

# Stock Index

## Solar Energy

Q3 2016



### Solar Energy Highlights

- Overall Solar Index decreased 14.5% from last quarter
- Wafers / Ingots Index increased 1.5% from last quarter
- Cells / Modules Index decreased 14.1% from last quarter
- Vertically Integrated Index decreased 19.8% from last quarter
- EPC Integrators / Developers Index decreased 11.2% from last quarter

### About the Solar Energy Stock Index

Similar to the S&P 500 Index, the Solar Stock Index is a market cap weighted composite index. The index is prepared by first selecting a base period, in this case, Q1 2009, and totaling the market caps of the companies in each sector in this period. This period and total market cap is set to a base index, in this case,

1000. Next, for each sector, the current period's total market cap is calculated, divided by the base period's total market cap and then multiplied by the base index (1000). The result is the index value used for plotting in the graph on the following page.

### Solar Energy Index Underperforms S&P in Q3 2016

Winner's Circle		Sector
PV Crystalox Solar plc	67%	W
Solaria Energia y Medio Ambiente	35%	C
Trina Solar Ltd.	32%	I
Capital Stage AG	12%	D
Worst Performers		Sector
ReneSola Ltd.	(19%)	W
Hanwha Q CELLS Co., Ltd.	(22%)	C
SolarWorld AG	(51%)	I
SolarCity Corporation	(18%)	D

Based on quarter-over-quarter share price performance

EBITDA Margins	
Wafers / Ingots	24%
Cells / Modules	16%
Vertically Integrated	11%
EPC Integrators / Developers	72%

3 Year Revenue CAGR	
Wafers / Ingots	9%
Cells / Modules	16%
Vertically Integrated	18%
EPC Integrators / Developers	24%

Source: Capital IQ as of September 30, 2016 or latest available

Note: Average for each sector; CAGR stands for compound annual growth rate

### Solar Energy Sector Guide

Wafers/Ingots Producers (W)

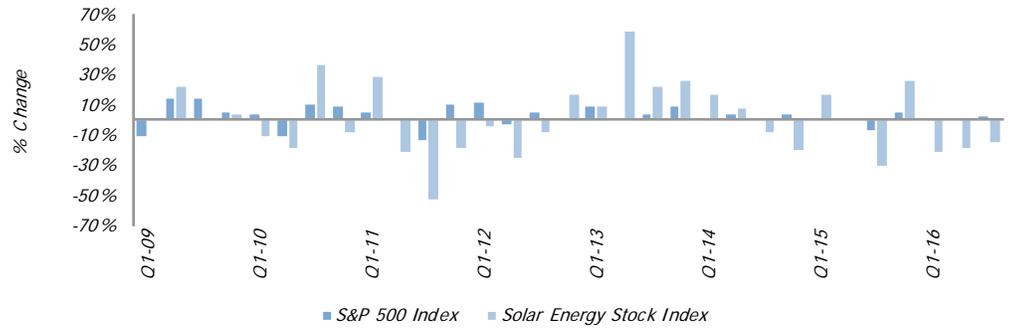
Cells/Modules Production (C)

Vertically Integrated Companies (I)

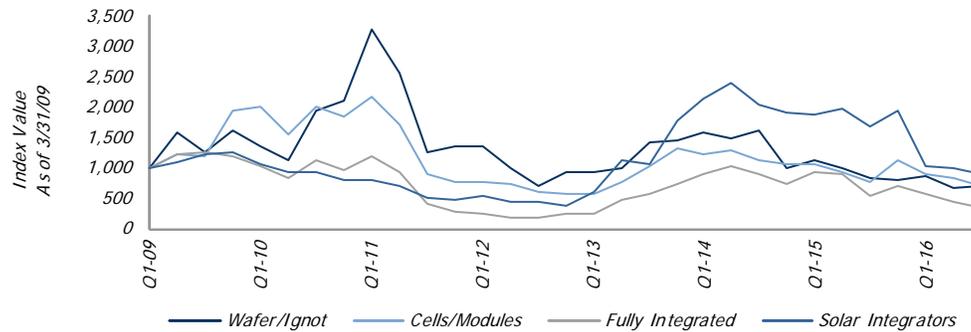
Engineering, Procurement and Construction ("EPC") Integrators / Developers (D)

### S&P Index vs. Solar Energy Stock Index

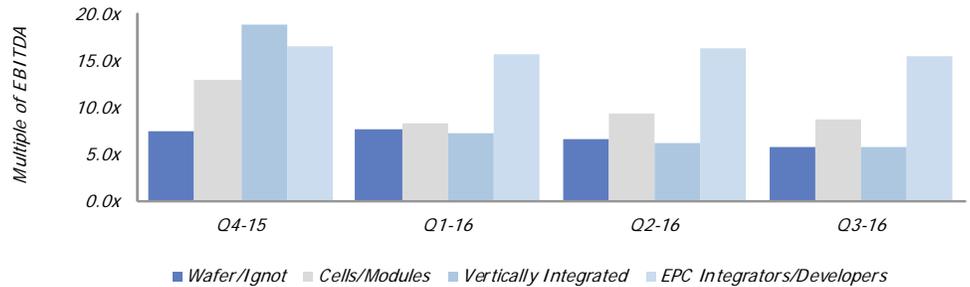
Quarter / Quarter Change



### Solar Energy Stock Index by Sector



### Enterprise Value<sup>(1)</sup> / EBITDA



(1) Enterprise Value is calculated as market cap on September 30, 2016 plus debt, preferred equity and minority interest less cash

## Solar Energy Stock Index Data

Company	Exchange	Stock Price	LTM Sales (\$ in millions)	Diluted EPS	Current Ratio	EV/ EBITDA	EV/ Sales	Market Cap (\$ in millions)	Net Debt (\$ in millions)
<b>Wafers / Ingots</b>									
GCL-Poly Energy Holdings Ltd.	Hong Kong	\$0.13	\$3,704	\$0.03	0.8	5.7x	2.1x	\$2,468	\$4,914
PV Crystalox Solar plc	London	0.23	74	0.00	7.9	NM	0.1x	36	(28)
ReneSola Ltd.	New York	1.01	1,175	0.26	0.6	5.8x	0.7x	103	693
Average Wafers / Ingots			\$1,651		3.1	5.7x	1.0x	\$869	\$1,860
<b>Cells / Modules</b>									
E-Ton Solar Tech. Co. Ltd	Taiwan	\$0.32	\$168	(\$0.02)	3.1	NM	1.1x	\$246	(\$51)
Gintech Energy Corporation	Taiwan	0.68	580	0.08	2.1	3.2x	0.5x	308	(2)
Hanwha Q CELLS Co., Ltd.	New York	11.21	2,282	2.20	1.3	6.0x	0.8x	933	928
JA Solar Holdings Co., Ltd.	Nasdaq	6.01	2,399	2.02	1.1	3.3x	0.4x	286	611
Motech Industries, Inc.	Taiwan	1.01	1,079	0.10	1.5	3.8x	0.5x	493	63
Neo Solar Power Corporation	Taiwan	0.52	732	(0.04)	2.1	17.5x	0.9x	527	105
Solaria Energia y Medio Ambiente, S.A.	Madrid	0.85	18	0.07	1.2	18.9x	10.0x	92	90
Average Cells / Modules			\$1,037		1.8	8.8x	2.0x	\$412	\$249
<b>Vertically Integrated</b>									
Canadian Solar Inc.	Nasdaq	\$13.74	\$3,497	\$2.64	0.8	8.1x	0.8x	\$794	\$1,954
First Solar, Inc.	Nasdaq	39.49	3,996	6.79	3.2	2.5x	0.7x	4,042	(1,395)
JinkoSolar Holding Co., Ltd.	New York	15.80	3,231	5.29	0.9	6.3x	0.8x	498	1,818
Renewable Energy Corporation ASA	Oslo	0.14	302	(0.05)	2.9	NM	1.4x	355	77
SolarWorld AG	Frankfurt	3.51	1,019	(2.32)	2.4	NM	0.3x	52	242
SunPower Corporation	Nasdaq	8.92	1,560	(2.48)	1.9	NM	1.9x	1,232	1,640
Trina Solar Ltd.	New York	10.24	3,533	0.86	1.0	5.9x	0.7x	958	1,427
Yingli Green Energy Holding Co. Ltd.	New York	3.87	1,382	(37.02)	0.5	NM	1.4x	70	1,634
Average Vertically Integrated			\$2,315		1.7	5.7x	1.0x	\$1,000	\$925
<b>EPC Integrators / Developers</b>									
Capital Stage AG	Frankfurt	\$7.42	\$140	\$0.04	1.3	15.5x	11.1x	\$615	\$932
Real Goods Solar, Inc.	Nasdaq	3.81	30	(25.00)	0.9	NM	0.4x	3	8
SolarCity Corporation	Nasdaq	19.56	538	(0.97)	0.6	NM	11.5x	1,961	3,254
Average EPC Integrators / Developers			\$236		0.9	15.5x	7.7x	\$860	\$1,398
Average Solar Energy Index			\$1,497		1.8	7.9x	2.3x	\$765	\$901

Note: Data in table above is sourced from Capital IQ as of September 30, 2016 or latest available data.

Stock price adjusted for dividends and splits.

Stock Index does not include polysilicon producers and diversified multi-divisional electronics firms such as Bosch, Kyocera, Mitsubishi Electric, Sanyo and Sharp.

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