

TubeSolar AG

Germany / Renewable Energy
 Düsseldorf, XETRA, m:access
 Bloomberg: 9TS GR
 ISIN: DE000A2PXQD4

Update

RATING

PRICE TARGET

Return Potential
 Risk Rating

BUY

€ 7.50

41.5%
 High

TÜV CERTIFICATION POSTPONED

The certification by TÜV Rheinland of the innovative TubeSolar modules has been postponed because not all test procedures have been successfully completed. After a discussion with management, we believe that most of the certification process has already been successfully completed and that only a few areas still need to be improved. TubeSolar has not given a concrete date regarding the completion of the certification. Taking into account that the novelty of the modules time and again poses challenges for the certification process and that the pandemic is additionally slowing down TÜV's work, we now assume that the certification will be completed by September at the latest. The assembly of the automated production line has also been delayed due to supply bottlenecks. TubeSolar now expects commissioning to take place in autumn. The original target was summer. Due to the postponements, we now forecast that TubeSolar will not generate any revenue in 2022. We have also lowered our estimates for 2023E and 2024E. However, we maintain our assessment that TubeSolar's technology has the potential to gain globally significant market share in both agri-photovoltaics (combined agricultural and solar power production) and the green roof market. We see the German government's planned targeted support for agri-PV via the Renewable Energies Act (EEG) as very helpful. The German government expects that up to 200 GW (!) of additional PV capacity can be installed on agricultural land. An updated DCF model still yields a €7.50 price target. We confirm our Buy recommendation.

(p.t.o.)

FINANCIAL HISTORY & PROJECTIONS

	2019	2020	2021E	2022E	2023E	2024E
Revenue (€m)	0.00	0.00	0.00	0.00	39.00	70.70
Y-o-y growth	n.a.	n.a.	n.a.	n.a.	n.a.	81.3%
EBIT (€m)	-0.25	-2.32	-4.72	-5.11	-0.15	8.20
EBIT margin	n.a.	n.a.	n.a.	n.a.	-0.4%	11.6%
Net income (€m)	-0.25	-1.40	-4.09	-4.56	-1.51	4.90
EPS (diluted) (€)	-0.03	-0.14	-0.34	-0.33	-0.10	0.32
DPS (€)	0.00	0.00	0.00	0.00	0.00	0.00
FCF (€m)	-0.25	-4.33	-11.20	-15.28	-44.46	-29.27
Net gearing	-37.5%	-36.5%	-17.6%	-17.4%	114.4%	176.0%
Liquid assets (€m)	3.95	6.13	8.88	21.10	11.64	14.37

RISKS

The main risks are: technological risk, financing risk, product and production risks, and increasing competition.

COMPANY PROFILE

TubeSolar AG is a manufacturer of solar modules. The patented technology, which integrates solar cells into a glass tube, aims particularly at power generation on sites which are used for agriculture at the same time, and on green roofs. TubeSolar is located in Augsburg, Germany.

MARKET DATA

As of 16 Feb 2022

Closing Price	€ 5.30
Shares outstanding	12.00m
Market Capitalisation	€ 63.60m
52-week Range	€ 4.82 / 7.35
Avg. Volume (12 Months)	2,787

Multiples	2020	2021E	2022E
P/E	n.a.	n.a.	n.a.
EV/Sales	n.a.	n.a.	n.a.
EV/EBIT	n.a.	n.a.	n.a.
Div. Yield	0.0%	0.0%	0.0%

STOCK OVERVIEW



COMPANY DATA

As of 30 Jun 2021

Liquid Assets	€ 5.52m
Current Assets	€ 6.35m
Intangible Assets	€ 12.64m
Total Assets	€ 23.84m
Current Liabilities	€ 0.29m
Shareholders' Equity	€ 20.83m

SHAREHOLDERS

TSG 1. Vermögensverw. GmbH	46.0%
BD Vermögensverw. GmbH	10.1%
Solar Invest International SE	8.8%
BF Holding GmbH	4.6%
Free Float	30.5%



TÜV certification postponed The TubeSolar modules have already successfully passed exhaustive performance tests as part of the certification process. TÜV Rheinland has issued TubeSolar a declaration regarding the certification progress to date. However, necessary improvements in a few areas as well as the novelty of the modules (grid-like modules made of glass tubes instead of conventional flat modules) mean that the certification process is taking longer than originally planned. The completely different design of the modules means that TÜV continuously has to adapt its test procedures which are geared to flat modules. The pandemic is also causing delays in the certification process. We now assume that certification will be successfully completed by the end of September 2022 at the latest (previously: end of 2021).

Set-up of automated production delayed Global supply bottlenecks mean that delivery of the machinery required for production is partially delayed. This pushes back the production start from summer to autumn of this year. We attribute the fact that the delays in the certification process have not led to any adjustments in the schedule for setting up automated production to high confidence on the part of management that the certification will be successfully completed.

Sale of Ascent Solar shares brings additional liquid funds In January 2021, Tubesolar took a \$2.5m stake in Ascent Solar (ASTI) in exchange for access rights to 25bn ASTI shares, roughly equivalent to a 15% stake in ASTI. Since November, TubeSolar has sold approximately 194m ASTI shares, or 0.8%, according to U.S. Securities and Exchange Commission (SEC) filings, generating proceeds of almost €1.4m, which we have included in “other operating income”.

Federal German government plans EEG subsidy for agri-PV In its recently published key points paper, the federal German government writes that it will allow agri-PV, i.e. the joint use of land for agriculture and PV power generation, in principle on all arable land. Support from CAP funds (CAP: Common Agricultural Policy, i.e. EU agricultural support) will continue to be possible, provided that agricultural use is only affected by electricity generation up to 15%. Protected areas, grassland, arable land relevant for nature conservation and moorland soils are excluded for reasons of nature conservation and climate protection. The subsidy is to be provided under the Renewable Energy Act (EEG) and will be written into law as part of the Easter package. We expect agri-PV to be supported via the EEG from 2023 at the latest. Minister of Economics Habeck assumes an additional potential of up to 200 GW (!) for photovoltaics on agricultural land. The magnitude of this potential becomes clear when one realises that a total of ca. 60 GW of PV has been installed in Germany to date. With the conditional release of agricultural land for PV systems and the subsidy, a huge market is opening up for TubeSolar in Germany alone.

Forecasts adjusted The delays in the certification process and in setting up automated manufacturing have led to a reduction in our estimates for 2022 and subsequent years (see figure 1). For 2022, we now predict that TubeSolar will not generate any revenue and an operating loss of €5.1m.

Figure 1: Revisions to forecasts

All figures in €m	2021E			2022E			2023E		
	Old	New	Delta	Old	New	Delta	Old	New	Delta
Sales	0.0	0.0	-	6.4	0.0	-100.0%	46.8	39.0	-16.7%
EBIT	-4.7	-4.7	-	0.0	-5.1	-	3.2	-0.2	-
margin	-	-	-	-	-	-	6.8%	-0.4%	-
Net income	-4.1	-4.1	-	-0.9	-4.6	-	1.3	-1.5	-
margin	-	-	-	-14.1%	-	-	2.8%	-3.9%	-
EPS (diluted)	-0.34	-0.34	-	-0.07	-0.33	-	0.09	-0.10	-

Source: First Berlin Equity Research



DCF model adjusted to improved future framework conditions The measures announced by the German government to support agri-PV represent a significant improvement in the regulatory framework and will act as a market opener in our view. The lower regulatory risk leads to a reduction of our WACC estimate from 12.5% to 12.1%.

Buy reiterated at unchanged price target An updated DCF model, which takes into account the lowered estimates and the lower WACC, still yields a €7.50 price target, as the two opposing effects cancel each other out. We confirm our Buy recommendation.



VALUATION MODEL

DCF valuation model								
All figures in EUR '000	2021E	2022E	2023E	2024E	2025E	2026E	2027E	2028E
Net sales	0	0	39,000	70,700	134,000	162,500	184,659	207,154
NOPLAT	-4,717	-5,105	-155	8,204	21,725	22,204	26,048	29,843
+ depreciation & amortisation	1,426	2,685	4,455	8,976	13,309	18,513	17,043	14,830
Net operating cash flow	-3,291	-2,420	4,300	17,180	35,034	40,716	43,091	44,673
- total investments (CAPEX and WC)	-8,529	-13,398	-47,400	-43,153	-40,893	-14,833	-13,558	-14,464
Capital expenditures	-8,190	-13,000	-44,195	-40,354	-34,670	-11,168	-10,139	-10,659
Working capital	-339	-398	-3,205	-2,799	-6,223	-3,665	-3,419	-3,805
Free cash flows (FCF)	-11,820	-15,818	-43,100	-25,973	-5,859	25,883	29,533	30,210
PV of FCF's	-11,819	-14,328	-34,831	-18,721	-3,768	14,850	15,117	13,792

All figures in thousands		
PV of FCFs in explicit period (2021E- 2035E)	23,286	
PV of FCFs in terminal period	64,309	
Enterprise value (EV)	87,595	Terminal growth 2.0%
+ Net cash / - net debt (pro forma)	31,924	Terminal EBIT margin 14.6%
+ Investments / minority interests	2,083	
Shareholder value	121,602	
Diluted number of shares (discounted)	16,170	
Fair value per share in EUR	7.52	

WACC		Terminal growth rate							
		8.1%	0.5%	1.0%	1.5%	2.0%	2.5%	3.0%	3.5%
Cost of equity	13.6%	9.1%	11.99	12.38	12.81	13.30	13.86	14.52	15.30
Pre-tax cost of debt	5.0%	10.1%	9.84	10.24	10.53	10.86	11.23	11.66	12.15
Tax rate	30.0%	11.1%	8.24	8.56	8.76	8.99	9.25	9.53	9.86
After-tax cost of debt	3.5%	12.1%	6.95	7.21	7.36	7.52	7.70	7.90	8.12
Share of equity capital	85.0%	13.1%	5.88	6.11	6.22	6.34	6.47	6.61	6.76
Share of debt capital	15.0%	14.1%	5.13	5.21	5.16	5.37	3.36	5.57	5.68
Price target	7.50	15.1%	4.39	4.45	4.38	4.57	4.64	4.72	4.80

* for layout purposes the model shows numbers only to 2028, but runs until 2035



INCOME STATEMENT

All figures in EUR '000	2019A	2020A	2021E	2022E	2023E	2024E	2025E
Revenues	0	0	0	0	39,000	70,700	134,000
Own work	0	3,481	3,960	3,960	0	0	0
Cost of goods sold	0	1,626	4,200	5,400	23,400	37,471	73,091
Gross profit	0	-1,626	-4,200	-5,400	15,600	33,229	60,909
Personnel costs	297	1,921	3,904	6,000	9,820	11,100	12,082
Other operating income	177	538	3,200	7,900	3,200	707	1,340
Other operating expenses	134	1,592	2,347	2,880	4,680	5,656	9,258
EBITDA	-254	-1,120	-3,291	-2,420	4,300	17,180	40,909
Depreciation and amortisation	0	1,197	1,426	2,685	4,455	8,976	13,309
Operating income (EBIT)	-254	-2,317	-4,717	-5,105	-155	8,204	27,600
Net financial result	0	-2	-400	-600	-1,625	-3,300	-4,100
Non-operating expenses	0	0	0	0	0	0	0
Pre-tax income (EBT)	-254	-2,319	-5,117	-5,705	-1,780	4,904	23,500
Income taxes	0	-917	-1,023	-1,141	-267	0	5,875
Minority interests	0	0	0	0	0	0	0
Net income / loss	-254	-1,402	-4,094	-4,564	-1,513	4,904	17,625
Diluted EPS (in €)	-0.03	-0.14	-0.34	-0.33	-0.10	0.32	1.14

Ratios

Gross margin	n.m.	n.m.	n.m.	n.m.	40.0%	47.0%	45.5%
EBITDA margin on revenues	n.m.	n.m.	n.m.	n.m.	11.0%	24.3%	30.5%
EBIT margin on revenues	n.m.	n.m.	n.m.	n.m.	-0.4%	11.6%	20.6%
Net margin on revenues	n.m.	n.m.	n.m.	n.m.	-3.9%	6.9%	13.2%
Tax rate	0.0%	39.5%	20.0%	20.0%	15.0%	0.0%	25.0%

Expenses as % of revenues

Personnel costs	n.m.	n.m.	n.m.	n.m.	25.2%	15.7%	9.0%
Depreciation and amortisation	n.m.	n.m.	n.m.	n.m.	11.4%	12.7%	9.9%
Other operating expenses	n.m.	n.m.	n.m.	n.m.	12.0%	8.0%	6.9%

Y-Y Growth

Revenues	n.m.	n.m.	n.m.	n.m.	n.m.	81.3%	89.5%
Operating income	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	236.4%
Net income/ loss	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	259.4%



BALANCE SHEET

All figures in EUR '000	2019A	2020A	2021E	2022E	2023E	2024E	2025E
Assets							
Current assets, total	4,174	6,509	9,255	21,920	17,146	23,829	23,021
Cash and cash equivalents	3,950	6,133	8,878	21,102	11,643	14,370	4,412
Short-term investments	0	0	0	0	0	0	0
Receivables	0	0	1	0	3,205	6,005	11,681
Inventories	0	1	1	444	1,923	3,080	6,554
Other current assets	224	375	375	375	375	375	375
Non-current assets, total	6,845	12,280	20,912	31,227	70,967	102,345	123,706
Property, plant & equipment	0	1,237	7,365	19,629	61,077	94,053	116,296
Goodwill & other intangibles	0	11,043	11,464	9,515	7,807	6,209	5,327
Other assets	6,845	0	2,083	2,083	2,083	2,083	2,083
Total assets	11,019	18,788	30,167	53,146	88,113	126,174	146,727
Shareholders' equity & debt							
Current liabilities, total	384	1,317	504	548	2,027	3,184	11,111
Short-term debt	0	476	0	0	0	0	5,000
Accounts payable	65	738	400	444	1,923	3,080	6,007
Current provisions	0	0	0	0	0	0	0
Other current liabilities	319	104	104	104	104	104	104
Long-term liabilities, total	94	1,986	7,571	17,571	52,571	84,571	79,571
Long-term debt	0	0	5,000	15,000	50,000	82,000	77,000
Deferred revenue	0	0	0	0	0	0	0
Other liabilities	94	1,986	2,571	2,571	2,571	2,571	2,571
Minority interests	0	0	0	0	0	0	0
Shareholders' equity	10,541	15,486	22,092	35,028	33,515	38,419	56,045
Share capital	10,000	11,000	13,000	16,500	16,500	16,500	16,500
Capital reserve	795	6,142	15,642	29,642	29,642	29,642	29,642
Other reserves	0	0	0	0	0	0	0
Treasury stock	0	0	0	0	0	0	0
Loss carryforward / retained earnings	-254	-1,656	-5,750	-10,314	-11,827	-6,922	10,703
Total consolidated equity and debt	11,019	18,788	30,167	53,146	88,113	126,174	146,727
Ratios							
Current ratio (x)	10.86	4.94	18.37	40.03	8.46	7.49	2.07
Quick ratio (x)	10.86	4.94	18.37	39.22	7.51	6.52	1.48
Net debt	-3,950	-5,658	-3,878	-6,102	38,357	67,630	77,588
Net gearing	-37.5%	-36.5%	-17.6%	-17.4%	114.4%	176.0%	138.4%
Equity ratio	95.7%	82.4%	73.2%	65.9%	38.0%	30.4%	38.2%
Book value per share (in €)	1.05	1.55	1.84	2.50	2.16	2.48	3.62
Return on equity (ROE)	-2.4%	-9.1%	-18.5%	-13.0%	-4.5%	12.8%	31.4%
Days of sales outstanding (DSO)	0.0	0.0	0.0	30.0	30.0	31.0	31.8
Days inventory outstanding	0.0	0.2	0.1	30.0	30.0	30.0	32.7
Days in payables (DIP)	0.0	165.6	34.8	30.0	30.0	30.0	30.0



CASH FLOW STATEMENT

All figures in EUR '000	2019A	2020A	2021E	2022E	2023E	2024E	2025E
EBIT	-254	-2,317	-4,717	-5,105	-155	8,204	27,600
Depreciation and amortisation	0	1,197	1,426	2,685	4,455	8,976	13,309
EBITDA	-254	-1,120	-3,291	-2,420	4,300	17,180	40,909
Changes in working capital	0	306	-339	-398	-3,205	-2,799	-6,223
Other adjustments	0	-1,504	623	541	-1,358	-3,300	-9,975
Operating cash flow	-254	-2,318	-3,006	-2,277	-264	11,081	24,711
Investments in PP&E	0	-1,299	-6,190	-13,000	-44,000	-40,000	-34,000
Investments in intangibles	0	-715	-2,000	0	-195	-354	-670
Free cash flow	-254	-4,332	-11,196	-15,277	-44,459	-29,273	-9,959
Acquisitions & disposals, net	0	40	-2,083	0	0	0	0
Other investments	0	0	0	0	0	0	0
Investment cash flow	0	-1,974	-10,273	-13,000	-44,195	-40,354	-34,670
Debt financing, net	0	476	4,525	10,000	35,000	32,000	0
Equity financing, net	0	6,000	11,500	17,500	0	0	0
Dividends paid	0	0	0	0	0	0	0
Other financing	0	0	0	0	0	0	0
Financing cash flow	0	6,476	16,025	27,500	35,000	32,000	0
FOREX & other effects	0	0	0	0	0	0	0
Net cash flows	-254	2,184	2,745	12,223	-9,459	2,727	-9,959
Cash, start of the year	0	3,950	6,133	8,878	21,102	11,643	14,370
Cash, end of the year	-254	6,134	8,878	21,102	11,643	14,370	4,412
EBITDA/share (in €)	-0.03	-0.11	-0.27	-0.17	0.28	1.11	2.64
Y-Y Growth							
Operating cash flow	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	123.0%
Free cash flow	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.
EBITDA/share	n.m.	n.m.	n.m.	n.m.	n.m.	299.5%	138.1%

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ASSET VALUATION SYSTEM

First Berlin's system for asset valuation is divided into an asset recommendation and a risk assessment.

ASSET RECOMMENDATION

The recommendations determined in accordance with the share price trend anticipated by First Berlin in the respectively indicated investment period are as follows:

Category		1	2
Current market capitalisation (in €)		0 - 2 billion	> 2 billion
Strong Buy ¹	An expected favourable price trend of:	> 50%	> 30%
Buy	An expected favourable price trend of:	> 25%	> 15%
Add	An expected favourable price trend of:	0% to 25%	0% to 15%
Reduce	An expected negative price trend of:	0% to -15%	0% to -10%
Sell	An expected negative price trend of:	< -15%	< -10%

¹ The expected price trend is in combination with sizable confidence in the quality and forecast security of management.

Our recommendation system places each company into one of two market capitalisation categories. Category 1 companies have a market capitalisation of €0 – €2 billion, and Category 2 companies have a market capitalisation of > €2 billion. The expected return thresholds underlying our recommendation system are lower for Category 2 companies than for Category 1 companies. This reflects the generally lower level of risk associated with higher market capitalisation companies.

RISK ASSESSMENT

The First Berlin categories for risk assessment are low, average, high and speculative. They are determined by ten factors: Corporate governance, quality of earnings, management strength, balance sheet and financial risk, competitive position, standard of financial disclosure, regulatory and political uncertainty, strength of brandname, market capitalisation and free float. These risk factors are incorporated into the First Berlin valuation models and are thus included in the target prices. First Berlin customers may request the models.

RECOMMENDATION & PRICE TARGET HISTORY

Report No.:	Date of publication	Previous day closing price	Recommendation	Price target
Initial Report	29 October 2020	€6.60	Buy	€9.40
2...1	↓	↓	↓	↓
2	4 December 2020	€7.15	Buy	€9.40
3	8 January 2021	€6.95	Buy	€9.40
4	1 April 2021	€6.65	Buy	€9.40
5	12 July 2021	€5.95	Buy	€7.70
6	30 September 2021	€4.96	Buy	€7.50
7	Today	€5.30	Buy	€7.50

INVESTMENT HORIZON

Unless otherwise stated in the financial analysis, the ratings refer to an investment period of twelve months.

UPDATES

At the time of publication of this financial analysis it is not certain whether, when and on what occasion an update will be provided. In general First Berlin strives to review the financial analysis for its topicality and, if required, to update it in a very timely manner in connection with the reporting obligations of the analysed company or on the occasion of ad hoc notifications.

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Legally required information regarding

- key sources of information in the preparation of this research report
- valuation methods and principles
- sensitivity of valuation parameters

can be accessed through the following internet link: <https://firstberlin.com/disclaimer-english-link/>

SUPERVISORY AUTHORITY: Bundesanstalt für Finanzdienstleistungsaufsicht (German Federal Financial Supervisory Authority) [BaFin], Graurheindorferstraße 108, 53117 Bonn and Marie-Curie-Straße 24-28, 60439 Frankfurt am Main

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