

# Q1: Quarterly Industry Update

AS OF March 31, 2020

**cogent** valuation  
FINANCIAL OPINIONS

## Solar Energy

### INDUSTRY SUMMARY

COGENT VALUATION identified **Solar Energy** publicly traded companies, IPOs, and recent M&A transactions within the Solar Energy industry, which provides a basis for market and transaction pricing that can be used by your firm in estimating market sentiment and its impact on your firm's value. Over the last year since March 31, 2019, the median 52-week share price return of the Solar Energy industry was -0.4%. Between March 31, 2019 and March 31, 2020, the median EV/EBITDA multiple increased from 7.6 to 19.4. Furthermore, the median price-to-earnings multiple increased from 5.1 to 6.2 over the same period. The median revenue growth and EBITDA margins for the industry for the quarter were 0.0% and 1.2%, respectively.

### Public Company Key Statistics

Median 52-Week  
Return

**-.4%**

Median 3-Year CAGR  
Return

**-4.4%**

Median EV/Revenue  
Multiple

**1.4x**

Median EV/EBITDA  
Multiple

**19.4x**

Median Price/Earnings  
Multiple

**6.2x**

Median EV/Gross CF  
Multiple

**29.7x**

## Comparable Public Company Market Price Returns as of March 31, 2020

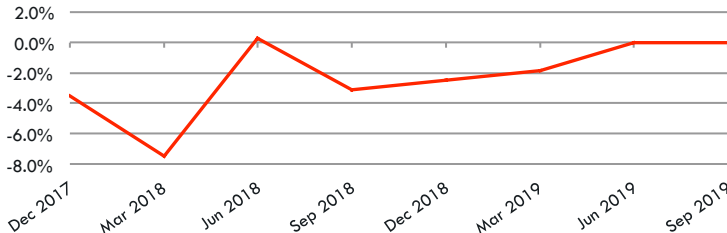
	2020	3 Month	1 Year	2 Year	3 Year	2019	2018	2017
<b>Ascent Solar Technologies, Inc.</b>	-44.4%	-44.4%	-68.8%	-98.0%	-97.2%	-69.0%	-99.9%	-86.4%
<b>Canadian Solar Inc.</b>	-3.5%	-3.5%	32.6%	-8.1%	-21.3%	38.4%	-57.9%	19.7%
<b>China Sunergy Co., Ltd.</b>	-14.9%	-14.9%	-34.9%	-67.0%	-72.7%	95.2%	-98.1%	-9.8%
<b>Ellomay Capital Ltd.</b>	-1.4%	-1.4%	10.2%	2.0%	1.4%	11.2%	-6.0%	-11.2%
<b>Enphase Energy, Inc.</b>	89.6%	89.6%	233.6%	40.0%	-29.8%	138.6%	-71.2%	-75.4%
<b>First Solar, Inc.</b>	5.1%	5.1%	161.9%	1.8%	5.9%	110.4%	-51.4%	48.0%
<b>JA Solar Holdings Co., Ltd.</b>	-12.1%	-12.1%	0.3%	-12.7%	-11.8%	56.7%	-50.9%	18.5%
<b>JinkoSolar Holding Co., Ltd.</b>	-24.1%	-24.1%	10.1%	-6.6%	-10.7%	57.9%	-45.0%	40.4%
<b>Song Da Industry Trade</b>	-15.6%	-15.6%	-7.6%	-15.6%	-7.9%	-6.1%	0.6%	-18.1%
<b>SunPower Corporation</b>	-5.3%	-5.3%	30.8%	-40.2%	-36.6%	27.5%	-78.0%	16.2%
<b>ThinkSmart Limited</b>	21.9%	21.9%	-49.0%	N/A	N/A	-60.5%	N/A	N/A
<b>Yingli Green Energy</b>	-0.6%	-0.6%	-22.6%	-39.4%	-55.1%	-35.0%	-42.6%	-80.7%
<b>Median of Industry Public Companies</b>	-4.4%	-4.4%	5.2%	-12.7%	-21.3%	33.0%	-51.4%	-9.8%

Multiple year periods are calculated as the average annual return.

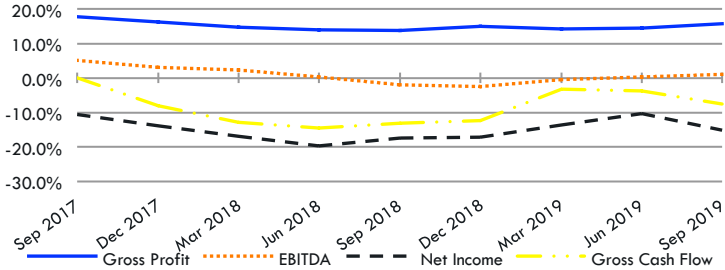
■ Highest Return
 ■ Lowest Return
 ■ Median Return

# Industry Revenue Growth and Profit Margins for the Past Two Years

Median Quarterly Revenue Growth of All Solar Energy Companies



Median Gross Profit, EBITDA, Net Income, and Gross Cash Flow Margins



## Public Company Median Multiples by Quarter

	3/31/20	12/31/19	9/30/19	6/30/19	3/31/19	12/31/18	9/30/18	6/30/18
<b>EV/Revenues Multiple</b>	1.4x	1.4x	1.3x	1.0x	1.0x	1.1x	0.9x	1.1x
<b>EV/EBITDA Multiple</b>	19.4x	13.0x	14.3x	15.7x	17.4x	14.4x	19.2x	9.9x
<b>Price/Earnings Multiple</b>	6.2x	14.4x	12.7x	15.0x	22.2x	18.7x	11.9x	9.1x
<b>EV/Gross Cash Flows Multiple</b>	29.7x	19.6x	11.6x	15.0x	30.8x	5.5x	17.8x	10.9x

■ Highest Multiple   
 ■ Lowest Multiple   
 ■ Median Multiple

## Industry Initial Public Offerings - Solar Energy

(dollars in millions, except share prices)

Offer Date	Company Name	Offer Price	Shares Offered	Amount Raised	Total Assets	Debt	LTM Revenues	LTM EBITDA	LTM Net Income	LTM Cash Flows
1/22/20	TaylorMade Renewables Limited	\$0.54	3.2	\$2.5	\$170.1	\$0.0	\$3.0	\$0.0	(\$15.4)	(\$9.8)
1/3/20	PT Sky Energy Indonesia Tbk	\$0.03	203.3	\$250.6	\$2,240.8	\$559.0	\$30.7	\$0.3	(\$52.4)	(\$63.5)
12/1/19	Solex Energy Limited	\$0.81	1.4	\$126.0	\$133.3	\$4.7	\$5.3	\$0.1	(\$2.4)	\$3.9
11/30/18	Zodiac Energy Limited	\$0.81	2.0	\$329.6	\$724.2	\$154.1	\$2.6	(\$1.2)	(\$19.5)	(\$113.4)
8/5/15	Ripasso Energy AB (publ)	\$0.43	5.8	\$92.0	\$1,151.2	\$299.3	\$2.7	(\$111.1)	(\$47.1)	(\$22.3)
3/26/15	Sunrun Inc.	\$18.00	17.9	\$53.8	\$106.2	\$33.9	\$238.6	\$1.7	(\$32.3)	(\$24.0)
9/30/14	Vivint Solar, Inc.	\$16.00	7.0	\$64.2	\$2,587.5	\$1,143.6	\$215.4	(\$117.7)	\$164.9	\$254.9
12/12/12	Tesla Energy Operations, Inc.	\$8.00	20.6	\$319.0	\$3,367.9	\$1,414.7	\$124.1	(\$40.7)	\$199.6	\$434.7
3/29/12	Enphase Energy, Inc.	\$6.00	11.5	\$93.5	\$176.3	\$77.9	\$149.5	(\$26.4)	\$11.8	\$18.7
5/13/10	JinkoSolar Holding Co., Ltd.	\$11.00	6.5	\$225.0	\$492.9	\$150.0	\$274.7	\$37.3	\$128.4	\$142.5
6/7/07	Yingli Green Energy Holding Company Limited	\$11.00	5.8	\$98.1	\$112.5	\$44.3	\$241.3	\$55.3	\$10.0	\$15.8
5/17/07	China Sunergy Co., Ltd.	\$11.00	29.0	\$400.0	\$255.1	\$71.0	\$149.5	\$16.9	(\$11.3)	\$2.4
2/6/07	JA Solar Holdings Co., Ltd.	\$15.00	7.7	\$115.5	\$66.3	\$23.2	\$89.2	\$18.2	(\$3.6)	\$8.0
12/18/06	Trina Solar Limited	\$18.50	3.0	\$16.5	\$0.2	\$0.2	\$91.6	\$14.8	(\$7.2)	\$0.0
11/16/06	First Solar, Inc.	\$20.00	26.4	\$395.7	\$135.2	\$51.3	\$95.9	(\$5.1)	\$31.1	\$46.6
5/31/16	GTN Limited	nm	nm	\$115.5	\$176.3	\$71.0	\$95.9	\$0.1	(\$3.6)	\$3.9

## Size of Recent Merger and Acquisition Transactions for a Majority Stake (dollars in millions)

Transaction Date	Target	Acquirer	Transaction Size	% Bought
1/9/20	<b>FOTOVOLTAICO SOLAR Y ENERGIAS RENOVABLES FOTOSOLAR, S.L.</b>	Plenium Partners Asset Management, S.G.E.I.C., S.A.; Helia Renovables, FCR	\$345.7	100%
12/19/19	<b>Aerospace Baykee</b>	Beijing Aerospace Changfeng	\$37.2	51%
11/21/18	<b>SolarCity Corporation (nka: Tesla Energy Operations, Inc.)</b>	Tesla Motors, Inc.	\$6,543.2	100%
11/1/18	<b>Human Energy Alliance Labs</b>	MJP International Ltd. (nka: Bionovate Technologies Corp.)	\$4.4	80%
5/4/18	<b>Global Resource Options</b>	EDF Renewable Energy	\$34.8	100%
11/21/16	<b>Desri Portal Ridge</b>	Firststar Development, LLC	\$6,543.2	100%
3/24/16	<b>Caithness Energy</b>	Global Infrastructure Partners	\$4.4	100%
2/11/16	<b>Gestamp Asetym Solar</b>	KKR & Co. L.P.	\$34.8	63%
8/5/15	<b>Aaron Services Ltd.</b>	Lakehouse plc (nka: Sureserve Group plc)	\$15.4	100%

■ USA
 ■ International

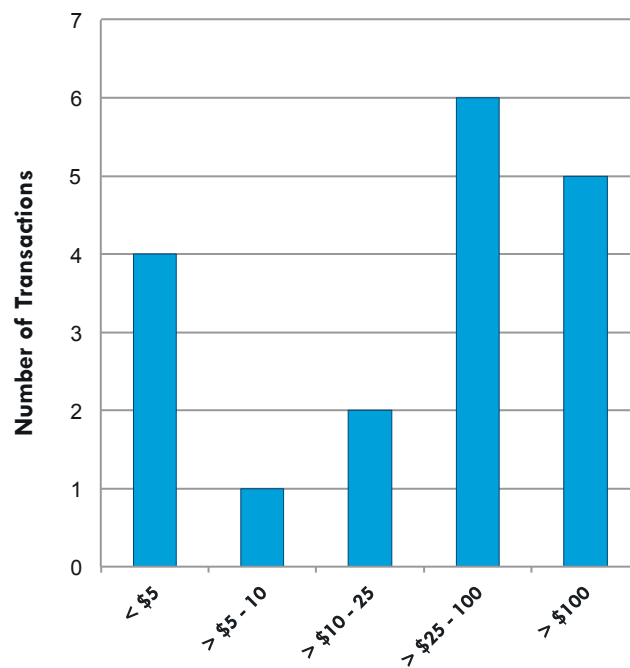
(Continued on next page)

## Size of Recent Merger and Acquisition Transactions for a Majority Stake (dollars in millions)

(Continued from previous page)

Transaction Date	Target	Acquirer	Transaction Size	% Bought
7/30/15	<b>Solairedirect SA</b>	<b>ENGIE SA</b>	\$275.4	95%
6/25/15	<b>Solar Alliance of Amer.</b>	<b>Finavera Wind Energy</b>	\$5.0	100%
5/28/15	<b>Solar Juice Pty Ltd.</b>	<b>SPI China (HK) Limited</b>	\$28.0	80%
5/13/15	<b>REC Solar ASA</b>	<b>Bluestar Elkem Investment</b>	\$634.4	100%
3/30/15	<b>Recurrent Energy, LLC</b>	<b>Canadian Solar Inc.</b>	\$265.0	100%
12/31/14	<b>Next Phase Solar, Inc.</b>	<b>Enphase Energy, Inc.</b>	\$2.5	100%
11/18/14	<b>Avacos Solar</b>	<b>ONEnergy Inc.</b>	\$1.4	100%
11/4/14	<b>Hudson Energy Solar Corp.</b>	<b>SunEdison, Inc.; TerraForm Power, Inc.</b>	\$56.0	100%
9/22/14	<b>Tripod Energy AB</b>	<b>Innotech Solar AS</b>	\$6.4	100%
<b>Median of the 18 M&amp;A Transaction Targets</b>			<b>\$32.4</b>	<b>100%</b>

## Recent Merger and Acquisition Transactions for a Majority Stake (dollars in millions) as of March 31, 2020





**Definitions of Financial Terms Used in this Quarterly Industry Update:**

**Enterprise Value (EV):** Market Value of Equity + Market Value of Debt —Cash

**Earnings Before Interest, Taxes, Depreciation and Amortization (EBITDA):** Referred to as operating profit or operating earnings.

**Gross Cash Flows:** Net Income + Depreciation and Amortization Expense

**Latest Twelve Months (LTM):** Financial information is as of the latest twelve months through the date of this Quarterly Industry Update.

**Disclosures and Limitations:** This research report is for informational and discussion purposes only. Information presented herein is not investment advice of any kind to any person and does not constitute a recommendation as to the purchase or sale of any interests or as to any other course of action. General, financial, and statistical information concerning the details of this report and related industry are from sources Cogent Valuation believes to be reliable. Cogent Valuation has accurately reflected such information in this research report; however, Cogent Valuation makes no representation as to the sources' accuracy or completeness and has accepted this information without further verification. Neither all nor any part of the content of this report may be conveyed to the public through advertising, public relations, news, sales, mail, direct transmittal, or other media without the prior written consent of Cogent Valuation. Cogent Valuation's research is as of the date reported herein. Cogent Valuation has no affiliation with any of the companies comprising the industry used as a basis for research in this report, nor does Cogent Valuation hold any investments in the companies listed herein. The content of this report may be used, in part, as a basis for any work that Cogent Valuation performs for you in the future at the sole discretion of Cogent Valuation. THIS REPORT IS NOT TO BE USED OR CONSIDERED UNDER ANY CIRCUMSTANCE BY ANYONE AS INVESTMENT ADVICE.

COGENT VALUATION is a nationally recognized full service business valuation firm that has provided independent valuation and financial advisory opinions in thousands of situations since 1991. These assignments include the valuation of companies and pass-through entities, their securities, and their intangible assets ranging in size from small, closely-held businesses and start-ups, to corporations with market values over a billion dollars, covering almost every industry and all types of transactions. With the collective backgrounds of our managing directors and professional staff, Cogent Valuation brings substantial large deal experience to bear on our middle market transaction opinions. Cogent Valuation utilizes proprietary research, intensive due diligence, and the experience and insights of its professionals to produce thoughtful, well-documented opinions that have consistently withstood the scrutiny of clients and their advisors, investors, regulators, and courts.

This industry research is provided at no charge to Cogent Valuation's clients. Research or detailed information not covered in this report can be obtained for a fee. **Contact Steven Kam at 415-392-0888 or [kam@cogentvaluation.com](mailto:kam@cogentvaluation.com)** for additional information or questions in connection with this research report.