

Stock Index

Solar Energy

Q4 2016



Solar Energy Highlights

- Overall Solar Index decreased 23.5% from last quarter
- Wafers / Ingots Index decreased 10.3% from last quarter
- Cells / Modules Index decreased 17.5% from last quarter
- Vertically Integrated Index decreased 15.9% from last quarter
- EPC Integrators / Developers Index increased 9.1% 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 Q4 2016

Winner's Circle		Sector
PV Crystalox Solar plc	25%	W
Solaria Energia y Medio Ambiente	(5%)	C
JinkoSolar	(4%)	I
Capital Stage AG	(10%)	D
Worst Performers		Sector
ReneSola	(37%)	W
Hanwha Q CELLS	(27%)	C
Yingli Green Energy	(33%)	I
Real Goods Solar	(94%)	D

Based on quarter-over-quarter share price performance

EBITDA Margins	
Wafers / Ingots	24%
Cells / Modules	18%
Vertically Integrated	12%
EPC Integrators / Developers	72%

3 Year Revenue CAGR	
Wafers / Ingots	5%
Cells / Modules	9%
Vertically Integrated	13%
EPC Integrators / Developers	1%

Source: Capital IQ as of December 31, 2016 or latest available

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

Solar Energy Sector Guide

Wafers/Ingots Producers (W)

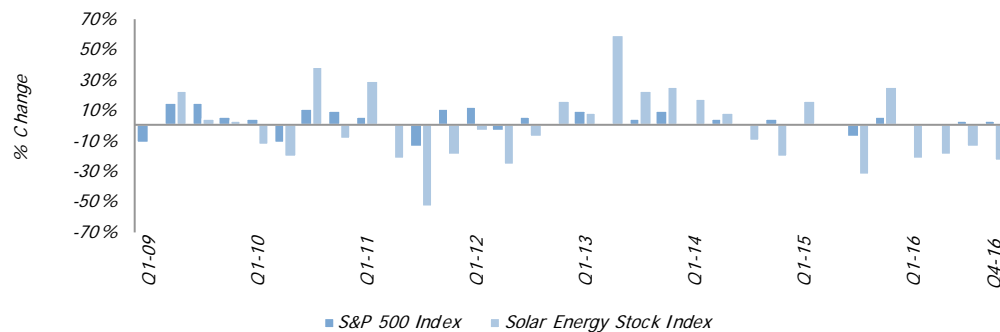
Cells/Modules Production (C)

Vertically Integrated Companies (I)

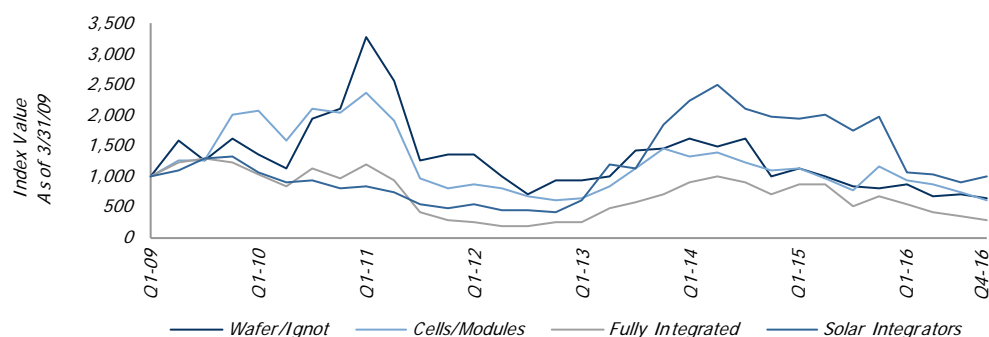
Engineering, Procurement and Construction ("EPC") Integrators / Developers (D)

S&P Index vs. Solar Energy Stock Index

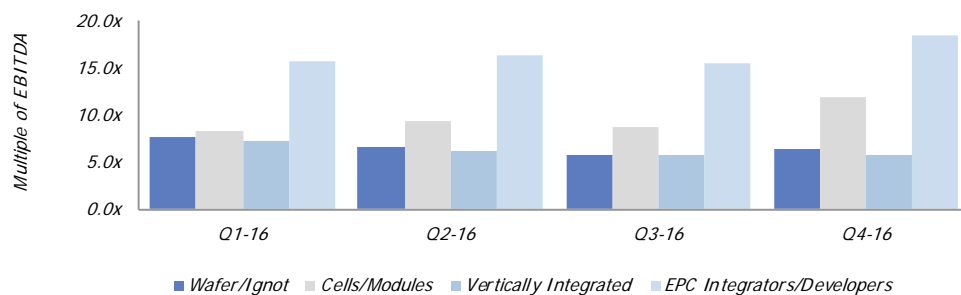
Quarter / Quarter Change



Solar Energy Stock Index by Sector



Enterprise Value⁽¹⁾ / EBITDA



(1) Enterprise Value is calculated as market cap on December 31, 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)
Wafers / Ingots									
GCL-Poly Energy Holdings Ltd.	Hong Kong	\$0.12	\$3,717	\$0.03	0.8	5.5x	2.0x	\$2,229	\$4,930
PV Crystalox Solar plc	London	0.29	73	0.00	7.9	NM	0.3x	46	(27)
ReneSola Ltd.	New York	0.64	994	(0.03)	0.6	7.1x	0.7x	65	670
Average Wafers / Ingots			\$1,595		3.1	6.3x	1.0x	\$780	\$1,858
Cells / Modules									
E-Ton Solar Tech. Co. Ltd	Taiwan	\$0.28	\$148	(\$0.03)	2.4	NM	1.1x	\$220	(\$50)
Gintech Energy Corporation	Taiwan	0.60	514	(0.11)	2.5	28.8x	0.5x	269	(14)
Hanwha Q CELLS Co., Ltd.	New York	8.16	2,563	2.07	1.3	4.4x	0.6x	679	957
JA Solar Holdings Co., Ltd.	Nasdaq	4.76	2,450	1.44	1.2	3.4x	0.3x	226	598
Motech Industries, Inc.	Taiwan	0.87	1,018	0.03	1.4	4.7x	0.5x	426	46
Neo Solar Power Corporation	Taiwan	0.47	651	(0.09)	1.5	NM	0.9x	474	119
Solaria Energia y Medio Ambiente, S.A.	Madrid	0.81	18	0.07	1.2	18.6x	10.0x	87	96
Average Cells / Modules			\$1,052		1.6	12.0x	2.0x	\$340	\$250
Vertically Integrated									
Canadian Solar Inc.	Nasdaq	\$12.18	\$3,305	\$2.40	1.1	8.0x	0.8x	\$704	\$2,000
First Solar, Inc.	Nasdaq	32.09	3,413	4.90	2.5	2.7x	0.6x	3,335	(1,264)
JinkoSolar Holding Co., Ltd.	New York	15.23	3,479	5.68	1.0	6.6x	0.8x	481	2,176
Renewable Energy Corporation ASA	Oslo	0.13	266	(0.12)	2.6	NM	1.6x	337	85
SolarWorld AG	Frankfurt	2.57	1,013	(4.25)	1.2	NM	0.3x	38	336
SunPower Corporation	Nasdaq	6.61	1,909	(2.36)	1.6	NM	1.6x	915	1,913
Trina Solar Ltd.	New York	9.30	3,481	1.33	1.0	5.9x	0.7x	870	1,585
Yingli Green Energy Holding Co. Ltd.	New York	2.60	1,266	(13.39)	0.5	NM	1.5x	47	1,615
Average Vertically Integrated			\$2,266		1.4	5.8x	1.0x	\$841	\$1,056
EPC Integrators / Developers									
Capital Stage AG	Frankfurt	\$6.71	\$142	\$0.00	1.3	18.5x	12.4x	\$848	\$960
Real Goods Solar, Inc.	Nasdaq	0.24	22	(28.96)	0.8	NM	0.7x	9	8
Average EPC Integrators / Developers			\$82		1.1	18.5x	6.6x	\$428	\$484
Average Solar Energy Index			\$1,522		1.7	9.5x	1.9x	\$615	\$837

Note: Data in table above is sourced from Capital IQ as of December 31, 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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Energy & Power
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Food & Beverage
Healthcare
Industrials
Packaging
Technology & Media

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Moscow
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Munich
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Debt Advisory
Special Situations
JV & Partnering
Valuations & Opinions

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Lincoln's Renewable Energy Group

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