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Europe | Netherlands | Renewables

DR. KALLIWODA
RESEARCH GmbH

Initiating Coverage

BUY

Price target: PLN 3

Overview

Industry:	Renewable Energy
Country:	Netherlands
ISIN:	NL0010391108
Bloomberg:	PEN PW
Website:	www.photonenergy.com

Last price:		1.25
	High	**Low**
Price 52 weeks:	2.50	1.20
Market cap. (PLNm)		62.50
No of shares (m)		50.00

Shareholders

Solar Age Investments BV	56.62%
Solar Future Cooperatief U.A.	17.18%
Solar Power to the People U.A.	16.07%
Free float	10.13%

Performance

4 weeks	-16.11%
13 weeks	-36.87%
26 weeks	n.a
52 weeks	n.a
YTD	n.a

Dividend

	EUR	**in %**
2009	0.00	0.00%
2010	0.00	0.00%
2011	0.00	0.00%
2012	0.00	0.00%

Photon Energy NV

Promising play on the Solar Age

- Photon Energy recently announced its NPVmax strategy investing and providing services in multiple sweet spots in the solar value chain generating recurring revenue streams and maximizing shareholder value. Investors have the unique opportunity to back one of the most experienced management teams in this industry set to change the way the world produces and consumes electricity at a substantial discount to its global peers.

- The past three years have been difficult for the European solar industry due to strong reductions or phase-outs of support schemes for PV in most countries and retroactive regulatory changes e.g. in the Czech Republic and Spain. Thanks to its integrated business model and its proprietary portfolio of some 27 MWp of operating PV plants in the Czech Republic, Slovakia and Italy, Photon Energy managed to ride out the storm and is at the forefront of the upcoming global energy revolution based on PV grid parity and distributed production. In the coming years, the company's management plan to focus primarily on activities with recurring revenues such as O&M services, electricity sales from its proprietary power plants and energy savings.

- In 9M/13, Photon Energy generated revenues of EUR 11.2m (-19.3% y-o-y), an EBITDA of EUR 2.2m (9M/12: -0.01m) and a net loss of EUR -4.3m (-13.2m). However, results for Q3/13 (Sales of EUR 5.1 m, EBITDA of 1.3m and net loss of EUR -1.1m) and a pick up across all business units indicate that Photon Energy has reached an inflexion point. A capital increase of EUR 24m (27m new shares at PLN 3.85 a share) at the end of June substantially strengthened the balance sheet to an equity ratio of 30% as of 30/09/2013. We believe that the company has sufficient funding to expand its business as planned to Australia, North America and Turkey.

- We like Photon Energy's new strategy, which in our view strikes a good balance between low risk and substantial global growth potential that we expect to be reflected in dynamic increases of EBITDA and operating cash flow in the coming years. The company's stock seems very cheap given P/BVPS of 0.5x. Based on our DCF model, the 12-month price target for Photon Energy's shares is PLN 3, which represents an upside of 140.1% at present. Hence, our rating is BUY.

in EURm	2011	2012	2013E	2014E	2015E	2016E
Net sales	23.19	16.17	13.10	34.50	65.80	80.24
EBITDA	1.95	-0.31	2.75	11.45	20.33	24.31
EBIT	-1.72	-5.01	-3.80	4.83	10.99	13.72
Net income	-5.30	-10.80	-6.34	1.06	4.71	6.32
EPS	-1.15	-0.47	-0.19	0.02	0.09	0.13
Tangible BVPS	0.53	0.62	0.94	0.66	0.76	0.88
RoE	-84.13%	-81.66%	-27.33%	3.26%	13.29%	15.41%
EBIT margin	-7.44%	-31.00%	-29.00%	14.00%	16.70%	17.10%
P/E	n.a	n.a	n.a	58.78x	13.26x	9.90x
P/Tangible BVPS	2.38x	2.00x	1.34x	1.89x	1.65x	1.42x
EV/EBITDA	57.27x	n.a	40.48x	9.72x	5.48x	4.58x

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Content

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1 Company profile

Photon Energy, which is headquartered in Amsterdam, focuses on services that generate recurring revenues streams centred around PV plant operation & maintenance. With 65 employees, the company has offices in the Netherlands, Germany, Slovakia, Czech Republic, Australia and Canada. Recently, it has conducted a reverse merger with its Prague-based subsidiary Phoenix Energy a.s., which had been quoted before on the NewConnect market of the Warsaw Stock Exchange, and listed itself instead.

2 SWOT Analysis

Strengths

- Downstream vertically-integrated business model with high operating leverage; Photon's six business lines cover all steps from project development to the long-term operation of PV plants
- Since 2008, the company has commissioned some 50 MWp of PV plants in five countries on two continents
- New focus on business lines with recurring revenue straems such as electricity sales, O&M services and energy savings
- Photon Energy is moving away from markets with support mechanisms for PV and towards markets where grid parity has already been reached
- Photon Energy has become a leader in the nascent but fast-growing market for PV systems for commercial customers in Australia having built the largest rooftop solar systems in Sydney and Canberra to date
- Photon Energy's management combines technical, legal and financial know-how with project management experience and has managed the company through the discontinuities and shake-outs in the European PV market
- Capital increase in June (27m new shares, PLN 3.85 per share) was 102.6% above last market price; it has significanty strenghtend Photon's balance sheet

Weaknesses

- Photon Energy has been incurring substantial losses since 2011
- PV plant construction increasingly requires bridge financing, putting strain on working capital
- The placement of a 5-year corporate bond by Photon Energy Investments raised substantially less than planned
- Listing on the NewConnect market in Warsaw with low trading liquidity

Opportunities

- Solar energy is clean, free and abundant while currently only 1% of the world's energy consumption is covered by it
- Investment costs for PV plants have reached a level where solar energy reaches grid parity in an ever larger part of the world; further declines can be expected
- The useful life of PV modules is around 30 years
- Electricity from solar energy can be efficiently produced at or near the point of consumption without the need for a power grid, which renders PV the best solution for countries without a grid infrastructure and remote areas
- Grid-based energy infrastructure reaches capacity limits and is becoming ever more expensive to maintain and expand
- With over 70 GWp of installed capacity the European market remains a substantial addressable opportunity for O&M services
- O&M services innovation by including performance guarantees, insurance and leasing options offers significant potential
- PV + diesel generators for remote areas and industrial cust.
- Geographic expansion to Australia, Turkey in the short term and later to India, Japan, South America and Africa offer substantial growth potential

Risks

- Refinancing of a EUR 6m loan due at year-end 2013
- Further retroactive regulatory and tax measures against PV plants in the European Union; in the Czech Republic the recent extension of the Solar Levy beyond 2013 has led to a EUR 4.5m impairment to the company's portfolio in Q3/13
- Limited access to financing due to uncertainties and insolvencies in the PV industry
- Revenues from PV plants are seasonal with over 70% of the annual production concentrated in Q2 and Q3
- Loss of key employees
- Increases in interest rates

3 Valuation

We have valued Photon Energy NV by using our DCF model only as the company has undergone a major restructuring in the recent past and - while we believe the company to have passed an inflection point – will become fully visible only over the next two years. Our 12-months price target for the stock equals PLN 3, which implies an upside potential of 140.1% at present.

Discounted Cash Flow method (DCF)

Discounted Cash Flow Model (Basis 11/2013)

					Phase 1				
in EURm	2013E	2014E	2015E	2016E	2017E	2018E	2019E	2020E	2021E
Net sales	**13.10**	**34.50**	**65.80**	**80.24**	**92.18**	**105.95**	**117.95**	**131.40**	**142.06**
(y-o-y change)	-19.0%	163.3%	90.7%	22.0%	14.9%	14.9%	11.3%	11.4%	8.1%
Operating profit	**-3.80**	**4.83**	**10.99**	**13.72**	**16.18**	**18.59**	**20.58**	**22.80**	**24.29**
(operating margin)	-29.0%	14.0%	16.7%	17.1%	17.6%	17.6%	17.5%	17.4%	17.1%
NOPLAT	**-4.10**	**3.60**	**8.19**	**10.22**	**12.05**	**13.85**	**15.33**	**16.98**	**18.10**
+ Depreciation & Amortization	6.55	6.62	9.34	10.59	11.25	11.87	12.03	12.09	12.36
= Net operating cash flow	2.45	10.22	17.53	20.81	23.30	25.72	27.36	29.07	30.46
- Total investments (Capex and WC)	8.25	-23.64	-57.29	-62.19	-12.72	-14.23	-13.81	-14.52	-14.96
Capital expenditures	2.97	-16.62	-49.34	-60.59	-12.25	-12.87	-13.03	-13.09	-13.36
Working capital	5.28	-7.01	-7.95	-1.60	-0.47	-1.36	-0.78	-1.43	-1.60
= Free cash flow (FCF)	10.70	-13.41	-39.76	-41.38	10.58	11.49	13.55	14.55	15.50
PV of FCF's	**10.59**	**-12.00**	**-32.12**	**-30.18**	**6.97**	**6.84**	**7.28**	**7.06**	**6.79**

PV of FCFs in explicit period	-28.76
PV of FCFs in terminal period	110.58
Enterprise value (EV)	**81.82**
+ Net cash / - net debt (30 September 2013)	-48.88
+ Investments / - Minorities	-0.60
Shareholder value	**32.34**
Number of shares outstanding (m)	**50.00**

WACC	10.7%
Cost of equity	12.8%
Debt costs before tax	8.0%
Tax rate	25.5%
Debt costs after tax	6.0%
Equity ratio	70.0%
Debt ratio	30.0%
Fair value per share in EUR	0.65
Fair value per share in EUR (in 12 months)	0.72
Fair value per share in PLN	**2.71**
Fair value per share in PLN (in 12 months)	**3.00**
PLN - EUR exchange rate	4.1907

Sensitivity Analysis — **Terminal EBIT margin**

WACC	14.1%	15.1%	16.1%	17.1%	18.1%	19.1%	20.1%
7.7%	10.01	11.28	12.56	13.83	15.10	16.38	17.65
8.7%	5.94	6.92	7.89	8.87	9.84	10.82	11.80
9.7%	3.15	3.92	4.69	5.46	6.23	7.00	7.78
10.7%	1.13	1.75	2.38	**3.00**	3.62	4.25	4.87
11.7%	-0.38	0.13	0.64	1.16	1.67	2.18	2.70
12.7%	-1.55	-1.12	-0.69	-0.26	0.17	0.59	1.02

Source: Dr. Kalliwoda Research GmbH

Peer Group Analysis

Our peer group consists of four companies from Germany, US and Switzerland, which develop and operate solar projects. It includes:

Capital Stage AG

Capital Stage AG, which is based in Hamburg, invests in solar and wind parks and is the largest independent operator of solar parks in Germany. The company's current portfolio comprises 25 solar and 4 wind parks with c. 185 MWp, which are situated mostly in Germany, but also in Northern Italy. Capital Stage's business model focuses on acquisition of installations with >10 MWp, which are connected to the grid as well as operation and management of solar parks, also third-party ones. In some cases, the company also takes part in project development of solar and wind parks. In fiscal-year 2012, Capital Stage generated revenues of EUR 45.1m (2011: EUR 35.5m) and an EBIT of EUR 20.5m (+54.1%). Currently, the company has 53 employees.

SolarCity Corporation

SolarCity Corporation, which is based in San Mateo/California, offers integrated sales, financing, design, installation, monitoring and efficiency services of solar panels without involving the services of multiple third-parties. SolarCity's customers in 14 US states include thousands of homeowners, more than 100 schools including Stanford University, government agencies such as the U.S. Armed Forces and Department of Homeland Security, and corporate clients, including eBay, Intel and WalMart. With its customers, the company signs contracts, for which it is being paid according to electricity produced or for a guaranteed amount of electricity. In addition, it charges a fee for add-on services such as energy monitoring software or energy efficiency evaluations. In fiscal-year 2012, SolarCity generated total sales of USD 128.7m (+116.1% y-o-y), thereof, USD 47.6m from operating leases and USD 81m from solar energy system sales. Operating income was negative and amounted to USD 68.9m after USD 61.3m in 2011. Currently, SolarCity Corporation has c. 2,300 employees.

S.A.G Solarstrom AG

S.A.G. Solarstrom AG, which is based in Freiburg, is an independent installer of tailor-made photovoltaic systems. With operations in eight European countries and the US, the company provides the following services: (1) Project Planning and Plant Construction (2) Installation and monitoring (3) Plant optimization e.g. hard- and software for optimizing energy consumption, monitoring center for plant portfolio (4) Recycling. Currently, S.A.G Solarstrom operates 88 own PV solar plants with 26.1 MWp, which generate an EBIT margin of c. 30%. The company was founded in 1998 and today has c. 202 employees. In 2012, S.A.G Solarstrom generated total revenues of EUR 188.6m (-28% y-o-y) and an EBIT of EUR 8.9m (2011: EUR 3.8m).

Etrion SA

Etrion SA is an independent power producer that owns and operates renewable assets. The company currently has approximately 60 MW of operational, ground-based solar photovoltaic power plants in Italy. In addition, Etrion is pursuing opportunities in Chile to complement its existing business by developing solar projects with long-term power purchase agreements or spot market revenues. Etrion is listed on the Toronto Stock Exchange in Canada and the NASDAQ OMX Stockholm exchange in Sweden (under the same ticker symbol, "ETX"). It is based in Geneva and has an office in Rome and Santiago de Chile. For 2012, Etrion reported total revenues of USD 55.7m (+7.2% y-o-y), while generating an EBIT of USD 23.2m (+144.3% y-o-y).

Company	EV/EBITDA 2014E	EV/EBITDA 2015E	EV/EBIT 2014E	EV/EBIT 2015E	P/BVPS Latest	EBITDA margin 2012	Net gearing Latest
SolarCity Corp. (USD)	n.a	64.61	n.a	n.a	20.93	-37.19%	159.15%
S.A.G Solarstrom AG (EUR)	10.57	8.13	14.27	10.47	0.87	6.76%	318.86%
Etrion SA (CAD)	12.74	6.81	24.80	12.49	n.a	74.76%	n.a
Capital Stage AG (EUR)	10.09	8.15	16.09	13.24	1.69	69.25%	188.17%
Median	***10.57***	***8.14***	***16.09***	***12.49***	***1.69***	***38.00%***	***188.17%***
Photon Energy NV (PLN)	5.57	3.14	13.21	5.81	0.50	-1.91%	164.06%

Source: Thomson Reuters Knowledge, Dr. Kalliwoda Research GmbH

Based on our peer group, Photon Energy appears cheap if we look at 2014 and 2015 multiples. However, it has to be noted that the company has recently completed a major restructuring.

4 9M/13 results and outlook

Net sales

In the first three quarters of 2013, Photon Energy NV generated revenues of EUR 11.2m, which were 19.3% below last year. The main reasons were weaker electricity sales mainly due to lower irradiation during the first two quarters and the evaporation of equipment distribution and EPC revenues. Given the revision of government-sponsored support schemes for renewable energy throughout the EU, we only expect these revenue categories to re-emerge in markets outside Europe.

Electricity production remains the main revenue driver of Photon Energy. With a total installed capacity of 27.1 MWp across the Czech Republic (15.0 MWp), Slovakia (10.4 MWp), Italy (1.25 MWp), Germany (256 KWp) and Australia (144 KWp), the company produced and sold 23.3 GWh (5.5% below plan and down 9.0% y-o-y).

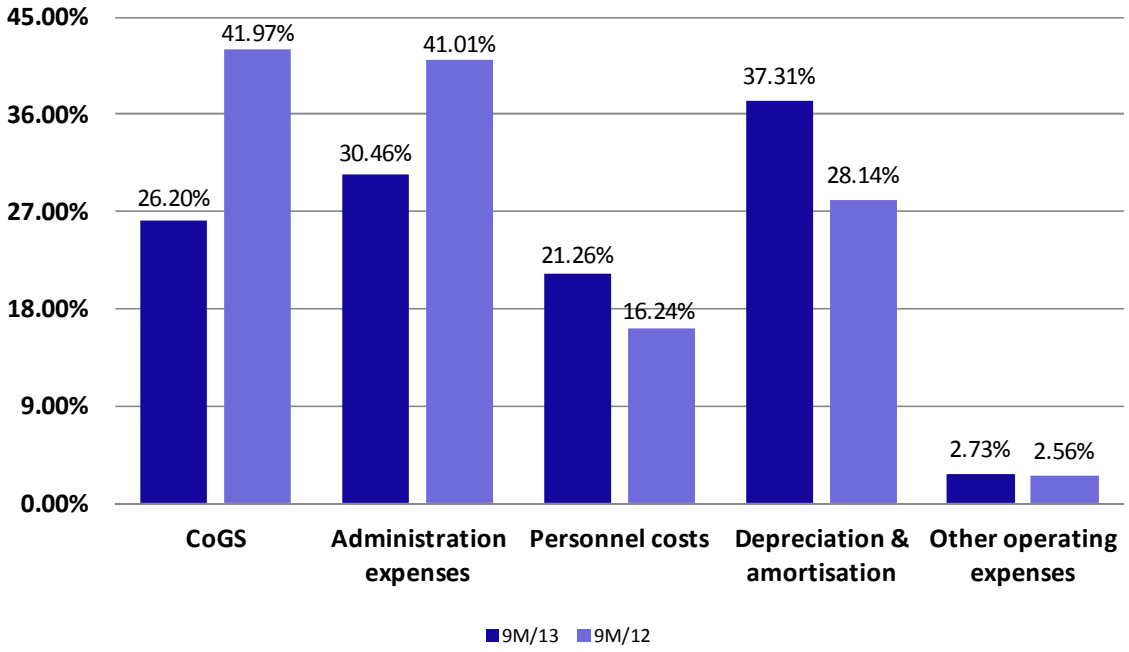
9M/13 results compared to previous year

9M/13 vs. previous year			
in EURm	**9M/13**	**9M/12**	**change (%)**
Net sales	11.20	13.88	*-19.3%*
EBITDA	2.19	-0.01	*-22040.0%*
EBITDA margin	19.6%	-0.1%	
EBIT	-1.98	-3.92	*-49.3%*
EBIT margin	-17.7%	-28.2%	
Net income	-4.25	-13.23	*-67.9%*
Net margin	-38.0%	-95.3%	

Source: Company information, Dr. Kalliwoda Research GmbH

Profitability

Share in total sales 9M/13 vs. 9M/12



Source: Company information, Dr. Kalliwoda Research GmbH

During 9M/13, EBITDA moved firmly into positive territory (EUR 2.2m versus minus EUR 0.01m in 9M/12) and the company managed to halve its negative EBIT to EUR 2m, while its net loss contracted by 75% to EUR 4.24m. Despite increasing activities in new markets like Australia and North America as well as business development in Turkey, Photon Energy managed to reduce administration expenses by 40% y-o-y and keep personnel cost growth to 5.6% y-o-y. While depreciation expenses grew modestly by 6.9% to EUR 4.2m, the company dramatically reduced its negative net financial result by 81.7% to EUR 2.3m (9M/12: EUR -12.5m).

Balance Sheet and Cash Flow

As of 30 September 2013, the most important position on Photon Energy's balance sheet was property, plant and equipment (PP&E), which comprises the company's 25 PV plants in the Czech Republic, Slovakia, Italy, Germany and Australia. The extension of the Solar Levy in the Czech Republic – originally introduced at level of 26% of revenues for the period from 2011 to 2013 – at a rate of 10% for the remainder of the 20-year FiT period triggered an impairment of the Czech part of the portfolio by EUR 4.5m, which was recorded in Q3/13. As a result PP&E currently stands at EUR 82.4m.

During 9M/13, Photon Energy generated an operating cash flow of EUR -24.7m (9M/12: EUR -7m), which mainly resulted from the capitalisation of a large receivable at the end of June 2013. As cash flow from investment was only EUR -0.04m and cash flow from financing EUR 23.4m, the company reported a decrease of liquid funds (including exchange rate effects) from EUR 7m at year-end 2012 to EUR 5.5m. With interest-bearing debt of EUR 54.4m and equity of EUR 29.8m, net gearing at the end of September 2013 amounted to 164.1%.

Outlook

In our opinion, Photon Energy is an attractive opportunity for investors with a long-term view towards one of the fastest-growing industries over the next few decades. Decentralized energy production based on solar energy is in an accelerating way taking over the world and Photon Energy is one of the leaders in this area. The company operates in the downstream segment of the solar industry, meaning it plans, constructs and operates PV plants, and thus is a beneficiary of decreasing prices for components and 15-20 year government price guarantees in many countries.

The European market poses specific challenges given the dismantling of feed-in-tariff regimes across the EU. Photon Energy is among the few major EU solar companies to have survived the regulatory and tax onslaught of the past three years. The company has focused on markets outside the European Union like Australia, Turkey and North America, which have favorable regulatory regimes and good solar irradiation. However, as it is still the largest solar market worldwide with an installed base of more than 70 GWp, Europe remains crucial for Photon Energy's Operation & Management business.

Photon Energy's offering going forward will be concentrated on on-grid and off-grid energy solutions comprising energy savings, supply and management for customers in industry, commerce and agriculture as well as buildings and infrastructure. The displacement of diesel-generated electricity in remote areas by hybrid solutions offers a particularly significant opportunity globally. The O&M division will play a key role both in established PV markets and for new plants worldwide as comprehensive life-cycle plant management based on performance guarantees are gaining importance. Photon Energy's focus on standardized financing solutions for PV plants offers great potential as it will be crucial in an acceleration in the adoption of solar energy globally.

In our model, we have assumed a strong expansion of the business areas Energy Solutions, Energy Generation and Operation & Maintenance going forward. In the next 1-2 years, we expect Energy Solutions to account for >55% of total revenues, while based on an expansion of its PV asset portfolio mainly in Australia and Turkey to c. 120 MWp by 2017, Electricity revenues are expected to contribute over 10% of total sales at a gross margin of 90%. In our opinion, O&M revenues should grow from EUR 0.5m in 2013E to EUR 9.2m in 2017E (CAGR 13E-17E of 107.1%), while generating a gross margin of even >70% due to a high operating leverage,.

In our valuation, which is only based on the DCF model, we have taken into account the capital increase of 30 June 2013, whereby Photon Energy placed 27m new shares at a price of PLN 3.85 (premium of 102.6% over the previous day's closing price). Based on net debt of EUR 48.9m at the end of Q3/13, we have determined a 12-month price target for Photon Energy of PLN 3, which corresponds to an upside of 140.1%.

Sales model 2013E-2015E

Sales split 2013E-2015E

in EURm	2013E	2014E	2015E
Energy Solutions	1.20	18.00	37.00
(% of sales)	9.2%	52.2%	56.2%
Gross margin	40.0%	20.0%	16.0%
Energy Generation	0.00	1.50	6.00
(% of sales)	0.0%	4.3%	9.1%
Gross margin	90.0%	90.0%	90.0%
Investments	11.40	12.00	13.80
(% of sales)	87.0%	34.8%	21.0%
Gross margin	75.0%	85.0%	85.0%
Operation & Maintenance	0.50	2.00	6.00
(% of sales)	3.8%	5.8%	9.1%
Gross margin	75.0%	70.0%	65.0%
Financial Services	0.00	1.00	3.00
(% of sales)	0.0%	2.9%	4.6%
Gross margin	90.0%	85.0%	80.0%
Total revenues	**13.10**	**34.50**	**65.80**
(change y-o-y)	-19.0%	163.3%	90.7%

Source: Dr. Kalliwoda Research GmbH

Our estimates 2013E-2015E

Our estimates 2013E-2015E

in EURm	2013E	2014E	2015E
Net sales	13.10	34.50	65.80
EBITDA	2.75	11.45	20.33
EBITDA margin	21.0%	33.2%	30.9%
EBIT	-3.80	4.83	10.99
EBIT margin	-29.0%	14.0%	16.7%
Net income	-6.34	1.06	4.71
Net margin	-48.4%	3.1%	7.2%

Source: Dr. Kalliwoda Research GmbH

5 Business model

Photon Energy is one of the few original European PV companies, which have successfully implemented an integrated downstream business model across several markets and expanded overseas. The company employs 65 staff across its offices in Amsterdam, Berlin, Bratislava, Milan, Prague, Sydney and Toronto.

Photon Energy currently derives the majority of its revenues from electricity sales from its proprietary portfolio of PV plants with an installed capacity of 27 MWp in the Czech Republic, Slovakia, Italy, Germany and Australia. Its Operations & Maintenance division services some 70 MWp of PV plants and generates stable cash flows for the company.

Company history

2008: Photon Energy a.s., the predecessor company, was founded in the Czech Republic in January. In September, the company raised EUR 0.6m in a private placement (as the only external equity financing to date) and in October its shares were listed on the NewConnect segment of the Warsaw Stock Exchange. Revenues reached EUR 1,000, equity amounted to EUR 0.35m and total assets were EUR 0.39m.

2009: Photon Energy connected its first large scale PV plant of 911 KWp as an EPC in July. In total the company completed four projects with 3.5 MWp, including the 795 KWp plant in Mostkovice, the first plant in its proprietary portfolio. Revenues grew to EUR 19.9m, equity increased to EUR 2.6m and total assets expanded to EUR 8.1m.

2010: Photon Energy built and connected 32.5 MWp of PV plants in the Czech Republic and Slovakia and expanded its proprietary portfolio to 20 MWp. Revenues grew to EUR 98.6m, equity increased to EUR 20.2m and total assets expanded to EUR 98.7m.

2011: Photon Energy built an additional 8.8 MWp of PV plants in Slovakia and added 1.6 MWp in Italy and Germany. The company also established its presence in Australia and started project development.

2012: The Group transferred all activities and assets under its Dutch holding structure and established Photon Energy Investments, where it concentrated its proprietary portfolio of PV plants. Photon Energy connectd a 1 MWp rooftop PV plant in Italy in June. Photon Energy opened an office in Toronto to serve the North American market.

2013: Photon Energy Investments placed a 5-year corporate bond with an 8% coupon and quarterly payments, which trades on the Frankfurt Stock Exchange. After a share exchange with the minority shareholders in Photon Energy a.s., in June 2013 Photon Energy NV were listed on the NewConnect segment of the Warsaw Stock Exchange, followed by a capital increase by EUR 24m by issuing 27m shares at PLN 3.85.

Customers

Photon Energy's customers are currently utilities off-taking electricity produced by its PV plants in the Czech Republic, Slovakia, Italy and Germany. Going forward, Photon Energy will sell its electricity mainly directly to industrial and commercial customers on-site or completely off-grid. Energy Solutions are mainly targeted at industrial and commercial companies, communities and utilities. In its O&M division, the company's customers are owners of grid-connected PV plants, while in the future Photon Energy will increasingly operate and maintain PV systems directly supplying final energy users.

Overview over Photon Energy's business segments:

Photon Energy has recently announced a new strategy with a particular emphasis on business lines, which provide multiple recurring revenue streams and stable earnings. Built on the notion that the maximization of the Net Present Value of each PV plant is the ultimate goal, the company has decided to focus on the following activities:

(1) Photon Energy Operations (PEO)

PEO currently services c. 70 MWp of PV plants in the Czech Republic, Slovakia, Germany, Italy, Belgium and Australia, providing system monitoring, operations as well as preventive maintenance and repairs based on long-term contracts. Photon Energy is expanding PEO's scope of activities by providing customers with system uptime and performance guarantees as well as the integration of insurance solutions in order to de-risk the PV plants it services. PEO also provides PV plant audits, performance enhancement measures and plans leveraging its growing expertise into advisory services during the PV project development and construction phases.

(2) Photon Energy Solutions (PES)

Photon Energy believes that while solar energy will become the main energy source in the long-term, it will only be possible to introduce PV generation capacity to final energy users as part of a comprehensive energy savings, supply and management concept, requiring considerably more sophisticated energy solutions. The goal is to cover 100% of an end user's energy needs with the optimal balance between the lowest cost per MWh, while maximizing the use of renewable energy sources. Project permitting and development as well as engineering, procurement and construction become crucial support activities.

(3) Photon Energy Investments (PEI)

PEI currently owns a portfolio of feed-in-tariff-based (or regulated) PV assets in the Czech Republic, Slovakia, Italy and Australia. As Photon Energy does not intend to expand its portfolio of regulated power plants, this business line intends to leverage its expertise and capacity by providing asset management services in the future.

(4) Photon Energy Generation (PEG)

PEG will focus on the supply of PV-generated electricity to final users based on commercial Power Purchase Agreements mainly in building-integrate, infrastructure-integrated, local grid and off-grid settings. The first target market will be Australia, where Photon Energy Generation Australia also intends to provide long-term financing options for customers.

(5) Photon Energy Finance (PEF)

PEF focuses on developing standardized financing solutions for PV plants and PV-centered energy solutions. Arranging project financing and capital markets based financing and the provision of M&A services for investors in renewable energy assets are also under preparation.

6 Some facts about the photovoltaic industry

Feed-in tariffs and grid parity

In the following, we define the concepts of „feed-in tariffs“ and „grid parity“, which in our view are essential to understand the dynamics of the photovoltaic industry.

Feed-in tariffs

According to Wikipedia.org, feed-in tariffs are a long-term policy mechanism based on production costs, which is designed to accelerate investments into renewable energy technologies. They usually decline over time in order to track and encourage technological cost reductions. As a general rule, feed-in tariffs are accompanied by guaranteed grid access.

Although alternative compensation schemes exist e.g. Power Purchase Agreements analyses by the European Commission, International Energy Agency or European Federation of Renewable Energy have concluded that feed-in tariffs seem to be the best choice.

Some examples of feed-in tariffs

Country	Implemented in	Description	Notes	Effects
USA	1978	Public Utility Regulatory Policies Act	Required utilities to purchase electricity generated from independent power producers at rates not to exceed their avoided cost (cost that a utility would incur to provide that same electrical generation)	Among others, by 1992 1,700 MWp of wind capacity in California
Germany	1990	Law of Feeding Electricity into the Grid (StrEG)	Required utilities to purchase renewable energy at a percentage rate of prevailing price of retail electricity e.g. solar & wind 90% rate; guaranteed grid access	Between 1991 and 1999, 4,400 MWp of new wind capacity
Germany	2000	German Renewable Energy Act (EEG)	Feed-in tariffs based on production costs; long-term price guarantees; tariff degression based on expected cost reductions; utilities were not allowed to participate	Savings of EUR 520-840m for consumers
China	2011	Fixed national feed-in tariffs	USD 0.015 per KW for solar projects; Feed-in tariffs for wind projects vary dependent on wind resources (areas with better wind resources will have lower feed-in tariffs)	
France	2009	National feed-in tariffs	Since April 2012, EUR 0.1079 per KWh for ground-mounted solar systems with <100 KWp, EUR 0.1934 for residential rooftop arrays with <100 KWp and EUR 0.117 for solar systems with >100 KWp	

Source: Wikipedia.org

Grid parity

The term "grid parity" means same costs per KWh of self-produced renewable energy e.g. solar vs. electricity, which is purchased from utility grid (Source: Photovoltaik.org). This is being achieved through "feed-in tariffs". As total costs can be defined in many ways, calculations regarding the time, when grid parity will be reached, can differ significantly.

As on the one hand solar components are becoming cheaper, but on the other the costs of coal, gas etc. are increasing, renewable energy is reaching grid parity in an increasing number of countries. According to Bloomberg New Energy Finance, in some markets grid parity has already been reached by private households in 2010 or 2011 e.g. Spain, Italy, Malta and Cyprus, while most other countries are expected to accomplish it by 2015 at the latest.

The study "PV Parity" by the European Commission, where the year, when grid parity will be reached, is determined based on climate factors and energy laws, concludes that Spain, Italy and Germany (almost) already have grid parity, however in countries such as France, UK, Greece and the Czech Republic it will only be reached in c. 2020.

In case of industrial grid parity, the situation looks somehow differently as energy prices, which commercial clients have to pay, are usually well below those of private households. So far, it has only been achieved in Cyprus and Italy.

Grid parity could be reached even faster, if energy storage was not that expensive as it is now. According to a study by Mark Bost et al. from 2011, which was commissioned by Greenpeace Energy, private households in Germany currently use only c. 20% of the solar energy, which they produce in their photovoltaic plants, as production and consumption do not happen at the same time. The rest of the electricity is sold to utilities, whose wholesale prices are however c. 2/3 lower than the current feed-in tariff per KWh (Source: HIS I-Suppli).

Historical development

The success story of the photovoltaic sector started only in 2000, when the German government under Chancellor Schröder introduced the so-called "Erneuerbare Energien Gesetz" (Renewable Energies Act (REA)), which was supposed to create a legal framework for all forms of renewable energy including solar, water, wind, biomass and geothermal power. Due to the REA utilities were obliged to buy electricity from renewable sources at certain fixed prices, so-called "feed-in tariffs". Public and private producers of electricity received a government guarantee that they would get a fixed price per KWh for the next 20 years.

Although the REA was not the first such law in Germany, it constituted a significant improvement compared to the previous one, which was already introduced in 1990 ("Stromeinspeisungsgesetz"). Due to higher feed-in tariffs it made especially photovoltaic installations much more affordable and was the reason, why Germany experienced a "solar boom" after 2000. As market conditions had changed, the German government introduced new versions of the REA in 2004, 2009 and 2012, which altered the structure of feed-in tariffs.

After Germany's move, other countries such as Spain, Italy and China also began to support renewable energy. On the EU level, the EU Directive 2009/28/WE was introduced, which set the goal of a 20% share of renewable energy in total energy consumption by 2020.

Current situation on the photovoltaic market

According to photovoltaics.eu, the total installed capacity in 2012 amounted to 102 GWp worldwide compared to just 23 GW in 2009. For 2012, NPD Solarbuzz estimates that due to strongly decreasing prices of crystalline solar modules the global market for photovoltaic grew by 5% y-o-y, which was the lowest rate in the last 10 years. While 75% of new capacity in 2012 was installed in Europe, China and the US grew the fastest (+160% y-o-y to 8 GWp and +74.9% y-o-y to 7.7 GWp respectively). With a total installed capacity of 32.5 GWp, Germany was again the largest photovoltaic market worldwide, however its share in the world's total went down from 43.5% in 2010 to 31.9%.

Solar capacity between 2010 and 2012

Country or Region	Total 2010 (MWp)	Total 2011 (MWp)	Total 2012 (MWp)	*CAGR 10-12 (%)*
World	39,778	69,684	102,024	*60.2%*
Germany	17,320	24,875	32,509	*37.0%*
Italy	3,502	12,764	16,987	*120.2%*
China	893	3,093	8,043	*200.1%*
United States	2,519	4,383	7,665	*74.4%*
Japan	3,617	4,914	6,704	*36.1%*

Source: Wikipedia.org

As excess capacity and competition from low-wage countries, especially in Asia, have put enormous pressure on prices for solar cells, modules and components, there is an ongoing consolidation on the photovoltaic market. According to research firm HIS I-Suppli, the number of companies from the upstream value chain (e.g. manufacturers of solar panels and inverters), decreased from more than 750 to less than 150 between 2010 and 2012. With more than 2,000 such firms in the US alone (Source: Trinity Solar), there seems to be an even larger consolidation pressure in the segment of solar installers.

Forecasts for the photovoltaic market

Although there are serious issues e.g. pricing pressure and reduction/termination of government subsidies, market forecasts for the photovoltaic industry remain optimistic. While total market value is expected to decrease from EUR 71bn in 2011 and EUR 58.5bn in 2012 to EUR 57bn in 2013 according to HIS I-Suppli, the capacity growth rate should remain double-digit. However, in the coming years the growth of the photovoltaic market will be driven mainly by such regions as India, China, US, Japan, (South) Africa, and South America (Source: photovoltaic.eu). Also, Oliver Wyman, a consultancy, predicts most new photovoltaic installations in the US and China. While for the US SEIE (Solar Industries Energy Association and GMT Research) forecasts a CAGR 10-16 of c. 34% for new photovoltaic installations, the Chinese government plans to increase capacity to 50 GWp in 2020. According to market research firm HIS I-Suppli, the US will become the second largest photovoltaic market worldwide by 2013 after China (Deutsche Bank predicts 10 GWp newly installed capacity in 2013) and before Germany.

In the last years, US federal and state governments have introduced different kinds of support for the solar industry e.g. a 30% tax credit for new photovoltaic installations and protective tariffs against cheap, subsidized Chinese solar cell manufacturers, which offer their products below production costs (Source: FocusMoney.de). In Japan and many other countries, governments are now putting a stronger focus on solar and other forms of renewable energy due to the nuclear catastrophe in Fukushima in 2011. In Europe, where following the debt crisis many countries have cut feed-in tariffs (FiT) for solar energy or like Spain abolished them altogether, the share of new photovoltaic installations is expected to fall from 80% in 2010 to 37% in 2015 (Source: photovoltaic.eu). According to Bloomberg Energy Finance and UNEP, investment volume in the area of renewable energy in Europe only grew by 10% y-o-y in 2011 and thus below the worldwide average of 17%. Instead of adapting the FiT with regular measured updates (compared to price decreases of photovoltaic equipment), many countries such as Germany or the Czech Republic have lowered their feed-in tariffs too quickly, which had a significant negative effect on their photovoltaic markets.

7 Profit and loss statement

Profit and loss statement - Photon Energy						
	Fiscal year					
in EURm	2011	2012	2013E	2014E	2015E	2016E
Revenues	**23.19**	**16.17**	**13.10**	**34.50**	**65.80**	**80.24**
Cost of goods sold	-14.94	-10.38	-3.70	-17.10	-36.45	-44.45
Gross profit	**8.24**	**5.79**	**9.41**	**17.40**	**29.35**	**35.79**
Other operating income	0.31	0.94	3.10	2.95	1.03	1.05
Administrative costs	-2.99	-3.68	-5.18	-4.66	-5.24	-6.60
Personnel costs	-2.37	-3.01	-3.93	-3.54	-3.98	-5.02
Other operating expenses	-1.25	-0.35	-0.65	-0.69	-0.83	-0.91
EBITDA	**1.95**	**-0.31**	**2.75**	**11.45**	**20.33**	**24.31**
Depreciation	-3.67	-4.70	-6.55	-6.62	-9.34	-10.59
Operating income	**-1.72**	**-5.01**	**-3.80**	**4.83**	**10.99**	**13.72**
Net financial result	-4.46	-7.42	-3.00	-3.05	-3.10	-3.15
EBT	**-6.18**	**-12.43**	**-6.80**	**1.78**	**7.89**	**10.57**
Income taxes	-0.87	-0.21	-0.54	-0.45	-2.01	-2.70
Net income / loss	**-5.30**	**-10.80**	**-6.34**	**1.06**	**4.71**	**6.32**
EPS	-1.15	-0.47	-0.19	0.02	0.09	0.13
DPS	0.00	0.00	0.00	0.00	0.00	0.00
Change y-o-y						
Revenues	n.a	-30.26%	-18.96%	163.28%	90.72%	21.95%
Cost of goods sold	n.a	-30.52%	-64.39%	362.50%	113.16%	21.95%
Gross profit	n.a	-29.80%	62.55%	84.98%	68.68%	21.95%
Other operating income	n.a	200.00%	230.14%	-5.00%	-65.00%	2.00%
Administrative costs	n.a	22.90%	40.81%	-10.00%	12.50%	26.00%
Personnel costs	n.a	27.14%	30.52%	-10.00%	12.50%	26.00%
Other operating expenses	n.a	-72.28%	86.62%	7.26%	19.15%	10.13%
EBITDA	n.a	-115.89%	-990.55%	316.24%	77.51%	19.58%
Depreciation	n.a	28.18%	39.31%	1.10%	41.06%	13.36%
Operating income	n.a	190.72%	-24.18%	-227.10%	127.51%	24.87%
Net financial result	n.a	66.39%	-59.55%	1.67%	1.64%	1.61%
EBT	n.a	101.07%	-45.28%	-126.18%	343.18%	34.01%
Income taxes	n.a	-76.40%	164.08%	-16.56%	343.18%	34.01%
Net income / loss	n.a	103.64%	-41.29%	-116.77%	343.18%	34.01%
EPS	n.a	-59.29%	-60.53%	-111.49%	343.18%	34.01%
Share in total sales						
Revenues	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %
Cost of goods sold	-64.44 %	-64.21 %	-28.22 %	-49.57 %	-55.40 %	-55.40 %
Gross profit	35.56 %	35.79 %	71.78 %	50.43 %	44.60 %	44.60 %
Other operating income	1.35 %	5.81 %	23.66 %	8.54 %	1.57 %	1.31 %
Administrative costs	-12.90 %	-22.73 %	-39.50 %	-13.50 %	-7.96 %	-8.23 %
Personnel costs	-10.22 %	-18.63 %	-30.00 %	-10.26 %	-6.05 %	-6.25 %
Other operating expenses	-5.40 %	-2.15 %	-4.94 %	-2.01 %	-1.26 %	-1.14 %
EBITDA	8.39 %	-1.91 %	21.00 %	33.20 %	30.90 %	30.30 %
Depreciation	-15.82 %	-29.09 %	-50.00 %	-19.20 %	-14.20 %	-13.20 %
Operating income	-7.44 %	-31.00 %	-29.00 %	14.00 %	16.70 %	17.10 %
Net financial result	-19.22 %	-45.87 %	-22.89 %	-8.84 %	-4.71 %	-3.93 %
EBT	-26.66 %	-76.86 %	-51.89 %	5.16 %	11.99 %	13.17 %
Income taxes	-3.77 %	-1.27 %	-4.15 %	-1.32 %	-3.06 %	-3.36 %
Net income / loss	-22.87 %	-66.79 %	-48.38 %	3.08 %	7.16 %	7.87 %

8 Balance sheet

Balance sheet - Photon Energy						
	Fiscal year					
in EURm	2011	2012	2013E	2014E	2015E	2016E
Assets						
Cash and equivalents	4.88	6.95	14.18	0.92	0.92	0.20
Inventories	4.36	0.15	0.50	2.22	4.53	5.28
Trade accounts and notes receivables	3.83	1.50	2.51	6.59	12.51	15.19
Other current assets	1.95	10.57	2.50	5.72	9.26	9.29
Current assets, total	**15.02**	**19.18**	**19.69**	**15.45**	**27.23**	**29.96**
Property, plant and equipment	85.23	93.53	84.00	94.00	134.00	184.00
Investments at-equity	1.92	2.43	2.45	2.47	2.50	2.52
Other assets	0.17	0.01	0.00	0.00	0.00	0.00
Non-current assets, total	**87.32**	**95.96**	**86.45**	**96.47**	**136.50**	**186.52**
Total assets	**102.34**	**115.14**	**106.14**	**111.92**	**163.73**	**216.48**
Liabilities						
Trade payables	10.22	6.26	4.56	7.03	9.99	11.57
Other short-term liabilities	4.91	1.30	1.57	1.10	1.97	2.25
Short-term financial debt	3.54	16.99	8.79	8.29	7.79	7.29
Provisions	0.19	0.00	0.00	0.00	0.00	0.00
Current liabilities, total	**18.86**	**24.56**	**14.92**	**16.42**	**19.75**	**21.11**
Long-term financial debt	50.11	71.36	49.30	55.00	101.00	147.00
Other long-term liabilities	13.65	0.00	4.40	1.92	-0.28	-1.14
Deferred tax liabilities	2.23	4.74	6.36	6.09	4.89	3.28
Long-term liabilities, total	**65.99**	**76.10**	**60.06**	**63.01**	**105.61**	**149.13**
Total liabilities	**84.84**	**100.66**	**74.98**	**79.43**	**125.36**	**170.24**
Shareholders equity, total	**12.10**	**14.35**	**32.04**	**33.11**	**37.82**	**44.13**
Minority interests	5.40	0.12	-0.88	-0.62	0.55	2.11
Total liabilities and equity	**102.34**	**115.14**	**106.14**	**111.92**	**163.73**	**216.48**

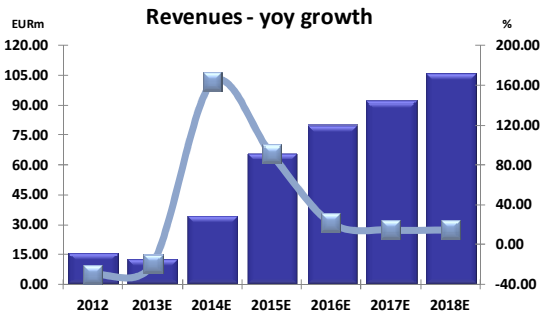
9 Cash flow statement

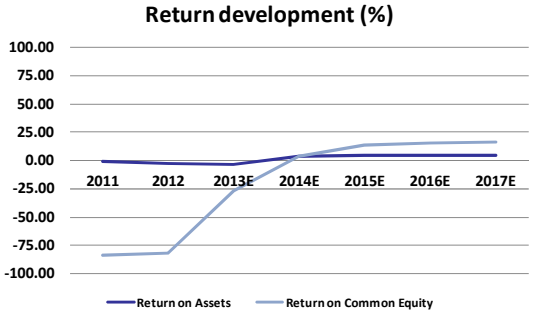
Cash flow statement - Photon Energy						
	Fiscal year					
in EURm	2011	2012	2013E	2014E	2015E	2016E
Net income / loss	-5.30	-10.80	-6.34	1.06	4.71	6.32
Depreciation	3.67	4.70	6.55	6.62	9.34	10.59
Change of working capital	-3.58	1.08	-9.65	5.28	-7.01	-7.95
Others	4.55	4.11	2.32	1.61	-0.27	-1.20
Net operating cash flow	**-0.67**	**-0.91**	**-7.12**	**14.58**	**6.77**	**7.76**
Cash flow from investing	**-19.75**	**-2.53**	**-13.00**	**2.97**	**-16.62**	**-49.34**
Free cash flow	-20.42	-3.44	-20.11	17.55	-9.85	-41.59
Cash flow from financing	**22.85**	**5.64**	**27.34**	**-30.81**	**9.85**	**40.86**
Change of cash	2.43	2.20	7.23	-13.26	0.00	-0.73
Cash at the beginning of the period	2.45	4.88	6.95	14.18	0.92	0.92
Cash at the end of the period	4.88	6.95	14.18	0.92	0.92	0.20

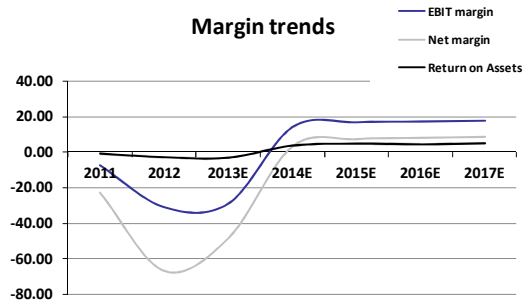
10 Financial ratios

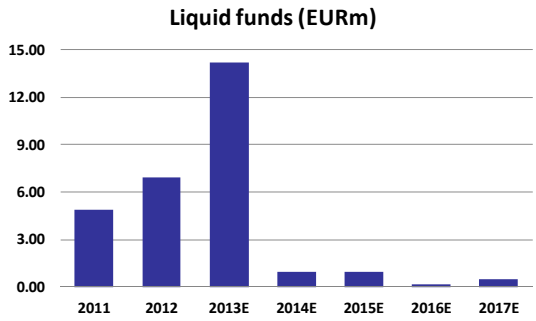
Fiscal year	2011	2012	2013E	2014E	2015E	2016E	2017E	2018E
Gross margin	35.56%	35.79%	71.78%	50.43%	44.60%	44.60%	43.62%	42.72%
EBITDA margin	8.39%	-1.91%	21.00%	33.20%	30.90%	30.30%	29.75%	28.75%
EBIT margin	-7.44%	-31.00%	-29.00%	14.00%	16.70%	17.10%	17.55%	17.55%
Net margin	-22.87%	-66.79%	-48.38%	3.08%	7.16%	7.87%	8.41%	8.65%
Return on equity (ROE)	-84.13%	-81.66%	-27.33%	3.26%	13.29%	15.41%	16.15%	16.23%
Return on assets (ROA)	-0.83%	-2.94%	-3.15%	3.68%	4.77%	4.37%	4.99%	5.55%
Return on capital employed (ROCE)	-2.36%	-5.63%	-4.50%	3.77%	5.69%	5.23%	6.10%	6.90%
Net debt (in EURm)	48.77	81.39	43.91	62.37	107.87	154.09	150.29	142.11
Net gearing	403.20%	567.04%	137.03%	188.38%	285.22%	349.15%	289.66%	232.77%
Equity ratio	11.82%	12.47%	30.19%	29.58%	23.10%	20.39%	23.62%	27.29%
Current ratio	0.80	0.78	1.32	0.94	1.38	1.42	1.46	1.53
Quick ratio	0.46	0.34	1.12	0.46	0.68	0.73	0.81	0.90
Net interest cover	-0.39	-0.68	-1.27	1.58	3.54	4.36	5.06	5.72
Net debt/EBITDA	25.07	-263.41	15.96	5.45	5.31	6.34	5.48	4.67
Tangible BVPS	0.53	0.62	0.94	0.66	0.76	0.88	1.04	1.22
CAPEX/Sales	383.42%	80.38%	-22.69%	48.19%	74.99%	75.51%	13.28%	12.14%
Working capital/Sales	-21.51%	28.82%	-4.71%	18.54%	21.80%	19.87%	17.81%	16.78%
EV/Sales	4.80	6.89	8.50	3.23	1.69	1.39	1.21	1.05
EV/EBITDA	57.27	-360.47	40.48	9.72	5.48	4.58	4.06	3.66
EV/EBIT	-64.61	-22.22	-29.31	23.06	10.14	8.12	6.89	5.99
P/Tangible BVPS	2.38	2.00	1.34	1.89	1.65	1.42	1.20	1.02
P/E	-1.09	-2.67	-6.75	58.78	13.26	9.90	8.06	6.82
P/FCF	-3.06	-18.15	-3.11	3.56	-6.34	-1.50	-1.39	12.41

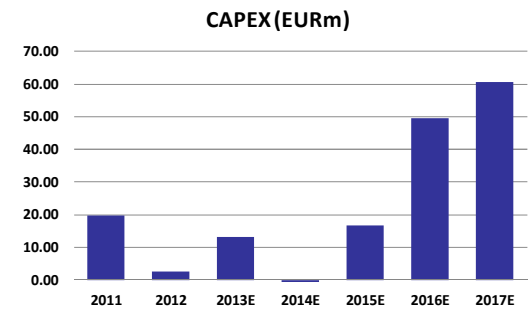
Source: Company information, Dr. Kalliwoda Research GmbH

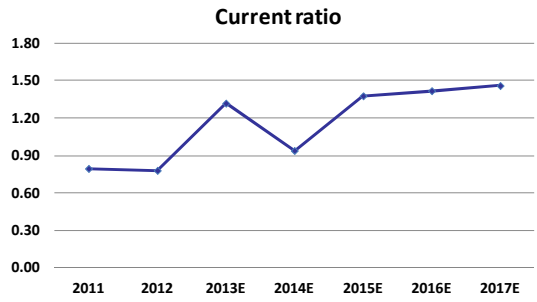


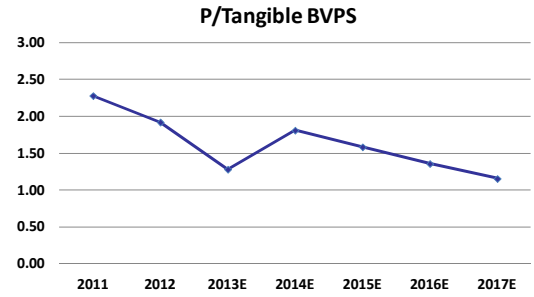












Source: Company information, Dr. Kalliwoda Research GmbH

Company Analysis

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Equity Research

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KAUFEN:	Based on our estimates the stock price will increase by at least 10% over the next 12 months	**BUY**
AKKUMULIEREN:	Based on our estimates the stock price will increase by 5% to 10% over the next 12 months	**ACCUMULATE**
HALTEN:	Based on our estimates the stock's performance will be between -5% and 5% over the next 12 months	**HOLD**
REDUZIEREN:	Based on our estimates the stock price will decrease by 5% to 10% over the next 12 months	**REDUCE**
VERKAUFEN:	Based on our estimates the stock price will decrease by at least 10% over the next 12 months	**SELL**

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