

SPIRE Corp  
Form 10-Q  
August 13, 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 June 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 organization) (I.R.S. Employer Identification Number)

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 August 6, 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)

	June 30, 2013	December 31, 2012
Assets		
Current assets		
Cash and cash equivalents	\$1,735	\$3,030
Accounts receivable – trade, net	1,453	2,137
Inventories, net	4,966	5,316
Deferred cost of goods sold	92	185
Deposits on equipment for inventory	87	69
Prepaid expenses and other current assets	478	617
Current assets of discontinued operations	—	718
Total current assets	8,811	12,072
Property and equipment, net	1,039	1,197
Intangible and other assets, net	401	393
Available-for-sale investments, at quoted market value (cost of \$2,882 and \$2,741 at June 30, 2013 and December 31, 2012, respectively)	3,211	2,963
Total assets	\$13,462	\$16,625
Liabilities and Stockholders' Equity		
Current liabilities		
Current portion of capital lease obligation	\$14	\$13
Revolving line of credit	589	590
Accounts payable	1,955	1,424
Accrued liabilities	2,450	2,221
Advances on contracts in progress	1,175	1,037
Liabilities of discontinued operations	21	171
Total current liabilities	6,204	5,456
Long-term portion of capital lease obligation	1	8
Deferred compensation	3,211	2,963
Other long-term liabilities	736	746
Total long-term liabilities	3,948	3,717
Total liabilities	10,152	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 June 30, 2013 and December 31, 2012, respectively	92	91
Additional paid-in capital	23,244	23,084
Accumulated deficit	(20,355)	(15,945)
Accumulated other comprehensive income	329	222
Total stockholders' equity	3,310	7,452
Total liabilities and stockholders' equity	\$13,462	\$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 June 30, 2013	2012	Six Months Ended June 30, 2013	2012
Net sales and revenues				
Sales of goods	\$ 1,467	\$ 4,449	\$ 2,437	\$ 9,938
Contract research and service revenues	2,107	2,171	4,375	4,157
Total net sales and revenues	3,574	6,620	6,812	14,095
Cost of sales and revenues				
Cost of goods sold	1,902	4,134	3,693	8,422
Cost of contract research and services	1,159	1,240	2,381	2,474
Total cost of sales and revenues	3,061	5,374	6,074	10,896
Gross margin	513	1,246	738	3,199
Operating expenses				
Selling, general and administrative expenses	2,271	2,940	5,085	6,404
Internal research and development expenses	10	93	23	191
Total operating expenses	2,281	3,033	5,108	6,595
Operating loss from continuing operations	(1,768	) (1,787	) (4,370	) (3,396
Interest expense, net	(13	) (36	) (29	) (67
Foreign exchange gain (loss)	(1	) 1	(9	) 3
Total other expense, net	(14	) (35	) (38	) (64
Loss from continuing operations before income tax benefit (provision)	(1,782	) (1,822	) (4,408	) (3,460
Income tax benefit (provision) - continuing operations	—	—	(2	) 1,992
Loss from continuing operations	(1,782	) (1,822	) (4,410	) (1,468
Loss from discontinued operations before sale of business unit	—	—	—	(430
Gain on sale of business unit, net of transaction expenses	—	—	—	5,449
Income tax provision - discontinued operations	—	—	—	(2,008
Income from discontinued operations, net of tax	—	—	—	3,011
Net income (loss)	\$(1,782	) \$(1,822	) \$(4,410	) \$1,543
Basic and diluted income (loss) per share:				
From continuing operations, net of tax	\$(0.19	) \$(0.21	) \$(0.48	) \$(0.17
From discontinued operations, net of tax	—	—	—	0.35
Basic and diluted income (loss) per share	\$(0.19	) \$(0.21	) \$(0.48	) \$0.18
Weighted average number of common and common equivalent shares outstanding – basic and diluted	9,207,874	8,562,633	9,144,482	8,562,633

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



## SPIRE CORPORATION AND SUBSIDIARIES

## UNAUDITED CONDENSED CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME (LOSS)

(in thousands)

	Three Months Ended June 30,		Six Months Ended June 30,	
	2013	2012	2013	2012
Comprehensive income (loss):				
Net income (loss)	\$ (1,782	) \$ (1,822	) \$ (4,410	) \$ 1,543
Other comprehensive income (loss):				
Change in fair value of available for sale marketable securities, net of tax	(132	) (223	) 107	109
Total comprehensive income (loss)	\$ (1,914	) \$ (2,045	) \$ (4,303	) \$ 1,652

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)

	Six Months Ended June 30,	
	2013	2012
Cash flows from operating activities:		
Net income (loss)	\$(4,410	) \$1,543
Less: Net income from discontinued operations, net of tax	—	3,011
Loss from continuing operations	(4,410	) (1,468
Adjustments to reconcile net income (loss) to net cash used in operating activities:		
Depreciation and amortization	243	410
Deferred tax benefit	—	(2,008
Deferred compensation	107	109
Share-based compensation	77	121
Provision for accounts receivable reserve	18	21
Provision for inventory reserve	175	192
Changes in assets and liabilities:		
Restricted cash	—	21
Accounts receivable	666	1,133
Inventories	175	895
Deferred cost of goods sold	93	116
Deposits, prepaid expenses and other current assets	121	679
Accounts payable, accrued liabilities and other liabilities	834	(1,877
Deposit - related party	—	300
Advances on contracts in progress	138	(1,203
Net cash used in operating activities of continuing operations	(1,763	) (2,559
Net cash used in operating activities of discontinued operations	(150	) (1,724
Net cash used in operating activities	(1,913	) (4,283
Cash flows from investing activities:		
Purchase of property and equipment	(58	) (100
Additions to intangible and other assets	(35	) (11
Net cash used in investing activities of continuing operations	(93	) (111
Net cash provided by investing activities of discontinued operations	718	6,859
Net cash provided by investing activities	625	6,748
Cash flows from financing activities:		
Principal payments on capital lease obligations	(6	) (24
Principal payments on revolving line of credit, net	(1	) —
Net cash used in financing activities	(7	) (24
Net increase (decrease) in cash and cash equivalents	(1,295	) 2,441
Cash and cash equivalents, beginning of period	3,030	4,758
Cash and cash equivalents, end of period	\$1,735	\$7,199
Supplemental disclosures of cash flow information:		
Interest paid	\$29	\$67
Income taxes paid	\$1	\$5
Supplemental disclosures of non-cash flow information:		

Liabilities settled with common stock	\$84	\$—
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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

June 30, 2013 and 2012

1. Description of the Business

Spire Corporation ("Spire" or the "Company") develops, manufactures and markets highly-engineered products and services in two principal business areas: (i) capital equipment and systems for the photovoltaic solar industry and (ii) biomedical, 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, 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 and biophotonic technologies.

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.

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 37% and 34% of net sales and revenues for the three and six months ended June 30, 2013, respectively, and 65% of net sales and revenues for both the three and six months ended June 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 \$1.8 million and \$4.4 million for the three and six months ended June 30, 2013, respectively. Operating loss from continuing operations was \$1.8 million and \$3.4 million for the three and six months ended June 30, 2012, respectively. Net cash used in operating activities was \$1.9 million for the six months ended June 30, 2013, which includes \$150 thousand of cash used in operating activities of discontinued operations. Net cash used in operating activities was \$4.3 million for the six months ended June 30, 2012, which includes \$1.7 million of cash used in operating activities of discontinued operations. As of June 30, 2013, the Company had unrestricted cash and cash equivalents of \$1.7 million compared to \$3.0 million as of December 31, 2012. The maturity date of the Company's credit facilities is August 30, 2013. 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 June 30, 2013, will be sufficient to

fund its operations into the second half of 2013; however, the Company cannot assure you of this.

The Company has 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 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.

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.

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## 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 June 30, 2013 and December 31, 2012 and the results of its operations for the three and six months ended June 30, 2013 and 2012. The results of operations for the three and six months ended June 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.

### Summary of Significant Accounting Policies

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.

### 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 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)	June 30, 2013	December 31, 2012
Amounts billed	\$1,265	\$1,927
Accrued revenue	234	238
Gross accounts receivable - trade	1,499	2,165
Less: Allowance for doubtful accounts	(46	) (28
Net accounts receivable - trade	\$1,453	\$2,137
Advances on contracts in progress	\$1,175	\$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 zero and \$5 thousand for the six months ended June 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

Inventories, net of \$1.0 million and \$860 thousand of reserves at June 30, 2013 and December 31, 2012, respectively, and deferred cost of goods sold consist of the following at:

(in thousands)	June 30, 2013	December 31, 2012
Raw materials	\$1,524	\$1,784
Work in process	2,086	2,103
Finished goods	1,356	1,429
Net inventory	\$4,966	\$5,316
Deferred cost of goods sold	\$92	\$185

The Company wrote-off \$29 thousand of excess and obsolete inventory for the six months ended June 30, 2012 and had no write-offs for the six months ended June 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:

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	Three Months Ended June 30,		Six Months Ended June 30,	
	2013	2012	2013	2012
Weighted average number of common and common equivalent shares outstanding – basic	9,207,874	8,562,633	9,144,482	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	9,144,482	8,562,633

For the three and six months ended June 30, 2013, 3,554 and 4,375 shares of common stock, respectively, and for the three and six months ended June 30, 2012, 878 and 2,287 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 six months ended June 30, 2013, 632,446 and 622,446 shares of common stock, respectively, and for the three and six months ended June 30, 2012, 668,446 and 658,446 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.

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.

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

(in thousands)	Solar	Biomedical	Total Company
For the three months ended June 30, 2013			
Net sales and revenues	\$1,892	\$1,682	3,574
Operating income (loss) from continuing operations	\$(1,938)	) \$170	(1,768 )
For the three months ended June 30, 2012			
Net sales and revenues	\$4,881	\$1,739	6,620
Operating income (loss) from continuing operations	\$(1,999)	) \$212	(1,787 )
For the six months ended June 30, 2013			
Net sales and revenues	\$3,338	\$3,474	\$6,812
Operating income (loss) from continuing operations	\$(4,730)	) \$360	\$(4,370 )
For the six months ended June 30, 2012			
Net sales and revenues	\$10,734	\$3,361	\$14,095
Operating income (loss) from continuing operations	\$(3,543)	) \$147	\$(3,396 )

Operating income (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 income (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.

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

(in thousands)	Three Months Ended June 30,				Six Months Ended June 30,			
	2013	%	2012	%	2013	%	2012	%
United States	\$2,261	63	\$2,352	35	\$4,534	66	\$4,949	35
Europe/Africa	454	13	444	7	790	12	2,686	19
Asia	662	19	3,824	58	1,271	19	6,407	46
Rest of the world	197	5	—	—	217	3	53	—
	\$3,574	100	\$6,620	100	\$6,812	100	\$14,095	100

Revenues from contracts with United States government agencies for the three months ended June 30, 2013 and 2012 were approximately \$197 thousand and \$448 thousand or 6% and 7% of total net sales and revenues, respectively.

Revenues from contracts with United States government agencies for the six months ended June 30, 2013 and 2012 were approximately \$643 thousand and \$872 thousand or 9% and 6% of total net sales and revenues, respectively.

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

Revenues from the delivery of biomedical services to two customers accounted for 21% and 13% of total net sales and revenues for the six month period ended June 30, 2013.

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Revenues from the delivery of solar equipment to two customers account for 22% and 13% of total net sales and revenues for the three month period ended June 30, 2013. Revenues from the delivery of biomedical services to one customer accounted for 12% of total net sales and revenues for the three month period ended June 30, 2013.

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Revenues from the delivery of solar equipment to four customers account for 13%, 13% , 13% and 10% of total net sales and revenues for the six month period ended June 30, 2012. Revenues from the delivery of biomedical services to one customer accounted for 11% of total net sales and revenues for the six month period ended June 30, 2012.

Three customers represented approximately 22%, 12% and 12% , respectively, of net accounts receivable, trade at June 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 \$86 thousand and \$111 thousand, net of accumulated amortization of \$847 thousand and \$822 thousand, at June 30, 2013 and December 31, 2012, respectively. Licenses amounted to \$58 thousand and \$60 thousand, net of accumulated amortization of \$17 thousand and \$15 thousand, at June 30, 2013 and December 31, 2012, respectively. Patent cost is primarily composed of cost 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 \$27 thousand for the three months ended June 30, 2013 and 2012, respectively. Amortization expense from continuing operations, relating to patents and licenses, was approximately \$27 thousand and \$40 thousand for the six months ended June 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 June 30, 2013 of \$107 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 6 months	\$38
2014	68
2015	44
2016	30
2017	27
2018	16
Thereafter	28
	\$251

Also included in other assets are refundable deposits made by the Company of approximately \$150 thousand and \$154 thousand at June 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 \$329 thousand and \$222 thousand as of June 30, 2013 and December 31, 2012, respectively. Additionally, the Company settled \$84 thousand of accrued liabilities through issuance of common stock to available-for-sale investments during the six month period ended June 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.

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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 six months ended June 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 June 30, 2013 and December 31, 2012 by ASC 820-10 valuation hierarchy (as defined above).

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(in thousands)	Balance as of June 30, 2013	Level 1	Level 2	Level 3	
Cash and short term investments	\$70	\$70	\$—	\$—	
Common stock					
Basic Materials	28	28	—	—	
Consumer Goods	126	126	—	—	
Energy	124	124	—	—	
Financial	114	114	—	—	
Healthcare	140	140	—	—	
Industrial Goods	141	141	—	—	
Services	54	54	—	—	
Technology	607	607	—	—	
Transportation	9	9	—	—	
Utilities	16	16	—	—	
Total Common Stock	1,359	1,359	—	—	
Mutual Fund					
Diversified Emerging Markets	230	—	230	—	
Foreign Large Blend	239	—	239	—	
Foreign Large Growth	233	—	233	—	
Large Growth	232	—	232	—	
Small Blend	279	279	—	—	
Global High Yield Income Fund	52	—	52	—	
Total Mutual Fund	1,265	279	986	—	
Fixed Income					
Domestic	466	—	466	—	
International	51	—	51	—	
Total Fixed Income	517	—	517	—	
Total available-for-sale investments <sup>(1)</sup>	\$3,211	\$1,708	\$1,503	\$—	
Percent of total	100	% 53	% 47	% —	%

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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 revolving line of credit has 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, frequency of amendments to its terms and the variable interest rates, the carrying value of the revolving line of credit approximates fair value at June 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 an aggregate amount of \$1.5 million under both facilities, with up to \$1 million available under the Revolving Credit Facility and

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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 August 30, 2013. 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 June 12, 2013, the Company and the Bank entered into (i) the Fifth Loan Modification Agreement amending certain terms of the Revolving Credit Facility and (ii) the Fifth Loan Modification Agreement amending certain terms of the Ex-Im Facility. Pursuant to the terms of the Fifth 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 from June 29, 2013 to August 30, 2013 and (ii) effective June 1, 2013, amend the definition of the Financial Covenant by deleting the minimum cash covenant and replacing it with a newly defined covenant whereby the Company shall maintain liquidity of at least \$1.25 million at all times based on cash on hand and availability under the credit facility, as long as any commitment remains outstanding under the facilities.

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.

Advances outstanding under the Revolving Credit Facility were \$556 thousand and \$449 thousand at June 30, 2013 and December 31, 2012, respectively. Advances outstanding under the Ex-Im Facility were \$33 thousand and \$141 thousand at June 30, 2013 and December 31, 2012, respectively. As of June 30, 2013, the interest rate per annum on the Revolving Credit Facility and Ex-Im Facility was 6.5% and 6.5%, respectively. The Company has utilized \$160 thousand and \$675 thousand of the guidance line at June 30, 2013 and December 31, 2012, respectively. Combined availability under the Revolving Credit Facility and the Ex-Im Facility was \$322 thousand as of June 30, 2013.

## 11. Share-Based Compensation

The Company has recognized share-based compensation expense from continuing operations of approximately \$41 thousand and \$66 thousand for the three months ended June 30, 2013 and 2012, respectively. The Company has recognized share-based compensation expense from continuing operations of approximately \$77 thousand and \$121 thousand for the six months ended June 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 June 30,		Six Months Ended June 30,	
	2013	2012	2013	2012
Cost of contract research, services	\$5	\$6	\$10	\$10

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Cost of goods sold	4	10	7	25
Administrative and selling	32	50	60	86
Total share-based compensation	\$41	\$66	\$77	\$121

There was no share-based compensation expense from discontinued operations for the three and six months ended June 30, 2013. Share-based compensation expense from discontinued operations was zero and \$(7) thousand for the three and six months ended June 30, 2012, respectively. No share-based compensation expense was capitalized during the six months ended June 30,

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2013 and 2012. Compensation expense related to stock options to be charged in future periods amounts to approximately \$52 thousand at June 30, 2013 and will be recognized over a weighted-average period of 1.08 years as follows:

For the years ended December 31,	Expected Compensation Expense (in thousands)
2013	\$48
2014	4
	\$52

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 June 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 June 30, 2013 and changes during the six month period ended June 30, 2013 is as follows:

	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	18,000	\$ 0.58		
Exercised	—	\$ —		
Cancelled/expired	(2,000)	\$ 4.32		
Options outstanding at June 30, 2013	660,446	\$ 6.06	5.46	\$ 1
Options vested and exercisable at June 30, 2013	621,071	\$ 6.18	5.35	\$ 1
Option vested and expected to vest at June 30, 2013	658,609	\$ 6.17	5.35	\$—
Options available for future grant at June 30, 2013	391,059			

The aggregate intrinsic value in the table above represents the total intrinsic value, based on the Company's closing stock price of \$0.56 as of June 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 six months ended June 30, 2013 and 2012, respectively. The total intrinsic value of options expected to vest at June 30, 2013 was approximately zero, and the weighted average remaining contractual life of outstanding options that are expected to vest is 5.31 years.

Year	Expected	Risk-Free	Expected	Expected
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	Dividend Yield	Interest Rate	Option Life	Volatility Factor
2013	—	0.77%	5.1 years	99.7%
2012	—	0.96%	5.1 years	87.8%

12. Accumulated Other Comprehensive Income

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

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(in thousands)	Unrealized Gains (Losses) on Available for Sale Securities
Balance, December 31, 2012	\$ 222
Other comprehensive income before reclassification	162
Amounts reclassified from accumulated other comprehensive income	(55 )
Net current-period other comprehensive income	107
Balance, June 30, 2013	\$ 329

Reporting reclassifications out of accumulated other comprehensive income for the three months ended June 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	\$ (55 )	Selling, general and administrative expenses

### 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.

#### 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 six months ended June 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 June 30, 2013 and December 31, 2012 are as follows:

(in thousands)	June 30, 2013	December 31, 2012
Assets		
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 Semiconductor Business Unit for the three and six months ended June 30, 2013 and 2012 are as follows:

(in thousands)	Three Months Ended		Six Months Ended June	
	June 30, 2013	2012	2013	2012
Net sales and revenues	\$—	\$—	\$—	\$425
Gross margin	\$—	\$—	\$—	\$(296 )
Loss from discontinued operations before sale of business unit	\$—	\$—	\$—	\$(430 )
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	\$—	\$—	\$—	\$3,011

## 14. Subsequent Events

The Company evaluated subsequent events through the date of this filing and had 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 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, 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 provides 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 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 provide turn-key services to our customers to backward integrate to solar cell manufacturing. At times, we supply materials such as solar cells to certain customers.

In the biomedical area, 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 perform sponsored research programs into practical applications of advanced biomedical and biophotonic technologies.

On March 9, 2012, we completed the sale of our semiconductor business unit, which provides semiconductor foundry services, operates a semiconductor foundry and fabrication facility and is 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.

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 37% and 34% of net sales and revenues for the three and six months ended June 30, 2013, respectively, and 65% and 65% of net sales and revenues for the three and six months ended June 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 June 30,		Six Months Ended June 30,		
	2013	2012	2013	2012	
Net sales and revenues	100	% 100	% 100	% 100	%
Cost of sales and revenues	(86	) (81	) (89	) (77	)
Gross margin	14	19	11	23	
Selling, general and administrative expenses	(64	) (45	) (75	) (46	)
Internal research and development expenses	—	(1	) —	(1	)
Operating loss from continuing operations	(50	) (27	) (64	) (24	)
Other expense, net	—	(1	) (1	) —	
Loss from continuing operations before income tax benefit	(50	) (28	) (65	) (24	)
Income tax benefit - continuing operations	—	—	—	14	
Loss from continuing operations	(50	) (28	) (65	) (10	)
Income from discontinued operations, net of tax	—	—	—	21	
Net income (loss)	(50	)% (28	)% (65	)% 11	%

## Overall

Our total net sales and revenues for the six months ended June 30, 2013 were \$6.8 million as compared to \$14.1 million for the six months ended June 30, 2012, which represents a decrease of \$7.3 million or 52%. 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 69% during the six months ended June 30, 2013 to \$3.3 million as compared to \$10.7 million for the six months ended June 30, 2012. The decrease in solar business unit revenue is primarily the result of a decrease in solar module equipment revenue in 2013 of \$7.3 million, partially offset by an increase in equipment research and development revenue of \$504 thousand 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 revenue in our solar business unit.

## Biomedical Business Unit

Revenues on our biomedical business unit increased 3% during the six months ended June 30, 2013 to \$3.5 million as compared to \$3.4 million for the six months ended June 30, 2012. The increase was primarily attributable to an increase in revenue from our orthopedics coating services, partially offset by a decrease in revenue from our research and development contracts.

Three and Six Months Ended June 30, 2013 Compared to Three and Six Months Ended June 30, 2012

## Net Sales and Revenues

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

(in thousands)	Three Months Ended June 30,		Decrease		
	2013	2012	\$	%	
Sales of goods	\$1,467	\$4,449	\$(2,982	) (67	)%
Contract research and services revenues	2,107	2,171	(64	) (3	)%
Net sales and revenues	\$3,574	\$6,620	\$(3,046	) (46	)%

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The 67% decrease in sales of goods for the three months ended June 30, 2013 as compared to the three months ended June 30, 2012 was primarily due to a decrease of \$2.8 million in solar module manufacturing equipment revenues. The decrease in solar module equipment sales of 66% in 2013 as compared to 2012 was primarily due to a decrease in individual module equipment units delivered 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% decrease in contract research and services revenues for the three months ended June 30, 2013 as compared to the three months ended June 30, 2012 is primarily attributable to a decrease of \$314 thousand in solar research and development revenue, partially offset by an increase of \$308 thousand in equipment research and development revenue. The decrease in solar research and development revenue of 73% in 2013 as compared to 2012 was primarily due to the completion of two research and development projects in the first quarter of 2013 and the second quarter of 2012. 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 third quarter of 2012.

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

(in thousands)	Six Months Ended June 30,		Increase (Decrease)		
	2013	2012	\$	%	
Sales of goods	\$2,437	\$9,938	\$(7,501)	(75)	)%
Contract research and services revenues	4,375	4,157	218	5	%
Net sales and revenues	\$6,812	\$14,095	\$(7,283)	(52)	)%

The 75% decrease in sales of goods for the six months ended June 30, 2013 as compared to the six months ended June 30, 2012 was primarily due to a decrease of \$7.3 million in solar module manufacturing equipment revenues. The decrease in solar module equipment sales of 75% in 2013 as compared to 2012 was primarily due to a decrease in individual module equipment units delivered 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 5% increase in contract research and services revenues for the six months ended June 30, 2013 as compared to the six months ended June 30, 2012 is primarily attributable to an increase of \$504 thousand in equipment research and development revenue and an increase of \$243 thousand in biomedical service revenue, partially offset by a decrease of \$399 thousand in solar research and development revenue and a decrease of \$130 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 third quarter of 2012. Revenues from our biomedical services increased 8% in 2013 compared to 2012 as a result of an increase in revenue from two large customers in 2013. The decrease in solar research and development revenue of 50% in 2013 as compared to 2012 was primarily due to the completion of two research and development projects in the first quarter of 2013 and the second quarter of 2012. The decrease in biomedical research and development revenue of 57% in 2013 as compared to 2012 was primarily due to the completion of two research and development projects in 2012.

#### Cost of Sales and Revenues

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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 June 30,				Decrease			
	2013	%	2012	%	\$	%		
Cost of goods sold	\$1,902	130	% \$4,134	93	% \$(2,232)	(54)	)%	
Cost of contract research and services	1,159	55	% 1,240	57	% (81)	(7)	)%	
Net cost of sales and revenues	\$3,061	86	% \$5,374	81	% \$(2,313)	(43)	)%	

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Cost of goods sold decreased 54% for the three months ended June 30, 2013 as compared to the three months ended June 30, 2012, primarily due to a decrease of \$2.2 million in costs related to solar module equipment. The decrease in solar module equipment costs of 55% in 2013 as compared to 2012 was primarily due to a decrease in associated revenue. As a percentage of sales, cost of goods sold was 130% of sales of goods in 2013 as compared to 93% 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.

Cost of contract research and services decreased 7% for the three months ended June 30, 2013 as compared to the three months ended June 30, 2012, primarily due to a decrease of \$146 thousand in costs related to solar research and development services and \$58 thousand in costs related to biomedical research and development services, partially offset by an increase of \$98 thousand in costs related to equipment research and development services. The decrease in solar research and development services costs of 76% 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 research and development services costs of 38% in 2013 as compared to 2012 was primarily due to a reduction in direct costs related to reduced revenue and reduced indirect employee related 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 third quarter of 2012. Cost of contract research and services as a percentage of related revenue decreased to 55% of related revenues in 2013 from 57% 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 third quarter of 2012.

Cost of sales and revenues also includes approximately \$9 thousand and \$16 thousand of share-based compensation for the three months ended June 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)	Six Months Ended June 30,				Decrease	
	2013	%	2012	%	\$	%
Cost of goods sold	\$3,693	152	% \$8,422	85	% \$(4,729 )	(56 )%
Cost of contract research and services	2,381	54	% 2,474	60	% (93 )	(4 )%
Net cost of sales and revenues	\$6,074	89	% \$10,896	77	% \$(4,822 )	(44 )%

Cost of goods sold decreased 56% for the six months ended June 30, 2013 as compared to the six months ended June 30, 2012, primarily due to a decrease of \$4.6 million in costs related to solar module equipment. The decrease in solar module equipment costs of 57% in 2013 as compared to 2012 was primarily due to a decrease in associated revenue. As a percentage of sales, cost of goods sold increased to 152% of sales of goods in 2013 as compared to 85% 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.

Cost of contract research and services decreased 4% for the six months ended June 30, 2013 as compared to the six months ended June 30, 2012, primarily due to a decrease of \$143 thousand in costs related to solar research and development services and \$85 thousand in costs related to biomedical services, partially offset by an increase of \$156 thousand in costs related to equipment research and development services. The decrease in solar research and development services costs of 42% 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 services costs of 4% 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 third quarter of 2012. Cost of contract research and services as a percentage of related revenue decreased to 54% of related revenues in 2013 from 60% 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 third quarter of 2012.

Cost of sales and revenues also includes approximately \$17 thousand and \$35 thousand of share-based compensation for the six months ended June 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:

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(in thousands)	Three Months Ended June 30,				Decrease	
	2013	%	2012	%	\$	%
Selling, general and administrative	\$2,271	64	\$2,940	44	\$(669)	(23)%
Internal research and development	10	—	93	1	(83)	(89)%
Operating expenses	\$2,281	64	\$3,033	46	\$(752)	(25)%

Selling, General and Administrative Expenses

Selling, general and administrative expense decreased 23% in the three months ended June 30, 2013 as compared to the three months ended June 30, 2012, primarily as a result of a decrease in marketing, rent and employee related expenses and a decrease in agent commissions in the solar business unit. In addition, there were fewer losses realized related to the change in value of the deferred compensation plan. Selling, general and administrative expense increased to 64% of sales and revenues in 2013 as compared to 44% in 2012. The increase was primarily due to the decrease in sales and revenues.

Selling, general and administrative expenses include approximately \$32 thousand and \$50 thousand of share-based compensation for the three months ended June 30, 2013 and 2012, respectively.

Internal Research and Development

Internal research and development expense decreased 89% in the three months ended June 30, 2013 as compared to the three months ended June 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.

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)	Six Months Ended June 30,				Decrease	
	2013	%	2012	%	\$	%
Selling, general and administrative	\$5,085	75	\$6,404	45	\$(1,319)	(21)%
Internal research and development	23	—	191	1	(168)	(88)%
Operating expenses	\$5,108	75	\$6,595	47	\$(1,487)	(23)%

Selling, General and Administrative Expenses

Selling, general and administrative expense decreased 21% in the six months ended June 30, 2013 as compared to the six months ended June 30, 2012, primarily as a result of a decrease in marketing, insurance and employee related expenses and a decrease in agent commissions in the solar business unit. Selling, general and administrative expense increased to 75% of sales and revenues in 2013 as compared to 45% in 2012. The increase was primarily due to the decrease in sales and revenues.

Selling, general and administrative expenses include approximately \$60 thousand and \$86 thousand of share-based compensation for the six months ended June 30, 2013 and 2012, respectively.

Internal Research and Development

Internal research and development expense decreased 88% in the six months ended June 30, 2013 as compared to the six months ended June 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 \$13 thousand and \$36 thousand for the three months ended June 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 with Silicon Valley Bank in 2013 compared with 2012. We had currency exchange losses of approximately \$1 thousand and currency exchange gains of approximately \$1 thousand during the three months ended June 30, 2013 and 2012, respectively.

We incurred interest expense of \$29 thousand and \$67 thousand for the six months ended June 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 with Silicon Valley Bank in 2013 compared with 2012. We had currency exchange losses of approximately \$9 thousand and currency exchange gains of approximately \$3 thousand during the six months ended June 30, 2013 and 2012, respectively.

#### Income Taxes

We recorded a state income tax provision from continuing operations of \$2 thousand during the six months ended June 30, 2013. We recorded an income tax benefit on our loss from continuing operations of \$2.0 million during the six months ended June 30, 2012, which was offset by a provision on our income from discontinued operations of \$2.0 million during the six months ended June 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 June 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.

We recorded net income from discontinued operations of \$3.0 million for the six months ended June 30, 2012. Included in discontinued operations for the six months ended June 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 Income (Loss)

We reported net loss of \$1.8 million and \$1.8 million for the three months ended June 30, 2013 and 2012, respectively. Net loss decreased approximately \$40 thousand, primarily due to a \$752 thousand decline in operating expenses, partially offset by a \$710 thousand decline in solar business unit margin.

We reported net loss of \$4.4 million and net income of \$1.5 million for the six months ended June 30, 2013 and 2012, respectively. Net income decreased approximately \$6.0 million, primarily due to a \$5.0 million decline from discontinued operations before tax and a \$2.7 million decline in solar business unit margin, partially offset by a \$1.5 million decline in operating expenses and improved margin in the biomedical business unit of \$217 thousand.

#### Liquidity and Capital Resources

(in thousands)	June 30, 2013	December 31, 2012	Decrease \$	%	
Cash and cash equivalents	\$1,735	\$3,030	\$(1,295)	) (43	)%
Working capital	\$2,607	\$6,616	\$(4,009)	) (61	)%

Cash and cash equivalents decreased due to cash used in operating activities, partially offset by cash provided by investing activities. The overall decrease in working capital is due to a decrease in current assets, primarily cash,

accounts receivable, inventories and current assets of discontinued operations along with an increase in accounts payable and accrued liabilities. 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 June 30, 2013, our accumulated deficit was approximately \$20.4 million, compared to accumulated deficit of approximately \$15.9 million as of December 31, 2012.

We currently believe that our existing cash resources at June 30, 2013, will be sufficient to fund our operations into the second half of 2013; however, we cannot assure you of this. The maturity date of our credit facilities is August 30, 2013. 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.

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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 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 August 30, 2013. 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 June 12, 2013, we entered into with the Bank (i) the Fifth Loan Modification Agreement amending certain terms of the Revolving Credit Facility and (ii) the Fifth Loan Modification Agreement amending certain terms of the Ex-Im Facility. Pursuant to the terms of the Fifth Loan Modification Agreements, we agreed with the Bank to (i) extend the maturity date of the Revolving Credit Facility and the Ex-Im Facility from June 29, 2013 to August 30, 2013 and and (ii) effective June 1, 2013, amend the definition of the Financial Covenant by deleting the minimum cash covenant and replacing it with a newly defined covenant whereby we shall maintain liquidity of at least \$1.25 million at all times based on cash on hand and availability under the credit facility, as long as any commitment remains outstanding under the facilities.

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 the 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.

Advances outstanding under the Revolving Credit Facility were \$556 thousand and \$449 thousand at June 30, 2013 and December 31, 2012, respectively. Advances outstanding under the Ex-Im Facility were \$33 thousand and \$141 thousand at June 30, 2013 and December 31, 2012, respectively. As of June 30, 2013, the interest rate per annum on the Revolving Credit Facility and the Ex-Im Facility was 6.5% and 6.5%, respectively. We have utilized \$160 thousand and \$675 thousand of the guidance line at June 30, 2013 and December 31, 2012, respectively. Combined

availability under the Revolving Credit Facility and the Ex-Im Facility was \$322 thousand as of June 30, 2013.

#### Net Cash Used in Operating Activities

Net cash used in operating activities was \$1.9 million for the six months ended June 30, 2013, which includes \$150 thousand of cash used in operating activities of discontinued operations. Net cash used in operating activities was \$4.3 million for the six months ended June 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 June 30, 2013, we had unrestricted cash and cash equivalents of \$1.7 million compared to \$3.0 million as of December 31, 2012.

#### Foreign Currency Fluctuation

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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 six months of 2013 and 2012. Foreign exchange gain (loss) included in other expense, net, was a loss of approximately \$1.0 thousand and a gain of \$1.0 thousand during the three months ended June 30, 2013 and 2012, respectively, and was a loss of approximately \$9 thousand and a gain of \$3 thousand during the six months ended June 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. 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. 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 June 30, 2013 and 2012, respectively, and \$1.2 million for each of the six months ended June 30, 2013 and 2012, 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 was 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 six months ended June 30, 2013 and 2012, respectively. Rent expense from discontinued operations under the Hudson Lease was zero and \$134 thousand for the six months

ended June 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

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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 June 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:

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)	\$556	\$556	\$—	\$—	\$—
Ex-Im Facility (SVB)	\$33	\$33	\$—	\$—	\$—
Purchase obligations	\$826	\$808	\$17	\$1	\$—
Unrelated party capital leases	\$15	\$14	\$1	\$—	\$—
Operating leases:					
Unrelated party operating leases	\$127	\$91	\$36	\$—	\$—
Related party operating leases	\$10,913	\$2,349	\$4,916	\$3,648	\$—

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 and Ex-Im Facility do not include an interest component to the contractual obligation.

Outstanding letters of credit totaled \$160 thousand and \$675 thousand at June 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 June 30, 2013 and 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 June 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

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There were no changes in our internal control over financial reporting that occurred during the quarter ended June 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.

### 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

- 10.1 Fifth Loan Modification Agreement (Domestic), dated June 12, 2013, among Spire Corporation, Spire Solar, Inc., Spire Biomedical, Inc. and Silicon Valley Bank.
- 10.2 Fifth Loan Modification Agreement (Exim), dated June 12, 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.
- 32.2 Certification of the Chief Financial Officer and Treasurer pursuant to 18 U.S.C. §1350, as adopted pursuant to §906 of the Sarbanes-Oxley Act of 2002.
- 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 Label Linkbase Document
- 101.PRE XBRL Taxonomy Extension Presentation Linkbase Document

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: August 13, 2013

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

Dated: August 13, 2013

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

EXHIBIT INDEX

Exhibit	Description
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