Limited Liability Company Agreement of N2 Bio dated September 18, 2013, (iii) rank senior to the Common Units on liquidation, dissolution and winding up, and (iv) vote together with the Common Units on an as-converted basis. We have the right to appoint one director to the Board of Directors of N2 Bio. N2 Bio is subject to certain affirmative and negative operating covenants in favor of the holder of Series A Preferred Units.

On September 18, 2013, we and N2 Bio entered into a Shared Services Agreement whereby we will provide N2 Bio certain services (the "Shared Services") for a period of three years. It is the intent of the parties that the aggregate fees for the Shared Services shall equal approximately \$500,000 during the first year. Following the first anniversary, N2 Bio may terminate any specific Shared Service with 20 days' written notice to us.

On September 18, 2013, the lease agreement between SPI-Trust and us for the premises in Bedford, Massachusetts where the Business is located was amended, by reducing our leased space and annual base rent by approximately 19%. All other material terms and conditions related to the lease remain unchanged as of such date.

On September 18, 2013, N2 Bio entered into a Lease Agreement (the "N2 Bio Bedford Lease") with SPI-Trust with respect to 27,048 square feet of space in the premises in Bedford, Massachusetts. The term of the N2 Bio Bedford Lease commenced on September 18, 2013 and is set to expire on November 30, 2020. The annual rental rate prorated for September 18, 2013 to November 30, 2013 is \$16.00 per square foot on a triple net basis, whereby the tenant is responsible for operating expenses, taxes and maintenance of the building. The annual rental rate increases on December 1, 2013 and each anniversary thereafter by \$0.50 per square foot.

The Purchase Agreement includes a five-year commitment of (i) us not to compete with the Bio Business Unit services and (ii) N2 Bio not to compete with our consumer electronic products business. We and N2 Bio both agreed not to solicit the officers or employees of the other party for a one-year period.

On March 9, 2012, we completed the sale of our semiconductor business unit, which provided semiconductor foundry services, operated a semiconductor foundry and fabrication facility and was engaged in the business of wafer epitaxy, foundry services, and device fabrication for the defense, medical, telecommunications and consumer products markets (the "Semiconductor Business Unit"), to Masimo Corporation ("Masimo"). Accordingly, the results of operations and assets and liabilities of the Semiconductor Business Unit are being presented herein as discontinued operations. See Note 13 to the unaudited condensed consolidated financial statements.

## Liquidity

Operating results will depend upon revenue growth or decline and product mix, as well as the timing of shipments of higher priced products from our solar equipment line and delivery of solar systems. Export sales, which amounted to 27% and 31% of net sales and revenues for the three and nine months ended September 30, 2013, respectively, and 29% and 57% of net sales and revenues for the three and nine months ended September 30, 2012, respectively, continue to constitute a significant portion of our net sales and revenues.

## Results of Operations

The following table sets forth certain items as a percentage of net sales and revenues for the periods presented:

	Three Months Ended September 30,		Nine Months Ended September 30,		
	2013	2012	2013	2012	
Net sales and revenues	100	% 100	% 100	% 100	%
Cost of sales and revenues	(72	) (78	) (83	) (77	)
Gross margin	28	22	17	23	
Selling, general and administrative expenses	(81	) (69	) (77	) (51	)
Internal research and development expenses	—	(1	) —	(1	)
Operating loss from continuing operations	(53	) (48	) (60	) (29	)
Other expense, net	(1	) (1	) —	(1	)
Loss from continuing operations before income tax benefit	(54	) (49	) (60	) (30	)
Income tax benefit - continuing operations	—	1	—	11	
Loss from continuing operations	(54	) (48	) (60	) (19	)
Income (loss) from discontinued operations, net of tax	—	(6	) —	15	
Net loss	(54	) (54	) (60	) (4	)
Less: Net loss attributable to noncontrolling interest	(3	) —	(1	) —	
Net loss attributable to common stockholders	(51	)% (54	)% (59	)% (4	)%

## Overall

Our total net sales and revenues for the nine months ended September 30, 2013 were \$11.0 million as compared to \$18.3 million for the nine months ended September 30, 2012, which represents a decrease of \$7.3 million or 40%. The decrease was primarily attributable to a \$7.4 million decrease in solar revenue, partially offset by a slight increase in biomedical revenue.

## Solar Business Unit

Sales in our solar business unit decreased 56% during the nine months ended September 30, 2013 to \$5.8 million as compared to \$13.2 million for the nine months ended September 30, 2012. The decrease in solar business unit revenue is primarily the result of a decrease in solar module equipment revenue of \$7.8 million and a decrease in solar research and development revenue of \$672 thousand, partially offset by an increase in equipment research and development revenue of \$819 thousand and an increase in solar systems revenue of \$565 thousand. Lower government incentives in the photovoltaic market and the world-wide oversupply of photovoltaic modules relative to market demand has led to precipitously declining prices in the photovoltaic market. The oversupply has also resulted in reduced demand for photovoltaic manufacturing equipment that will not improve until the module supply/demand imbalance is rectified via the growing photovoltaic systems market. Our Solar Business Unit has been negatively impacted by this reduction in demand which is contributing to decreased revenue in our solar business unit.

## Biomedical Business Unit

Revenues from the biomedical business increased 2% during the nine months ended September 30, 2013 to \$5.2 million as compared to \$5.1 million for the nine months ended September 30, 2012. The increase was primarily attributable to an increase in revenue from the orthopedics coating services, partially offset by a decrease in revenue

from our research and development contracts.

Three and Nine Months Ended September 30, 2013 Compared to Three and Nine Months Ended September 30, 2012

Net Sales and Revenues

The following table categorizes our net sales and revenues for the periods presented:

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(in thousands)	Three Months Ended September 30,		Increase (Decrease)		
	2013	2012	\$	%	
Sales of goods	\$1,776	\$1,858	\$(82)	(4)	)%
Contract research and services revenues	2,378	2,370	8	—	)%
Net sales and revenues	\$4,154	\$4,228	\$(74)	(2)	)%

The 4% decrease in sales of goods for the three months ended September 30, 2013 as compared to the three months ended September 30, 2012 was primarily due to a decrease of \$431 thousand in solar module manufacturing equipment revenues and a decrease of \$260 thousand in ATC Lab revenues, partially offset by an increase of \$610 thousand in solar systems revenues. The decrease in solar module equipment sales of 28% in 2013 as compared to 2012 was primarily due to a decrease in individual module equipment units delivered in 2013. The decrease in ATC lab revenue of 87% in 2013 as compared to 2012 was primarily due to the completion of two large projects benefiting 2012. The increase in solar systems revenue of 4,016% in 2013 as compared to 2012 was primarily due to the completion of two solar system projects in 2013. Lower government incentives in the photovoltaic market and the world-wide oversupply of photovoltaic modules relative to market demand has led to precipitously declining prices in the photovoltaic market. The oversupply has also resulted in reduced demand for photovoltaic manufacturing equipment that will not improve until the module supply/demand imbalance is rectified via the growing photovoltaic systems market. Our Solar Business Unit has been negatively impacted by this reduction in demand which is contributing to decreased sales of goods.

The slight increase in contract research and services revenues for the three months ended September 30, 2013 as compared to the three months ended September 30, 2012 is primarily attributable to an increase of \$315 thousand in equipment research and development revenue, partially offset by a decrease of \$273 thousand in solar research and development revenue. The increase in equipment research and development revenue in 2013 as compared to 2012 was primarily due to new research and development projects starting in the end of the third quarter of 2012. The decrease in solar research and development revenue of 76% in 2013 as compared to 2012 was primarily due to the completion of two research and development projects in the first and second quarter of 2013.

The following table categorizes our net sales and revenues for the periods presented:

(in thousands)	Nine Months Ended September 30,		Increase (Decrease)		
	2013	2012	\$	%	
Sales of goods	\$4,213	\$11,796	\$(7,583)	(64)	)%
Contract research and services revenues	6,753	6,527	226	3	)%
Net sales and revenues	\$10,966	\$18,323	\$(7,357)	(40)	)%

The 64% decrease in sales of goods for the nine months ended September 30, 2013 as compared to the nine months ended September 30, 2012 was primarily due to a decrease of \$7.8 million in solar module manufacturing equipment revenues and a decrease of \$394 thousand in ATC Lab revenues, partially offset by an increase of \$565 thousand in solar systems revenues.. The decrease in solar module equipment sales of 69% in 2013 as compared to 2012 was primarily due to a decrease in individual module equipment units delivered in 2013. The decrease in ATC lab revenue of 85% in 2013 as compared to 2012 was primarily due to the completion of three large projects benefiting 2012. The increase in solar systems revenue of 878% in 2013 as compared to 2012 was primarily due to the completion of two solar system projects in 2013. Lower government incentives in the photovoltaic market and the world-wide oversupply of photovoltaic modules relative to market demand has led to precipitously declining prices in the photovoltaic market. The oversupply has also resulted in reduced demand for photovoltaic manufacturing equipment that will not improve until the module supply/demand imbalance is rectified via the growing photovoltaic systems market. Our Solar Business Unit has been negatively impacted by this reduction in demand which is contributing to decreased sales of goods.

The 3% increase in contract research and services revenues for the nine months ended September 30, 2013 as compared to the nine months ended September 30, 2012 is primarily attributable to an increase of \$819 thousand in equipment research and development revenue and an increase of \$244 thousand in biomedical service revenue, partially offset by a decrease of \$672 thousand in solar research and development revenue and a decrease of \$166 thousand in biomedical research and development revenue. The increase in equipment research and development revenue in 2013 as compared to 2012 was primarily due to new research and development projects starting in the end of the third quarter of 2012. Revenues from our biomedical services increased 5% in 2013 compared to 2012 as a result of an increase in revenue from three large customers in 2013. The decrease in solar research and development revenue of 58% in 2013 as compared to 2012 was primarily due to the completion of three research and development projects in the first and third quarter of 2013 and the second quarter of 2012. The decrease in biomedical research

and development revenue of 61% in 2013 as compared to 2012 was primarily due to the completion of two research and development projects in the second and fourth quarter of 2012.

### Cost of Sales and Revenues

The following table categorizes our cost of sales and revenues for the periods presented, stated in dollars and as a percentage of related sales and revenues:

(in thousands)	Three Months Ended September 30,				Decrease	
	2013	%	2012	%	\$	%
Cost of goods sold	\$1,868	105	% \$2,048	110	% \$(180)	(9)%
Cost of contract research and services	1,101	46	% 1,228	52	% (127)	(10)%
Net cost of sales and revenues	\$2,969	71	% \$3,276	77	% \$(307)	(9)%

Cost of goods sold decreased 9% for the three months ended September 30, 2013 as compared to the three months ended September 30, 2012, primarily due to a decrease of \$472 thousand in costs related to solar module equipment and a decrease of \$175 thousand in costs related to the ATC lab, partially offset by an increase of \$467 thousand in costs related to solar systems. The decrease in solar module equipment costs of 26% in 2013 as compared to 2012 was primarily due to a decrease in associated revenue. The decrease in ATC lab costs of 80% in 2013 as compared to 2012 was primarily due to a decrease in associated revenue. The increase in solar system costs of 1,144% in 2013 as compared to 2012 was primarily due to the delivery of 2 solar system projects in 2013. As a percentage of sales, cost of goods sold was 105% of sales of goods in 2013 as compared to 110% of sales of goods in 2012. This decrease in the percentage of sales in 2013 is due primarily to the delivery of 2 high margin solar system projects in 2013, partially offset by a decline in sales of higher margin equipment in 2013 and to a lesser extent, lower indirect costs not sufficient to offset the amount of overhead absorbed due to the reduction in sales volume.

Cost of contract research and services decreased 10% for the three months ended September 30, 2013 as compared to the three months ended September 30, 2012, primarily due to a decrease of \$109 thousand in costs related to solar research and development services and \$49 thousand in costs related to biomedical services, partially offset by an increase of \$48 thousand in costs related to equipment research and development services. The decrease in solar research and development services costs of 65% in 2013 as compared to 2012 was primarily due to a reduction in direct costs related to the completion of two projects. The decrease in biomedical service costs of 6% in 2013 as compared to 2012 was primarily due to a reduction in indirect costs as a result of cost cutting programs. The increase in equipment research and development services costs in 2013 as compared to 2012 was primarily due to new equipment research and development projects starting in the end of the third quarter of 2012. Cost of contract research and services as a percentage of related revenue decreased to 46% of related revenues in 2013 from 52% in 2012. This decrease in the percentage of revenue in 2013 is primarily due to higher margin from new equipment research and development projects started in the end of the third quarter of 2012.

Cost of sales and revenues also includes approximately \$1 thousand and \$12 thousand of share-based compensation for the three months ended September 30, 2013 and 2012, respectively.

The following table categorizes our cost of sales and revenues for the periods presented, stated in dollars and as a percentage of related sales and revenues:

(in thousands)	Nine Months Ended September 30,				Decrease	
	2013	%	2012	%	\$	%
Cost of goods sold	\$5,561	132	% \$10,470	89	% \$(4,909)	(47)%
Cost of contract research and services	3,482	52	% 3,702	57	% (220)	(6)%
Net cost of sales and revenues	\$9,043	82	% \$14,172	77	% \$(5,129)	(36)%



Cost of goods sold decreased 47% for the nine months ended September 30, 2013 as compared to the nine months ended September 30, 2012, primarily due to a decrease of \$5.1 million in costs related to solar module equipment and a decrease of \$213 thousand in costs related to the ATC lab, partially offset by an increase of \$378 thousand in costs related to solar systems. The decrease in solar module equipment costs of 51% in 2013 as compared to 2012 was primarily due to a decrease in associated revenue. The decrease in ATC lab costs of 62% in 2013 as compared to 2012 was primarily due to a decrease in associated revenue. The increase in solar system costs of 152% in 2013 as compared to 2012 was primarily due to the delivery of 2 solar system projects in 2013. As a percentage of sales, cost of goods sold increased to 132% of sales of goods in 2013 as compared to 89% of sales of goods in 2012. This increase in the percentage of sales in 2013 is due primarily to a decline in sales of higher margin

equipment in 2013 and to a lesser extent, lower indirect costs not sufficient to offset the amount of overhead absorbed due to the reduction in sales volume, partially offset by the delivery of 2 high margin solar system projects in 2013.

Cost of contract research and services decreased 6% for the nine months ended September 30, 2013 as compared to the nine months ended September 30, 2012, primarily due to a decrease of \$252 thousand in costs related to solar research and development services and \$134 thousand in costs related to biomedical services, partially offset by an increase of \$203 thousand in costs related to equipment research and development services. The decrease in solar research and development services costs of 50% in 2013 as compared to 2012 was primarily due to a reduction in direct costs related to the completion of three projects. The decrease in biomedical services costs of 5% in 2013 as compared to 2012 was primarily due to reductions in indirect costs. The increase in equipment research and development services costs in 2013 as compared to 2012 was primarily due to new equipment research and development projects starting in the end of the third quarter of 2012. Cost of contract research and services as a percentage of related revenue decreased to 52% of related revenues in 2013 from 57% in 2012. This decrease in the percentage of sales in 2013 is primarily due to higher margin from new equipment research and development projects starting in the end of the third quarter of 2012.

Cost of sales and revenues also includes approximately \$18 thousand and \$47 thousand of share-based compensation for the nine months ended September 30, 2013 and 2012, respectively.

#### Operating Expenses

The following table categorizes our operating expenses for the periods presented, stated in dollars and as a percentage of total sales and revenues:

(in thousands)	Three Months Ended September 30,				Increase (Decrease)	
	2013	%	2012	%	\$	%
Selling, general and administrative	\$3,381	81	\$2,934	69	\$447	15
Internal research and development	15	—	36	1	(21)	(58)
Operating expenses	\$3,396	82	\$2,970	70	\$426	14

#### Selling, General and Administrative Expenses

Selling, general and administrative expense increased 15% in the three months ended September 30, 2013 as compared to the three months ended September 30, 2012, primarily as a result of transaction related costs associated with the N2 Biomedical transaction in the third quarter of 2013 (see Note 14 to the unaudited condensed consolidated financial statements), partially offset by a decrease in marketing trade shows, rent, litigation and employee related expenses and a decrease in agent commissions in the solar business unit. In addition, there were fewer gains realized related to the change in value of the deferred compensation plan. Selling, general and administrative expense increased to 81% of sales and revenues in 2013 as compared to 69% in 2012. The increase was primarily due to the decrease in sales and revenues.

Selling, general and administrative expenses include approximately \$10 thousand and \$36 thousand of share-based compensation for the three months ended September 30, 2013 and 2012, respectively.

#### Internal Research and Development

Internal research and development expense decreased 58% in the three months ended September 30, 2013 as compared to the three months ended September 30, 2012, primarily as a result of lower levels of research and

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development spent in the solar group. As a percentage of sales and revenue, internal research and development expenses decreased slightly in 2013 when compared to 2012.

The following table categorizes our operating expenses for the periods presented, stated in dollars and as a percentage of total sales and revenues:

(in thousands)	Nine Months Ended September 30,				Decrease	
	2013	%	2012	%	\$	%
Selling, general and administrative	\$8,466	77	% \$9,338	51	% \$(872)	(9)%
Internal research and development	38	—	% 227	1	% (189)	(83)%
Operating expenses	\$8,504	78	% \$9,565	52	% \$(1,061)	(11)%

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### Selling, General and Administrative Expenses

Selling, general and administrative expense decreased 9% in the nine months ended September 30, 2013 as compared to the nine months ended September 30, 2012, primarily as a result of a decrease in marketing trade shows, insurance and employee related expenses and a decrease in agent commissions in the solar business unit, partially offset by transaction related costs associated with the N2 Biomedical transaction in the third quarter of 2013 (see Note 14 to the unaudited condensed consolidated financial statements). Selling, general and administrative expense increased to 77% of sales and revenues in 2013 as compared to 51% in 2012. The increase was primarily due to the decrease in sales and revenues.

Selling, general and administrative expenses include approximately \$70 thousand and \$122 thousand of share-based compensation for the nine months ended September 30, 2013 and 2012, respectively.

### Internal Research and Development

Internal research and development expense decreased 83% in the nine months ended September 30, 2013 as compared to the nine months ended September 30, 2012, primarily as a result of lower levels of research and development spent in the solar group. As a percentage of sales and revenue, internal research and development expenses decreased slightly in 2013 when compared to 2012.

### Other Expense, Net

We incurred interest expense of \$20 thousand and \$30 thousand for the three months ended September 30, 2013 and 2012, respectively. The decrease in interest expense is due to lower interest payments due to reduced average amounts outstanding under the credit facilities in 2013 compared with 2012. We had currency exchange losses of approximately zero and \$9 thousand during the three months ended September 30, 2013 and 2012, respectively.

We incurred interest expense of \$49 thousand and \$97 thousand for the nine months ended September 30, 2013 and 2012, respectively. The decrease in interest expense is due to lower interest payments due to reduced amounts outstanding under the credit facilities in 2013 compared with 2012. We had currency exchange losses of approximately \$9 thousand and \$6 thousand during the nine months ended September 30, 2013 and 2012, respectively.

### Income Taxes

We recorded a state income tax provision from continuing operations of \$1 thousand and \$3 thousand during the three and nine months ended September 30, 2013, respectively. We recorded an income tax benefit on our loss from continuing operations of \$24 thousand and \$2.0 million during the three and nine months ended September 30, 2012, respectively, which was offset by a provision on our income from discontinued operations of \$2.0 million during the nine months ended September 30, 2012. Gross federal net operating loss carryforwards were approximately \$13.9 million as of December 31, 2012 and expire at various times through 2032. We have a full valuation allowance recorded against the net deferred tax assets at September 30, 2013 due to uncertainty regarding realization of these assets in the future.

### Income from Discontinued Operations

During the first quarter of 2012, we began pursuing an exclusive sales process of our Semiconductor Business Unit. On March 9, 2012, we completed the sale of the Semiconductor Business Unit to Masimo. Accordingly, the results of operations and assets and liabilities of the Semiconductor Business Unit are being presented herein as discontinued

operations.

During the second quarter of 2009, we began pursuing an exclusive sales process of our Medical Products Business Unit. On December 14, 2009, we completed the sale of the Medical Products Business Unit to Bard Access Systems, Inc. Accordingly, the results and liabilities of the Medical Products Business Unit are being presented herein as discontinued operations.

We recorded net loss from discontinued operations of \$250 thousand and net income from discontinued operations of \$2.8 million for the three and nine months ended September 30, 2012. Included in discontinued operations for the nine months ended September 30, 2012 is a gain on sale of business unit to Masimo of \$5.4 million and an income tax provision of \$2.0 million. Included in the gain of \$5.4 million is proceeds received from Masimo of \$8.0 million, less assets and liabilities assumed by Masimo of \$2.1 million and legal and professional fees related to complete the sale of \$425 thousand. See Note 13 to the unaudited condensed consolidated financial statements.

Net Loss

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We reported net loss of \$2.2 million and \$2.3 million for the three months ended September 30, 2013 and 2012, respectively. Net loss decreased approximately \$184 thousand, primarily due to improved margin of \$202 thousand in the solar business unit and decreased loss from discontinued operations of \$250 thousand, partially offset by increased operating expenses of \$293 thousand.

We reported net loss of \$6.6 million and \$740 thousand for the nine months ended September 30, 2013 and 2012, respectively. Net loss increased approximately \$5.8 million, primarily due to a \$4.8 million decline in income from discontinued operations before tax and a \$2.5 million decline in solar business unit margin, partially offset by a \$1.2 million decline in operating expenses and improved margin in the biomedical business of \$249 thousand.

#### Less: Net Loss Attributable to Noncontrolling Interest

We reported a net loss attributable to noncontrolling interest of \$187 thousand for both the three and nine months ended September 30, 2013, respectively. Net loss attributable to noncontrolling interest represents 80.1% of N2 Bio's net loss for three and nine months ended September 30, 2013 and all of N2 Bio's costs associated with the transaction. See Note 14 to the unaudited condensed consolidated financial statements.

#### Net Loss Attributable to Common Stockholders

We reported net loss attributable to common stockholders of \$2.0 million and \$2.3 million for the three months ended September 30, 2013 and 2012, respectively. Net loss attributable to common stockholders decreased approximately \$318 thousand, primarily due to improved margin of \$202 thousand in the solar business unit, decreased loss from discontinued operations of \$250 thousand and a reduction in net loss attributable to noncontrolling interest of \$187 thousand, partially offset by increased operating expenses of \$293 thousand.

We reported net loss attributable to common stockholders of \$6.5 million and \$740 thousand for the nine months ended September 30, 2013 and 2012, respectively. Net loss attributable to common stockholders increased approximately \$5.8 million, primarily due to a \$4.8 million decline in income from discontinued operations before tax, a \$2.5 million decline in solar business unit margin and a reduction in net loss attributable to noncontrolling interest of \$187 thousand, partially offset by a \$1.2 million decline in operating expenses and improved margin in the biomedical business unit of \$249 thousand.

#### Liquidity and Capital Resources

(in thousands)	September 30, 2013	December 31, 2012	Decrease \$	%	
Cash and cash equivalents	\$5,897	\$3,030	\$2,867	95	%
Working capital	\$5,718	\$6,616	\$(898)	(14)	%

Cash and cash equivalents increased due to cash provided by financing activities, partially offset by cash used in operating activities. The overall decrease in working capital is due to an increase in current liabilities, primarily accrued liabilities and current portion of long-term debt along with a decrease in accounts receivable, inventories and current assets of discontinued operations, partially offset by increased cash and cash equivalents. We have historically funded our operating cash requirements using operating cash flow, proceeds from the sale and licensing of technology and assets and proceeds from the sale of equity securities.

There are no material commitments by us for capital expenditures. At September 30, 2013, our accumulated deficit was approximately \$22.4 million, compared to accumulated deficit of approximately \$15.9 million as of

December 31, 2012.

We currently believe that our existing cash resources at September 30, 2013, will be sufficient to fund our operations into the first half of 2014; however, we cannot assure you of this. The maturity date of the Revolving Credit Facility and the Ex-Im Facility with Silicon Valley Bank is April 30, 2014. The maturity date of N2 Bio's Secured Revolving Demand Note with Middlesex Savings Bank is September 18, 2014. As a result, in our Annual Report on Form 10-K for the year ended December 31, 2012, our independent registered public accounting firm expressed a substantial doubt about our ability to continue as a going concern in their report on our consolidated financial statements dated March 28, 2013.

We have various options on how to fund future operational losses or working capital needs, including but not limited to sales of equity, bank debt, the sale or license of assets and technology, or joint ventures involving cash infusions, as we have done

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in the past; however, there are no assurances that we will be able to sell equity, obtain or access bank debt, sell or license assets or technology or enter into such joint ventures on a timely basis and at appropriate values. We have developed several plans including potential strategic alternatives, cost reduction efforts and expand revenue in other solar markets to offset a decline in business due to global economic conditions. Our inability to successfully implement our cost reduction strategies, expand revenue in other solar markets or to renew our credit facilities, could adversely impact our ability to continue as a going concern.

Based on the forecasts and estimates underlying our current operating plan, the financial statements do not include any adjustments that might be necessary if we are unable to continue as a going concern.

#### Loan Agreements

We have two separate credit facilities with Silicon Valley Bank (the “Bank” or “SVB”): (i) a Second Amended and Restated Loan and Security Agreement (as amended, the “Revolving Credit Facility”) and (ii) an Amended and Restated Export-Import Bank Loan and Security Agreement (as amended, the “Ex-Im Facility”) pursuant to which outstanding amounts under this facility are guaranteed by the Export-Import Bank of the United States (the “EXIM Bank”). The credit facilities provide an aggregate amount of \$1.5 million under both facilities, with up to \$1 million available under the Revolving Credit Facility and up to \$1.5 million available under the Ex-Im Facility. In addition, a guidance line supports letters of credit in an aggregate amount of up to \$1.5 million through April 30, 2014. If we achieve certain levels of liquidity, based on cash on hand and availability under the credit facility, we will not be required to cash collateralize letters of credit issued under this guidance line.

On September 3, 2013, we entered into with the Bank (i) the Sixth Loan Modification Agreement amending certain terms of the Second Amended and Restated Loan and Security Agreement dated as of November 16, 2009 (as amended, the “Revolving Credit Facility”) and (ii) the Sixth Loan Modification Agreement amending certain terms of the Amended and Restated Export-Import Bank Loan and Security Agreement dated as of November 16, 2009 (as amended, the “Ex-Im Facility”). Pursuant to the terms of the Sixth Loan Modification Agreements, we agreed with the Bank to extend the maturity date of the Revolving Credit Facility and the Ex-Im Facility to October 29, 2013. On November 18, 2013, we entered into with the Bank (i) the Seventh Loan Modification Agreement amending certain terms of the Second Amended and Restated Loan and Security Agreement dated as of November 16, 2009 (as amended, the “Revolving Credit Facility”) and (ii) the Seventh Loan Modification Agreement amending certain terms of the Amended and Restated Export-Import Bank Loan and Security Agreement dated as of November 16, 2009 (as amended, the “Ex-Im Facility”). Pursuant to the terms of the Seventh Loan Modification Agreements, we agreed with the Bank to (i) extend the maturity date of the Revolving Credit Facility and the Ex-Im Facility to from October 29, 2013 to April 30, 2014, (ii) effective November 18 2013 amend the definition of the Financial Covenant by deleting the requirement to maintain liquidity of at least \$1.25 million at all times based on cash on hand and availability under the credit facility and replacing it with a newly defined covenant whereby we shall maintain cash on hand of at least \$2.5 million at all times, as long as any commitment remains outstanding under the facilities, and (iii) amend the definition of Streamline Facility Eligible to increase the liquidity requirement from \$2.5 million to \$3.5 million.

In addition, until all amounts under the credit facilities with the Bank are repaid, covenants under the credit facilities impose restrictions on our ability to, among other things, incur additional indebtedness, create or permit liens on our assets, merge, consolidate or dispose of assets (other than in the ordinary course of business), make dividend and other restricted payments, make certain debt or equity investments, make certain acquisitions, engage in certain transactions with affiliates or change the business conducted by us. Any failure by us to comply with the covenants and obligations under the credit facilities could result in an event of default, in which case the Bank may be entitled to declare all amounts owed to be due and payable immediately.

Under the credit facilities, interest on outstanding borrowings accrues at a rate per annum equal to the greater of (i) the prime rate plus 2.5% or (ii) 7.0%. In addition, if we achieve certain levels of liquidity, based on cash on hand and



availability under the credit facility, we will have a 0.5% lower interest rate.

N2 Bio has two separate credit facilities with Middlesex Savings Bank (“MSB”): (i) a Secured Term Loan and (ii) a Secured Revolving Demand Note. Under the Secured Term Loan, N2 Bio borrowed \$6.0 million on September 18, 2013 to finance the purchase of the Bio Business Unit from the Company. The advance made under the Secured Term Loan will bear interest at a fixed rate of 4.5% per annum in eighty-four (84) consecutive monthly payments starting on October 18, 2013. If not sooner paid, the Secured Term Loan shall be due and payable in full on September 18, 2020. The Secured Revolving Demand Note provides an amount available of up to \$1.0 million. Advances made under the Secured Revolving Demand Note will bear interest at MSB's prime rate, as determined, plus 0.5% per annum but in no event shall the interest rate be less than 3.75% per annum. The maturity date of the Secured Revolving Demand Note is September 18, 2014.

N2 Bio's obligations under the credit facilities, are secured by substantially all of the assets of N2 Bio. Advances under the Secured Revolving Demand Note are limited to 75% of eligible receivables. In addition, until all amounts under the credit facilities with MSB are repaid, covenants under the credit facilities impose restrictions on the N2 Bio's ability to, among other things, incur additional indebtedness, create or permit liens on the N2 Bio's assets, merge, consolidate or dispose of assets (other than in the ordinary course of business), make dividend and other restricted payments, make certain debt or equity investments, make certain acquisitions, engage in certain transactions with affiliates or change the business conducted by the N2 Bio. Any failure by N2 Bio to comply with the covenants and obligations under the credit facilities could result in an event of default, in which case MSB may be entitled to declare all amounts owed to be due and payable immediately.

Advances outstanding under our Revolving Credit Facility were \$144 thousand and \$449 thousand at September 30, 2013 and December 31, 2012, respectively. Advances outstanding under our Ex-Im Facility were zero and \$141 thousand at September 30, 2013 and December 31, 2012, respectively. Advances outstanding under the N2 Bio Secured Term Loan were \$6.0 million at September 30, 2013. Advances outstanding under the N2 Bio Secured Revolving Demand Note were \$437 thousand at September 30, 2013. As of September 30, 2013, the interest rate per annum on our Revolving Credit Facility and the Ex-Im Facility was 6.5% and 6.5%, respectively. The interest rate per annum on the N2 Bio Secured Term Loan and Secured Revolving Demand Note at September 30, 2013 was 4.5% and 3.75%, respectively. We had utilized \$675 thousand of the guidance line at December 31, 2012. Combined availability under the Revolving Credit Facility, the Ex-Im Facility and the Secured Revolving Demand Note was \$262 thousand as of September 30, 2013.

#### Net Cash Used in Operating Activities

Net cash used in operating activities was \$3.7 million for the nine months ended September 30, 2013, which includes \$150 thousand of cash used in operating activities of discontinued operations. Net cash used in operating activities was \$6.3 million for the nine months ended September 30, 2012, which includes \$1.7 million of cash used in operating activities of discontinued operations. See Note 13 to the unaudited condensed consolidated financial statements. As of September 30, 2013, we had unrestricted cash and cash equivalents of \$5.9 million compared to \$3.0 million as of December 31, 2012.

#### Foreign Currency Fluctuation

We sell almost exclusively in U.S. dollars, generally against an irrevocable non-transferable confirmed letter of credit through a major United States bank. Accordingly, we are not directly affected by foreign exchange fluctuations on our current sales orders. However, fluctuations in foreign exchange rates do have an effect on our customers' access to U.S. dollars and on the pricing competition on certain pieces of equipment that we sell in selected markets. We bear the risk of any currency fluctuations that may be associated with these commitments. We attempt to hedge known transactions when possible to minimize foreign exchange risk. We had no hedging activity during the first nine months of 2013 and 2012. Foreign exchange gain (loss) included in other expense, net, was a loss of approximately zero and \$9 thousand during the three months ended September 30, 2013 and 2012, respectively, and was a loss of approximately \$9 thousand and \$6 thousand during the nine months ended September 30, 2013 and 2012, respectively.

#### Related Party Transactions

On November 30, 2007, we entered into a new Lease Agreement (the "Bedford Lease") with SPI-Trust, a Trust of which Roger G. Little, Chairman of the Board, Chief Executive Officer and President of the Company, is the sole trustee and principal beneficiary, with respect to 144,230 square feet of space comprising the entire building in which we have occupied space since December 1, 1985. The term of the Bedford Lease commenced on December 1, 2007 and was

originally set to expire on November 30, 2012. The annual rental rate for the first year of the Bedford Lease was \$12.50 per square foot on a triple net basis, whereby the tenant is responsible for operating expenses, taxes and maintenance of the building. The annual rental rate increased on each anniversary by \$0.75 per square foot.

On September 17, 2010, we entered into the First Amendment to Lease Agreement with SPI-Trust to amend the Bedford Lease. The term of the Bedford Lease was extended for an additional five (5) years to expire on November 30, 2017. The annual rental rate for the first year of the extended term (December 1, 2012 through November 30, 2013) is \$16.00 per square foot on a triple net basis, whereby the tenant is responsible for operating expenses, taxes and maintenance of the building. After the first year of the extended term of the Bedford Lease, the annual rental rate increases on each anniversary by \$0.50 per square foot. We have the right to further extend the term of the Bedford Lease for an additional five (5) year period. If we exercise this right to further extend the term of the Bedford Lease, the annual rental rate for the first year of the further extended term will be the greater of: (a) the rental rate in effect immediately preceding the commencement of the extended term; or (b) the market rate at such time, and on each anniversary of the commencement of the extended term the rental rate will increase by \$0.50 per square foot.

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Additionally, SPI-Trust agreed to reimburse us up to \$50 thousand for all costs incurred by us in connection with any alterations or improvements to the premises or repairs or replacements to the heating and air conditioning systems.

On September 18, 2013, we entered into the Second Amendment to Lease Agreement with SPI-Trust to amend the Bedford Lease. The leased portion of the premises in Bedford, Massachusetts was reduced to approximately 117,182 square feet. All other material terms and conditions related to the lease remain unchanged as of such date. We believe that the terms of the Bedford Lease, as amended, are commercially reasonable. Rent expense under the Bedford Lease was \$578 thousand for each of the three months ended September 30, 2013 and 2012, respectively, and \$1.7 million for each of the nine months ended September 30, 2013 and 2012, respectively.

On September 18, 2013, N2 Bio entered into a Lease Agreement (the "N2 Bio Bedford Lease") with SPI-Trust with respect to 27,048 square feet of space in the premises in Bedford, Massachusetts. The term of the N2 Bio Bedford Lease commenced on September 18, 2013 and is set to expire on November 30, 2020. The annual rental rate prorated for September 18, 2013 to November 30, 2013 is \$16.00 per square foot on a triple net basis, whereby the tenant is responsible for operating expenses, taxes and maintenance of the building. The annual rental rate increases on December 1, 2013 and each anniversary thereafter by \$0.50 per square foot. We believe that the terms of the N2 Bio Bedford Lease are commercially reasonable. Rent expense under the Bedford Lease was \$14 thousand for each of the three and nine months ended September 30, 2013, respectively.

On August 29, 2008, we entered into a new Lease Agreement (the "Hudson Lease") with SPI-Trust, with respect to 90 thousand square feet of space comprising the entire building in which Spire Semiconductor has occupied space since June 1, 2003. The term of the Hudson Lease commenced on September 1, 2008, and was to continue for seven (7) years until August 31, 2015. The annual rental rate for the first year of the Hudson Lease was \$12.50 per square foot on a triple-net basis, whereby the tenant was responsible for operating expenses, taxes and maintenance of the building. The annual rental rate increases on each anniversary by \$0.75 per square foot. In addition, we were required to deposit with SPI-Trust \$300 thousand as security for performance by us for our covenants and obligations under the Hudson Lease. SPI-Trust is responsible, at its sole expense, to make certain defined tenant improvements to the building. We believe that the terms of the Hudson Lease were commercially reasonable and reflective of market rates. The Hudson Lease was classified as a related party operating lease. Rent expense from continuing operations under the Hudson Lease was zero and \$119 thousand for the nine months ended September 30, 2013 and 2012, respectively. Rent expense from discontinued operations under the Hudson Lease was zero and \$134 thousand for the nine months ended September 30, 2013 and 2012, respectively. In connection with sale of the Semiconductor Business Unit, the lease was terminated on March 9, 2012 and we were released from all future obligations under the lease as of such date. The security deposit of \$300 thousand was used to off-set rent payments in the first quarter of 2012. See Note 13 to the unaudited condensed consolidated financial statements.

### Critical Accounting Policies

The preparation of financial statements in accordance with accounting principles generally accepted in the United States requires us 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. Among the significant estimates affecting our condensed consolidated financial statements are those relating to revenue recognition, reserves for doubtful accounts, reserve for excess and obsolete inventory, impairment of long-lived assets, share-based compensation and warranty reserves. We regularly evaluate our estimates and assumptions based upon historical experience and various other factors that we believe to be reasonable under the circumstances, the results of which form the basis for making judgments about the carrying values of assets and liabilities that are not readily apparent from other sources. To the extent actual results differ from those estimates, our future results of operations may be affected. We believe the critical accounting policies affect our more significant judgments and estimates used in the preparation of our condensed consolidated

financial statements. A summary of significant accounting policies and a description of accounting policies that are considered critical may be found in our Annual Report on Form 10-K for the year ended December 31, 2012, in Note 2 of the notes to consolidated financial statements and the Critical Accounting Policies section of Management's Discussion and Analysis of Financial Condition and Results of Operations.

#### Contractual Obligations, Commercial Commitments and Off-Balance Sheet Arrangements

The following table summarizes our gross contractual obligations at September 30, 2013 and the maturity periods and the effect that such obligations are expected to have on our liquidity and cash flows in future periods:

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Contractual Obligations (in thousands)	Payments Due by Period				
	Total	Less than 1 Year	2 - 3 Years	4 - 5 Years	More Than 5 Years
Revolving Credit Facility (SVB)	\$ 143	\$ 143	\$—	\$—	\$—
Ex-Im Facility (SVB)	\$—	\$—	\$—	\$—	\$—
Revolving Demand Note (MSB)	\$438	\$438	\$—	\$—	\$—
Term Note (MSB)	\$7,021	\$1,003	\$2,006	\$2,006	\$2,006
Purchase obligations	\$487	\$460	\$19	\$8	\$—
Unrelated party capital leases	\$11	\$11	\$—	\$—	\$—
Operating leases:					
Unrelated party operating leases	\$92	\$69	\$23	\$—	\$—
Related party operating leases	\$11,878	\$2,368	\$4,952	\$3,434	\$1,124

Purchase obligations include all open purchase orders outstanding regardless of whether they are cancelable or not. Included in purchase obligations are raw material, equipment and services needed to fulfill customer orders.

The Revolving Credit Facility, Ex-Im Facility and Revolving Demand Note do not include an interest component to the contractual obligation.

Outstanding letters of credit totaled \$170 thousand and \$675 thousand at September 30, 2013 and December 31, 2012, respectively. The letters of credit secure performance obligations and purchase commitments, and allow holders to draw funds up to the face amount of the letter of credit if we do not perform as contractually required. The outstanding letters of credit at September 30, 2013 were secured by restricted cash and the outstanding letters of credit at December 31, 2012 were secured by the Revolving Credit Facility and Ex-Im Facility.

### Item 3. Quantitative and Qualitative Disclosures about Market Risk

Not required as we are a smaller reporting company.

### Item 4. Controls and Procedures

#### Evaluation of Disclosure Controls and Procedures

As of the end of the period covered by this report, an evaluation of the effectiveness of the design and operation of the our disclosure controls and procedures (as defined in Rules 13a-15(e) and 15d-15(e) under the Securities Exchange Act of 1934, as amended (the “Exchange Act”)) was performed under the supervision and with the participation of management, including our Chief Executive Officer and Chief Financial Officer. Based on that evaluation, our Chief Executive Officer and Chief Financial Officer concluded that our disclosure controls and procedures were effective as of September 30, 2013 to ensure that information required to be disclosed in the reports it files and submits under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in the SEC’s rules and forms and that information required to be disclosed under the Exchange Act is accumulated and communicated to management, including our Chief Executive Officer and our Chief Financial Officer, as appropriate to allow timely decisions regarding required disclosure.

#### Changes in Internal Control Over Financial Reporting

There were no changes in our internal control over financial reporting that occurred during the quarter ended September 30, 2013 that have materially affected, or are reasonably likely to materially affect, our internal control

over financial reporting.

## PART II. OTHER INFORMATION

### Item 1. Legal Proceedings

There have been no material changes to the legal proceedings disclosure included in Part I, Item 3 (“Legal Proceedings”) of our Annual Report on Form 10-K for the year ended December 31, 2012.

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Item 1A. Risk Factors

Except as set forth below, there have been no material changes in the Risk Factors described in Part I, Item 1A (“Risk Factors”) of our Annual Report on Form 10-K for the year ended December 31, 2012.

We were recently delisted from the Nasdaq Capital Market, which could result in a number of negative implications.

In July 2013, our common stock was delisted from the Nasdaq Capital Market. As a result, there could be a number of negative implications, including further reductions in our stock price, reduced liquidity in the common stock as a result of the loss of market efficiencies associated with a national securities exchange, the loss of federal preemption of state securities laws, the potential loss of confidence by suppliers, customers and employees, as well as the loss of analyst coverage and institutional investor interest, fewer business development opportunities and greater difficulty in obtaining financing.

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

None.

Item 3. Defaults Upon Senior Securities

None.

Item 4. Mine Safety Disclosures

Not applicable.

Item 5. Other Information

None.



Item 6. Exhibits

Exhibit	Description
2.1	Asset Purchase Agreement, dated September 18, 2013 by and among Spire Corporation, Spire Biomedical, Inc. and N2 Biomedical LLC., incorporated by reference to Exhibit 2.1 to the Company's Current Report on Form 8-K filed with the SEC on September 24, 2013
10.1	Sixth Loan Modification Agreement (Domestic), dated September 3, 2013, among Spire Corporation, Spire Solar, Inc., Spire Biomedical, Inc. and Silicon Valley Bank.
10.2	Sixth Loan Modification Agreement (Exim), dated September 3, 2013, among Spire Corporation, Spire Solar, Inc., Spire Biomedical, Inc. and Silicon Valley Bank.
*10.3	N2 Biomedical LLC Amended and Restated Limited Liability Company Agreement, dated September 18, 2013.
*10.4	Shared Services Agreement, dated September 18, 2013, among Spire Corporation and N2 Biomedical LLC.
*10.5	Second Amendment to Lease Agreement, dated September 18, 2013, among Roger G. Little, Trustee of SPI-Trust and Spire Corporation.
10.6	Seventh Loan Modification Agreement (Domestic), dated November 18, 2013, among Spire Corporation, Spire Solar, Inc., Spire Biomedical, Inc. and Silicon Valley Bank.
10.7	Seventh Loan Modification Agreement (Exim), dated November 18, 2013, among Spire Corporation, Spire Solar, Inc., Spire Biomedical, Inc. and Silicon Valley Bank.
31.1	Certification of the Chairman of the Board, Chief Executive Officer and President pursuant to §302 of the Sarbanes-Oxley Act of 2002.
31.2	Certification of the Chief Financial Officer and Treasurer pursuant to §302 of the Sarbanes-Oxley Act of 2002.
32.1	Certification of the Chairman of the Board, Chief Executive Officer and President pursuant to 18 U.S.C. §1350, as adopted pursuant to §906 of the Sarbanes-Oxley Act of 2002.
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101.INS	XBRL Instance Document
101.SCH	XBRL Taxonomy Extension Schema Document
101.CAL	XBRL Taxonomy Extension Calculation Linkbase Document
101.DEF	XBRL Taxonomy Extension Definition Linkbase Document
101.LAB	XBRL Taxonomy Extension Lable Linkbase Document
101.PRE	XBRL Taxonomy Extension Presentation Linkbase Document

The exhibits to the Agreements are not being filed herewith. The Agreements contain a list briefly identifying the \*contents of the exhibits to such document. The Registrant undertakes to furnish supplementally a copy of any omitted exhibit to the Securities and Exchange Commission upon request.

SIGNATURES

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

Spire Corporation

Dated: November 19, 2013

By: /s/ Roger G. Little  
Roger G. Little  
Chairman of the Board, Chief Executive Officer and President  
(Principal Executive Officer)

Dated: November 19, 2013

By: /s/ Robert S. Lieberman  
Robert S. Lieberman  
Chief Financial Officer and Treasurer  
(Principal Financial Officer and Principal Accounting Officer)

EXHIBIT INDEX

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