

**BUY** (Unchanged)

Change in Numbers

**TP: Bt 110.00**

Upside : 173.3%

(Unchanged)

**6 SEPTEMBER 2018**

# Energy Absolute Pcl (EA TB)

## 2020F – Start of a new cycle

**EA, a direct beneficiary of disruptive technology, has proceeded with its investments as planned. Despite heavy 2018-19F capex, we expect normalized earnings to grow 56% in 2019F (with its Hanuman project operating for a full year), and another 14% from its new Li-ion BES and PCM starting to bear fruit from 2020F. We reaffirm our BUY call.**

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### BES Phase 1 to run commercially in 2020F

The detailed design of EA's Li-ion battery energy storage (ES) Phase 1 project with 1GWh of capacity has been completed with the machinery ordered while the land is being prepared for construction. The investment cost has risen to Bt5bn (from Bt4bn) as facilities will be shared with the next phase. Yet, total capex for the whole project (50GWh) remains unchanged at Bt100bn (US\$2.9bn). EA is confident that Phase-1 will run commercially in 4Q19. We believe the newly set-up subsidiary "EA Con Dao (SG) Pte" will take up the major part of its ES output and ES system (ESS) for solar farm projects in Vietnam. We expect EA to win more projects in other neighboring countries as time progresses.

### PCM – another product champion in 2020F?

Phase-change material (PCM) is another product EA has developed from crude palm oil base. The company says its PCM properties satisfy potential customers in Japan and Europe, apart from being non-toxic, inert and recyclable. We expect PCM to help boost profit from 2020F onward as the planned capacity of 50-60 tonnes/day from its Rayong plant is due to operate commercially in 4Q19. Assuming an ASP of US\$2.8/kg, we expect PCM to generate Bt450m-500m p.a. of profit to EA's bio-diesel department (vs. Bt70m-170m p.a. currently). We see upside if EA can increase its PCM production proportion from its normal bio-diesel output of 1,200 tonnes/day.

### Hanuman looks on track to boost 2019F profit

EA has stated that all five of its Hanuman wind power projects with total capacity of 260MW should be operating commercially as planned in 4Q18. Hanuman's capacity is at 64% of EA's existing renewable capacity in operation. We expect the project to drive 2019F normalized earnings growth of 56% based on a plant factor of 28.5%. Yet, we trim our 2018-19F normalized earnings by 4-5% in each year due to higher expenses from R&D and depreciation related to new businesses and those yet to be announced. But we don't see a short-term earnings shortfall altering its new S-curve earnings growth path over the long run.

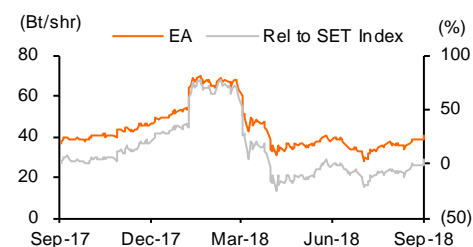
### Reaffirming our BUY call

We retain our high conviction about EA's long-term strong earnings growth story and reaffirm our BUY call with a valuation of Bt130 for 2020F, implying a SOTP-based DCF-derived 12-month TP of Bt110/share. Note that for investors who don't believe in the battery ES solution mega-trend in ASEAN, then EA isn't really a stock to invest in as the bulk of our valuation lies with future projects. We leave earnings upside for 2020F if EA's planned electrical car production starts to make profits vs. our current assumption of no contribution in that year.

### COMPANY VALUATION

Y/E Dec (Bt m)	2017A	2018F	2019F	2020F
Sales	11,580	13,076	17,365	25,937
Net profit	3,817	5,197	6,622	7,561
Consensus NP	—	5,291	7,227	8,059
Diff frm cons (%)	—	(1.8)	(8.4)	(6.2)
Norm profit	3,757	4,252	6,622	7,561
Prev. Norm profit	—	4,484	6,889	7,561
Chg frm prev (%)	—	(5.2)	(3.9)	(0.0)
Norm EPS (Bt)	1.0	1.1	1.8	2.0
Norm EPS grw (%)	13.7	13.2	55.7	14.2
Norm PE (x)	40.0	35.3	22.7	19.9
EV/EBITDA (x)	26.6	25.8	17.9	14.6
P/BV (x)	10.2	7.9	6.2	5.1
Div yield (%)	0.5	0.7	1.3	1.5
ROE (%)	28.8	25.3	30.8	28.2
Net D/E (%)	158.5	193.4	178.5	148.2

### PRICE PERFORMANCE



### COMPANY INFORMATION

Price as of 04-Sep-18 (Bt)	40.25
Market Cap (US\$ m)	4,575.3
Listed Shares (m shares)	3,730.0
Free Float (%)	39.9
Avg Daily Turnover (US\$ m)	41.2
12M Price H/L (Bt)	69.50/28.25
Sector	Utilities
Major Shareholder	Ahunai family 44.3%

Sources: Bloomberg, Company data, Thanachart estimates

## 2020F – Start of new S-curve earnings cycle

*EA's first S-curve earnings cycle started in 2013...*

*...as it moved swiftly into the domestic renewable power market*

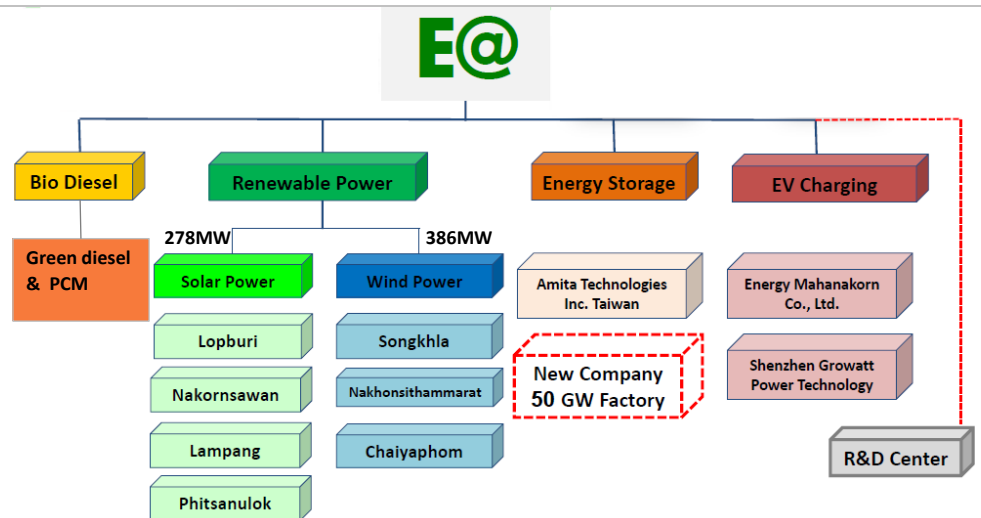
*Assets rose by 3.9x to Bt44.5bn in 2017 and normalized profit by 15.6x to Bt3.8bn*

*We expect assets to reach Bt78bn and normalized profit of Bt6.6bn in 2019F*

Energy Absolute Pcl (EA) has been our favorite stock in the utilities sector since it had its initial public offering (IPO) in 2013. We like EA management's long-term vision of latching onto the global green energy trend with it moving swiftly to capture the best opportunities in the business among the first group of players, along with its commitment and delivery.

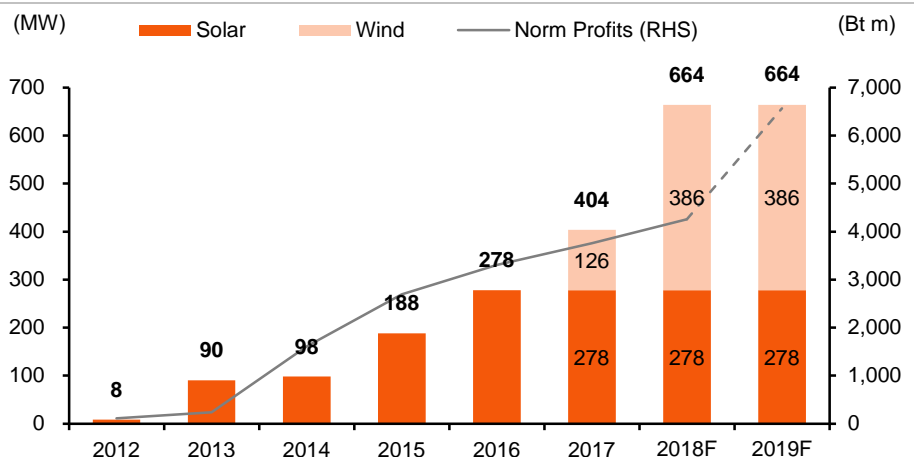
EA's **first earnings S-curve cycle has been under way in 2013-19F** as it shifted its resources into the renewable power market among the first-player group, thereby enjoying far high margin and ROE than its original bio-diesel business. Over the past eight to 10 years when renewable power has been new to the Thai market, EA was the only operator that dared to propose 90MW per site (Exhibit 1) farms vs. the 8MW common in Thailand. In fact, these had the highest capacity per site in the world at that time. Amid the uncertainty, EA has proven its ability to deliver the projects. Given 10-year adder subsidy contracts (for the first 10 years) awarded for the first group of operators, EA's renewable power projects yield super-high returns with EiRR of 28-55%, based on our estimates. More importantly, all the contracts are open-ended and automatically renewed every five years unless the operators intend to cease operation. EA has grown its assets by 3.9x to Bt44.5bn and normalized profit by 15.6x to Bt3.8bn in 2017 since its IPO. We expect its asset size to reach Bt78bn and normalized profit to rise to Bt6.6bn in 2019F when the Hanuman wind projects operate for a full year.

**Ex 1: EA's Business Structure**



Sources: Company data, Thanachart estimates

**Ex 2: EA's First S-Curve Earnings Cycle During 2013-19F**



Sources: Company data, Thanachart estimates

Note: 260MW Hanuman wind power projects are scheduled to operate commercially in 4Q18

*We foresee EA's second S-curve earnings cycle starting from 2020F...*

From 2020, we expect EA to enter its **second earnings S-curve cycle**, and we project its normalized earnings to grow by nearly 3x in 2022F from 2018F, driven by:

- Its planned 50GWh lithium-ion (Li-ion) battery energy storage (ES) project and ES systems (ESS)
- Phase-change material (PCM)
- Battery electrical vehicles (BEV) and charging stations

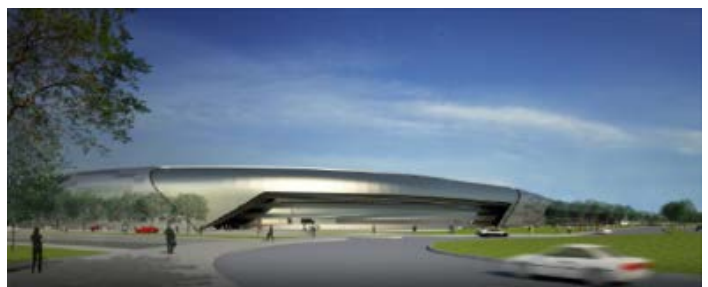
## ES and ESS to run commercially in 2020F

*We project normalized profit to surge nearly 3x to Bt12bn in 2022F*

To recap, after years of study, EA came up with a major plan – Bt100bn (US\$2.9bn) of investment for a 50GWh p.a. Li-ion battery ES project as global warming has become more of an issue along with rapid technological development in the Li-ion battery ES market. As part of the plan, EA spent Bt1.8bn between 2017 and April 2018 to acquire a 69.99% stake in Taiwan-based Amita Technologies (5233 TT, or Amita), which owns ES and ESS technologies with access to the Taiwanese Industrial Technology Research Institute (ITRI) that owns the R&D for high-safety ES, or so-called “STOBA”. EA, Amita and ITRI have signed an MOU to develop a 50GWh ES project in Thailand. Note that ITRI's STOBA technology, which is explosion-proof with a multi-protection mechanism for Li-ion batteries was one of the “2017 R&D 100 Winners” in Orlando, Florida, USA in November 2017.

From a big-picture perspective, EA plans to set up its own industrial estate – Bluetech City on 3,000 rai of land in Chachoengsao province – which is one of the three provinces promoted by the Thai government to be a special investment zone called the Eastern Economic Corridor (EEC). Around one-third of the area will be in usable areas with the remainder green areas. EA plans to build its ES plant and move its bio-diesel business to the estate in order to receive the maximum promotional privileges for each business on top of Board of Investment (BOI) privileges, according to the EEC's requirements, i.e. having R&D and technology transfer abilities. The Li-on ES factory has received eight tax holiday years from the BOI and another five years with 50% tax exemption. Its industrial estate is currently undergoing a public hearing process to win environmental impact assessment (EIA) approval, which we expect in early 2019, the same time as we anticipate the EEC zoning law to be implemented.

### Ex 3: '2017 R&D 100 Winner' Awarded To ITRI's STOBA, MOU Among EA, Amita, ITRI , And The Bluetech City Blueprint



Source: Company data

*Construction of Phase 1 of 1Gwh is proceeding*

*Targeted customers are in power grids in neighboring countries...*

In the meantime, EA is going ahead with its Phase 1 of 1GWh ES capacity (5:3:2 and higher) under Amita Thailand (100% owned by Amita), which doesn't need EIA approval. The company is now preparing the land for construction. Orders for key machinery including the coater machine have already been placed from Japan-based Toray Engineering. The investment cost for Phase 1 has been revised up to Bt5bn (from Bt4bn) due to initial facilities-sharing with the next phase while total capex for the whole project (50GWh including Phase 2) is likely to remain unchanged at Bt100bn (US\$2.9bn). Phase 2's


*...with its first solar + ESS projects likely to serve Con Dao island, Vietnam*

shareholding structure is likely to be finalized in 2021 after the performance of Phase 1 is gauged. EA plans to hold a majority stake and reaffirmed that it has no intention of carrying out any capital calls given its EBITDA of Bt10bn p.a. when Hanuman is up and running, due next year.

We maintain our assumption that Phase 1's construction and test-run will be completed in 4Q19F before the first product is produced commercially in early 2020F. Target customers initially would be power grids in the neighboring countries as there are many areas in ASEAN with inadequate power supply or difficulty in accessibility, i.e. some remote areas or islands. We see economic reasons to replace high-priced diesel-fired power generation with off-grid or semi-grid cheaper solar farm plus ES and systems. Apart from big government budget savings on the laying of undersea cables to transmit power from the mainland, this should help cut energy bills. We believe EA's recent announcement of a newly set-up subsidiary "EA Con Dao (SG) Pte" implies some capacity potential has been awarded for development. Con Dao is a group of islands off the southeast coast of Vietnam and one of Vietnam's premier attractions with resorts serving tourists and one airport.

To give an idea, 1GWh of ES can accommodate 300MW of solar panels for 24 hours of service (or roughly 55MW of conventional equivalent as the solar plant factor is at 17-20% in ASEAN). Therefore, we believe Con Dao alone would probably comprise the majority of its ES production in 2020-21. We also expect EA to seek new customers in other neighboring countries, i.e. Myanmar, Indonesia, Malaysia and the Philippines. We expect Phase 1 to generate Bt400m to EA in 2020F based on our assumption of an ES package of US\$280/kWh with an 85% utilization rate in 2020, and a tariff received of US\$14cents/kWh.

#### Ex 4: Amita's Li-ion Battery Products



Amita Technologies Inc.

Chemistry	Lithium Cobalt Oxide (LCO)	Lithium Manganese Oxide (LMO)	Lithium Nickel Cobalt Aluminum Oxide (NCA)	Lithium Iron Phosphate (LFP)	Lithium Nickel Manganese (NMC)	Lithium Titanate (LTO)
Cycle life (ideal)	500–1000	300–700	500	1,000–2,000	1,000–2,000	3,000–10,000
History	1991 (Sony)	1996	1999	1996	2008	2008
Applications	Mobile phones, tablets, laptops, cameras	Power tools, medical devices, powertrains	Medical, industrial, EV (Tesla)	Stationary with high currents and endurance	E-bikes, medical devices, EVs, industrial	UPS, EV, solar street lighting
Comments	High energy, limited power. Market share has stabilized.	High power, less capacity; safer than Li-cobalt; often mixed with NMC to improve performance.	Highest capacity with moderate power. Similar to Li-cobalt.	Flat discharge voltage, high power low capacity, very safe; elevated self-discharge.	High capacity and high power. Market share is increasing. Also NCM, CMN, MNC, MCN	Long life, fast charge, wide temperature range and safe. Low capacity, expensive.

Source: Company data

## Phase-change material (PCM)

*EA's new PCM innovation has been developed from crude palm oil*

*Initial PCM production of 50tonnes/day is scheduled to start in 4Q19...*

*...and we expect Bt450m-500m p.a. in contributions*

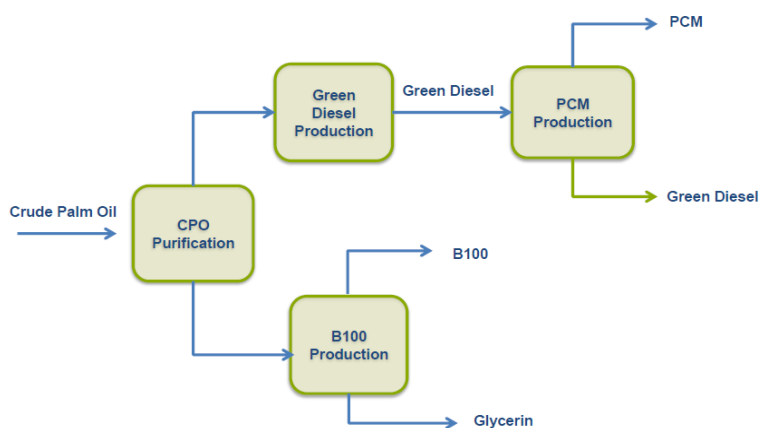
We are excited about EA's project to manufacture phase-change material (PCM), an innovative product developed by EA via crude palm oil purification (see Exhibit 5). EA has experimented and tested its PCM properties, and it says that potential customers in Japan and Europe have been satisfied with the results. EA has put its PCM under the patent registration process in the global market.

In the initial stage, EA plans to produce 50 tonnes/day of PCM at its Rayong plant and it expects to start commercial production in 4Q19. We foresee this new product adding significant value to EA's current bio-diesel business that would help boost its total profit from 2020F onward. Note that EA's margin for its original bio-diesel business is thin and it swings up and down because of regulations involving the Thai government's policy to stabilize CPO prices in the domestic market. EA plans to relocate its existing bio-diesel plant to its new industrial estate – Bluetech City where the battery plant would be situated because: 1) it would be nearer to CPO sources; and 2) it wants to obtain BOI privileges as those for its existing Kabinburi plant have expired. EA targets the new bio-diesel plant to have capacity of 1,200 tonnes/day of CPO purification which would make end-products including: 1) around 1,100 tonnes/day of bio-diesel and glycerin, 2) 50 tonnes/day of green diesel (another high-margin diesel type to make premium diesel), and 3) 50 tonnes/day of PCM.

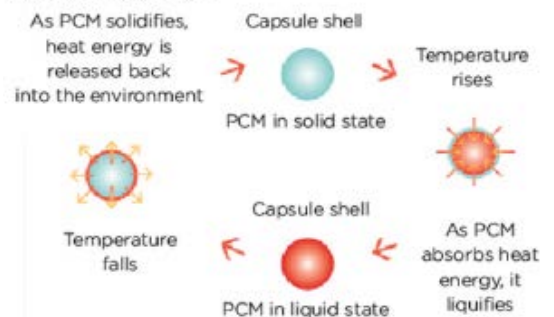
PCM prices range widely from US\$2.8-7/kg depending on the properties. Assuming EA can sell its PCM for US\$2.8/kg (Bt90/kg), we expect its PCM to make Bt450m-500m p.a. of profit for its bio-diesel department, which currently generates profit of Bt70m-170m p.a. (Bt132m in 2017) from 2020F. We foresee upside to revenues and profit from PCM in the future if EA is able to shift to making a higher proportion of PCM at its new plant. Our model assumes flat PCM capacity of 60 tonnes/day.

Note that PCMs are substances that change their state from solid to liquid and vice versa, with the change taking place at a certain temperature. They absorb heat and transform to liquid state. When the external temperature cools, the PCM, now in its liquid phase, can release the heat it absorbed. During this time period, the PCM solidifies and provides a warming effect. Today, paraffins (derived from oil) are the most widely used PCMs. The PCM market size is estimated at US\$1bn plus, according to industry experts. Building and construction industries are the main market with the textile industry experiencing significant growth. Increasing demand for energy saving and environmentally friendly technology is driving the growth of the global PCM market.

**Ex 5: EA's PCM Production Process**



### How it Works



Source: Company data

## Battery electrical vehicles (BEV) and charging stations

*EA plans to commercially launch its SUV and city models – pure BEV in 2020*

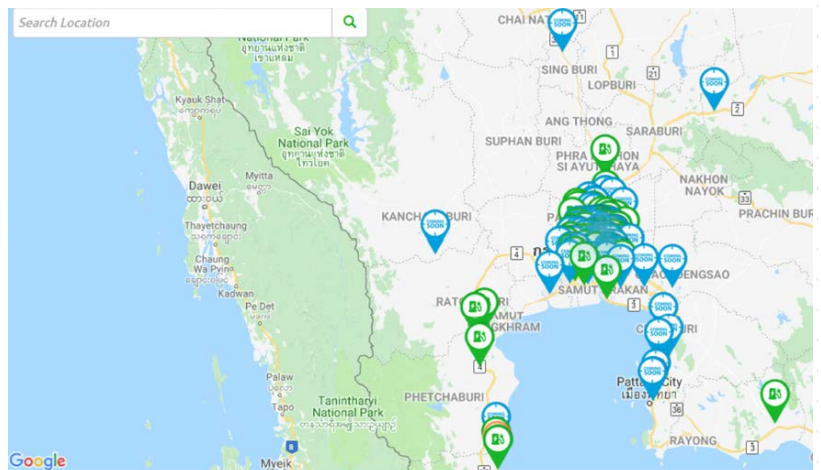
*We don't see this as easy given low brand awareness and consumer behavior...*

*...so we have yet to incorporate it in our P&L and leave it as upside*

With EA's strategy to create value added from ES, apart from ESS, the company hopes to build Thailand's first car made by Thais. EA has been pursuing this vision with three battery electric vehicle (BEV) prototypes displayed to the public at motor shows early this year under its brand "Mine Mobility". The company expects to commercially launch an SUV and city models – pure BEV in 2020. As for infrastructure, EA along with its Chinese partner Growatt, has laid out its charging stations plan with a target to have 1,000 stations nationwide by end 2019 under the brand "EA Anywhere" and with the expectation that EV (BEV and plug-in hybrid electric vehicles [PHEV]) will start to be seen on the roads.

We don't see this as an easy ambition to achieve in the short term given that the development of the BEV market in Thailand is likely to be slow and consumer behavior is dictated by prices and the brands of vehicle makers. In our view, EA's BEV business could materialize meaningfully after 2025F. However, EA owns ES products which are key to BEV, accounting for 35-50% of the total BEV price. The company expects to gain a small foothold in the auto industry in some niche markets. Note that the price range for an SUV is Bt1.0m with the city type costing Bt0.6m-0.7m. EA plans to have local auto assemblers handle production according to orders to help control costs. We have yet to incorporate this business into our model and leave it as upside to our 2020 earnings forecast should things turn out better than we currently expect.

### Ex 6: EA's Charger And Charging Station Plans



Source: Company data

### Ex 7: EA's BEV Prototype Under 'Mine Mobility' With Plans To Use In-house ES



MINE City EV-CONCEPT Specification	
Max Power (PS/kW)	68/50
Max Torque (Nm)	160
Max Speed (km/h)	120
0-100 km/h (s)	12
Battery type	Lithium-ion
Battery (kWh)	20
Range (km)	200*
Dimension (mm)	3250x1600x1750
Weight (kg)	900
Wheel base (mm)	1850
Drive	Front wheel drive
Suspension	FR : Macpherson strut RR : Double wish bone
Wheel	225/40 ZR18

MINE MPV EV-CONCEPT Specification	
Max Power (PS/kW)	107/80
Max Torque (Nm)	250
Max Speed (km/h)	140
0-100 km/h (s)	10
Battery type	Lithium-ion
Battery (kWh)	30
Range (km)	200*
Dimension (mm)	4100x1660x1750
Weight (kg)	1200
Wheel base (mm)	2650
Drive	Front wheel drive
Suspension	FR : Macpherson strut RR : Double wish bone
Wheel	225/40 ZR18

MINE Sport EV-CONCEPT Specification	
Max Power (PS/kW)	160/120
Max Torque (Nm)	350
Max Speed (km/h)	180
0-100 km/h (s)	8
Battery type	Lithium-ion
Battery (kWh)	45
Range (km)	250*
Dimension (mm)	4300x1200x1700
Weight (kg)	1100
Wheel base (mm)	2500
Drive	Front wheel drive
Suspension	FR : Macpherson strut RR : Double wish bone
Wheel	255/30 R20

Source: Company data

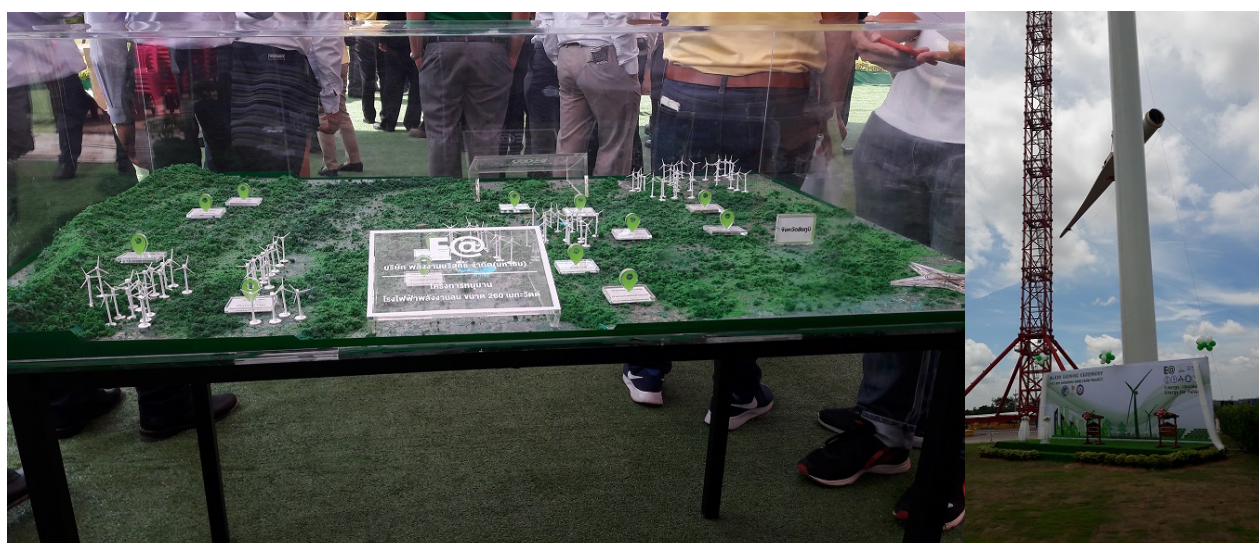
## 2019F – Hanuman looks on track

**We estimate Hanuman to drive 2019F normalized earnings growth of 54%**

EA's five Hanuman wind power projects with a combined 260MW of capacity and an investment cost of Bt20bn are now under construction. Currently, Hanuman 1 and Hanuman 8 have been completed and are in the test-run process, while building foundations of the remaining three Hanuman projects has been finished. EA says all the projects will be operating commercially as planned in 4Q18.

Based on our assumption for a Hanuman plant factor of 28-29% given the location in northeastern wind channel spots, their 163-meter hub height and 67-meter wide turbines from Siemens Gamesa, we expect the Hanuman scheme to contribute Bt2.2bn p.a. to EA. We therefore estimate Hanuman to drive 2019F normalized earnings growth of 56%. It is worth noting that the Hanuman projects' capacity comes to 64% of the company's total existing renewable capacity in operation.

### Ex 8: EA's Hanuman Projects



Source: Company data

### Ex 9: EA's Power Capacity Profile

Companies	Project	Location	Type	Contracted capacity (MW)	Ownership (%)	Net owned (MW)	Scheduled COD
<b>Solar power plants</b>							
Suechai 97 Solar	Solar Lop Buri	Lop Buri	Solar power	8	100	8	17/Oct/12
EA Solar Nakornsawan	Solar Nakornsawan	Nakornsawan	Solar power	90	100	90	23/Dec/13
EA Solar Lampang	Solar Lampang	Lampang	Solar power	90	100	90	14/Feb/15
EA Solar Phitsanulok	Solar Phitsanulok	Phitsanulok	Solar power	90	100	90	1/Apr/16
EA Wind Had Kanghai 1	Had Kanghai 1	Songkla	Wind power	36	100	36	3/Mar/17
EA Wind Had Kanghai 2	Had Kanghai 2	Nakonsrihamarat-Songkla	Wind power	45	100	45	10/Jun/17
EA Wind Had Kanghai 3	Had Kanghai 3	Nakonsrihamarat-Songkla	Wind power	45	100	45	23/Jun/17
<b>Subtotal</b>				<b>404</b>		<b>404</b>	
<b>Under construction</b>							
Nayangklak Development (NYKD)	Hanuman 1	Chaiyaphum-Mukdahan	Wind power	45	100	45	1 Nov 2018
Pongnok Development (PND)	Hanuman 5	Chaiyaphum-Mukdahan	Wind power	48	100	48	1 Dec 2018
Nayangklak Wind Power (NWP)	Hanuman 8	Chaiyaphum-Mukdahan	Wind power	45	100	45	1 Dec 2018
Benjarat Development (BJRD)	Hanuman 9	Chaiyaphum-Mukdahan	Wind power	42	100	42	15 Dec 2018
Baanchuan Development (BCD)	Hanuman 10	Chaiyaphum-Mukdahan	Wind power	80	100	80	28 Dec 2018
<b>Subtotal</b>				<b>260</b>		<b>260</b>	
<b>Total</b>				<b>664</b>		<b>664</b>	

Source: Company data



## Reaffirming our BUY call

*We believe in EA's vision and strategic moves and reaffirm our BUY rating*

*We see upside to 2020F normalized earnings if sales volume is higher than expected from...*

*...Phase-1 ES, PCM and BEV*

We remain confident in EA's strong long-term earnings growth prospects and reaffirm our BUY call with a valuation of Bt130 for 2020F, implying a 12-month SOTP-based DCF-derived TP of Bt110/share. We regard EA as a high-growth stock which deserves to trade at higher earnings multiples for being part of a new innovation industry. EA is not only adjusting to benefit from the global disruptive technology trend, but is also among one of the first groups to take the risk and reap the rewards of entering the huge power grid and BEV markets. With increasing global warming concerns and Thailand being one of the countries that has signed the COP21 climate change agreement, together with more news of Li-ion battery development with R&D to improve performance and lower costs to go commercial, we believe EA is moving in the right direction. We see the collapse in its share price amid negative market talk as a good opportunity for long-term investors to accumulate the shares as we expect EA's normalized earnings to grow by 3x in 2022F (from its 2018F base).

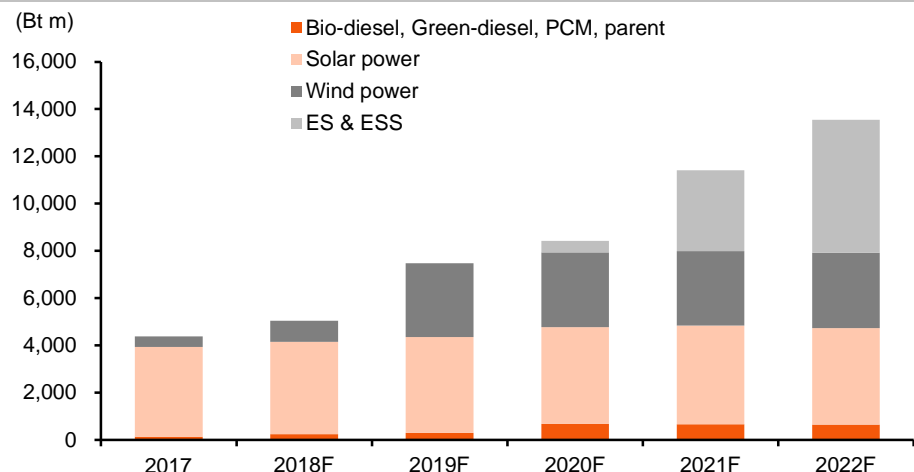
Over the shorter term, despite trimming our 2018-19F normalized earnings due to higher-than-expected depreciation in 2Q18, we leave the following as upside to 2020F earnings:

- 1) If the utilization of the Phase 1 ES plant is higher than our current assumption of 65% and there is a higher achieved power tariff rate of US\$14cents/kWh from potential grid customers. Also, if the production costs at its ES plant are lower than we assume currently if the company achieves new R&D breakthroughs.
- 2) If PCM production comes in higher than the guidance of 50m tonnes/day.
- 3) If EA's planned electrical car production is more profitable than we and the market currently anticipate.

Given that the ES business is a new one where end-users may need to learn about the different properties to suit their needs, EA may require time to sell its products. Risks to our investment case would be delays to ES sales or prices falling faster than we currently expect. However, we expect EA's strategy of creating value added by using its in-house products for solar and ESS projects and building its own branded BEV to help mitigate the margin impact.

Downside risk to our normalized earnings estimates both for 2018-19F would be expenses related to new unannounced businesses including those under the patent registration process. However, we don't see any earnings shortfall in the short term altering the company's new S-curve earnings cycle over the long run. Note that for investors who don't believe in the battery ES and ESS mega-trend in ASEAN, EA isn't really a stock to invest in as the bulk of our valuation is dependent on future projects.

**Ex 10: Our Estimates For EA's Normalized Profit (2018-22F)**



Sources: Company data, Thanachart estimates

*We expect EA to be in a heavy capex cycle until 2023F*

### Ex 11: Estimated Planned Capex in 2018-20F

	2018F	2019F	2020F	2021F	2022F	2023F
Hanuman wind projects	14,655					
Bluetech City IE	300	2,000	500			
ES plant (30Gwh)	1,200	3,800	5,000	11,000	20,000	19,000
Amita acquisition	850					
Bio-diesel and PCM relocation	500	2,000				
Charging stations	500	600	300	300		
New businesses	800	6,020	4,472	2,032	32	32
<b>Total</b>	<b>18,805</b>	<b>14,420</b>	<b>10,272</b>	<b>13,332</b>	<b>20,032</b>	<b>19,032</b>

Note: Our model assumes ES capacity of only 30GWh

Source: Thanachart estimates

### Ex 12: 12-month SOTP-based DCF-derived TP Calculation, Using A Base Year Of 2018F

(Bt m)	2018F	2019F	2020F	2021F	2022F	2023F	2024F	2025F	2026F	2027F	2028F	Terminal value
EBITDA	7,261	10,831	13,413	19,075	24,983	34,811	35,032	35,390	35,392	36,675	36,534	
Free cash flow	(11,634)	(4,583)	1,673	2,257	1,705	10,619	32,370	34,426	33,810	34,692	36,180	-
PV of free cash flow	(11,602)	(4,571)	1,411	1,799	1,283	7,554	21,753	21,858	20,283	19,664	19,372	42,099
Risk-free rate (%)	4.5											
Market risk premium (%)	7.5											
Beta	1.0											
WACC (%)	5.8											
Terminal growth (%)	-											
Enterprise value - add investments	140,904											
Net debt (end-2017)	23,366											
Minority interest	76											
Equity value	117,462											
No. of shares (fully diluted) (m)	3,730											
<b>Equity value/share (Bt)</b>	<b>31.49</b>											
<b>Sum-of-the-parts valuation</b>												<b>(Bt/shr)</b>
<b>Solar</b>												
- Lopburi												0.1
- Nakornsawan												2.1
- Lampang												2.5
- Phitsanulok												3.6
Wind 126MW												1.6
Wind 260MW												4.3
Parent, Bio, Green diesel & PCM												17.3
<b>Total</b>												<b>31.5</b>
Industrial estates												2.8
ES and ESS												75.3
<b>Total</b>												<b>109.6</b>

Sources: Company data, Thanachart estimates

## Valuation Comparison

## Ex 13: Comparison With Regional Peers

Name	BBG code	Country	EPS growth		PE		P/BV		EV/EBITDA		Div yield	
			18F (%)	19F (%)	18F (x)	19F (x)	18F (x)	19F (x)	18F (x)	19F (x)	18F (%)	19F (%)
Datang International Power	991 HK	China	48.5	22.8	10.4	8.4	0.7	0.6	8.8	7.8	5.4	6.6
Huadian Power	1071 HK	China	na	42.3	12.6	8.9	0.6	0.6	8.8	7.8	3.0	4.4
Huaneng Power	600011 CH	China	171.8	43.1	24.4	17.1	1.4	1.3	9.4	8.5	2.7	3.8
Cheung Kong Infrastructure	1038 HK	Hong Kong	9.5	5.4	13.1	12.4	1.3	1.3	65.6	62.6	4.3	4.6
China Power Int'l	2380 HK	Hong Kong	60.0	41.9	10.8	7.6	0.5	0.5	9.5	7.7	5.2	7.0
China Resources Power	836 HK	Hong Kong	47.7	22.6	9.9	8.0	0.9	0.8	6.6	5.9	6.2	6.5
CLP Holdings	2 HK	Hong Kong	1.6	(10.5)	16.2	18.1	2.0	1.9	11.2	12.0	3.2	3.3
Hongkong Electric Holdings	6 HK	Hong Kong	(5.2)	(0.1)	14.9	14.9	1.4	1.4	90.5	95.2	5.1	5.2
Huaneng Power	902 HK	Hong Kong	160.9	46.0	17.7	12.1	0.9	0.9	9.3	8.4	3.9	5.9
Reliance Power	RPWR IN	India	(1.9)	26.7	9.7	7.6	0.4	0.4	7.9	7.8	0.0	0.0
Tata Power	TPWR IN	India	(31.8)	6.5	12.3	11.6	1.4	1.2	10.9	10.8	1.9	2.0
Tenaga Nasional	TNB MK	Malaysia	4.9	(0.3)	12.3	12.3	1.4	1.4	7.6	7.3	4.1	4.1
YTL Corp	YTL MK	Malaysia	94.8	(7.5)	19.7	21.3	1.0	1.0	12.2	12.2	5.1	3.9
YTL Power	YTLP MK	Malaysia	7.7	9.4	13.3	12.2	0.7	0.7	9.7	9.3	4.8	4.6
Manila Electric	MER PM	Philippines	1.9	1.0	20.2	20.0	5.6	5.4	11.2	10.8	4.2	4.3
BCPG Pcl *	BCPG TB	Thailand	25.8	17.7	16.7	14.2	2.4	2.2	21.1	17.7	2.2	2.2
Banpu Power Pcl *	BPP TB	Thailand	2.0	8.2	13.4	12.4	1.7	1.6	98.7	61.3	3.7	4.0
CK Power Pcl *	CKP TB	Thailand	124.4	31.3	66.3	50.5	1.7	1.7	14.1	13.2	0.5	0.8
EA Pcl*	EA TB	Thailand	13.2	55.7	35.3	22.7	7.9	6.2	25.8	17.9	0.7	1.3
Electricity Generating *	EGCO TB	Thailand	6.3	8.6	11.7	10.8	1.1	1.0	17.9	15.2	4.4	4.4
Glow Energy *	GLOW TB	Thailand	(3.3)	3.9	18.0	17.3	2.8	2.9	10.3	10.0	6.1	6.1
Global Power Synergy *	GPSC TB	Thailand	25.2	6.9	27.2	25.5	2.7	2.6	22.8	21.8	2.6	2.8
Gunkul Engineering *	GUNKUL TB	Thailand	53.7	32.4	18.5	14.0	2.4	2.1	28.4	20.4	1.3	2.9
Ratchaburi Electricity *	RATCH TB	Thailand	(2.2)	15.9	11.8	10.2	1.1	1.1	19.5	14.3	4.4	5.4
SPCG Pcl*	SPCG TB	Thailand	3.3	6.2	7.6	7.2	1.6	1.5	6.3	5.6	5.9	5.9
TPC Power Holding *	TPCH TB	Thailand	43.6	3.4	11.1	10.7	1.7	1.5	8.7	8.4	0.0	2.8
WHA Utilities & Power *	WHAUP TB	Thailand	38.7	0.3	13.2	13.1	1.7	1.5	44.9	40.3	3.0	3.1
<b>Average</b>			<b>34.7</b>	<b>16.3</b>	<b>17.3</b>	<b>14.9</b>	<b>1.8</b>	<b>1.7</b>	<b>22.1</b>	<b>19.3</b>	<b>3.5</b>	<b>4.0</b>

Sources: Bloomberg, \* Thanachart estimates

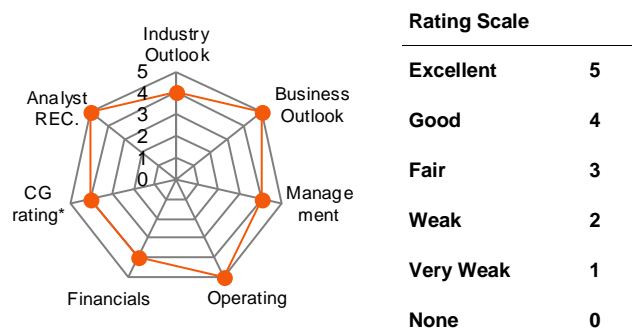
Based on 4 September 2018 closing prices

## COMPANY DESCRIPTION

Established in 2006 as a bio-diesel business operator, Energy Absolute Pcl (EA) has become Thailand's largest producer of renewable power with a total capacity of 660MW (net) by 2018 (278MW of solar power and 386MW of wind power). EA has a wholly owned subsidiary called Energy Solution Management (ESM) to provide O&M services for the group's renewable power plants. EA invested in the energy storage business via a 70% stake in Taiwan-based Amita Technologies with plans to build a 50GWh energy storage plant in Thailand during 2018-22.

Source: Thanachart

## COMPANY RATING



Source: Thanachart; \* CG Rating

### Rating Scale

<b>Excellent</b>	<b>5</b>
<b>Good</b>	<b>4</b>
<b>Fair</b>	<b>3</b>
<b>Weak</b>	<b>2</b>
<b>Very Weak</b>	<b>1</b>
<b>None</b>	<b>0</b>

## THANACHART'S SWOT ANALYSIS

### S — Strength

- Management has a strong financial background with what we regard as well-thought-out plans for expansion.

### O — Opportunity

- Electricity industry gearing toward renewable energy.
- Huge potential capacity expansion planned.
- Energy storage (ES) could be part of the requirements for the government grid and private off-grid systems.

### W — Weakness

- In a heavy capex cycle due to scheduled new capacity expansion but gearing is still below its threshold.

### T — Threat

- New capacity tendered by the government will likely see lower returns.
- Regulations from both domestic and overseas power markets.

## CONSENSUS COMPARISON

	Consensus	Thanachart	Diff
<b>Target price (Bt)</b>	56.82	110.00	94%
<b>Net profit 18F (Bt m)</b>	5,291	5,197	-2%
<b>Net profit 19F (Bt m)</b>	7,227	6,622	-8%
<b>Consensus REC</b>	<b>BUY: 7</b>	<b>HOLD: 0</b>	<b>SELL: 2</b>

## RISKS TO OUR INVESTMENT CASE

- If investment costs come in higher than we now anticipate.
- If projects are delayed from their commercial operation date (COD) schedules.

## HOW ARE WE DIFFERENT FROM THE STREET?

- Our TP is 94% higher than the Bloomberg consensus number, which we attribute to us now incorporating the valuation of its ES giga-factory and downstream businesses.
- Our 2018F net earnings are in line with other brokers' as we expect lower loss contributions from Amita Technologies though our 2019F net earnings are lower, which we believe is due to assuming some expenses related to its ES plant and its related ES business.

Sources: Bloomberg consensus, Thanachart estimates

Source: Thanachart

## INCOME STATEMENT

	FY ending Dec (Bt m)	2016A	2017A	2018F	2019F	2020F
<i>Revenue, earnings likely to rise sharply when Hanuman commences operations in 4Q18F...</i>	Sales	10,392	11,580	13,076	17,365	25,937
	Cost of sales	5,637	6,046	6,651	7,771	13,902
	<b>Gross profit</b>	<b>4,755</b>	<b>5,534</b>	<b>6,425</b>	<b>9,594</b>	<b>12,035</b>
	% gross margin	45.8%	47.8%	49.1%	55.2%	46.4%
	Selling & administration expenses	462	532	897	1,229	1,908
	<b>Operating profit</b>	<b>4,294</b>	<b>5,002</b>	<b>5,527</b>	<b>8,364</b>	<b>10,127</b>
	% operating margin	41.3%	43.2%	42.3%	48.2%	39.0%
<i>... ES and ESS business likely to gradually bring in new earnings from 2020F onwards</i>	Depreciation & amortization	1,116	1,528	1,734	2,467	3,287
	<b>EBITDA</b>	<b>5,409</b>	<b>6,530</b>	<b>7,261</b>	<b>10,831</b>	<b>13,413</b>
	% EBITDA margin	52.0%	56.4%	55.5%	62.4%	51.7%
	Non-operating income	28	24	62	86	97
	Non-operating expenses	0	0	0	0	0
	Interest expense	(995)	(1,184)	(1,346)	(1,849)	(1,989)
	<b>Pre-tax profit</b>	<b>3,327</b>	<b>3,842</b>	<b>4,244</b>	<b>6,601</b>	<b>8,235</b>
	Income tax	21	23	66	79	185
	<b>After-tax profit</b>	<b>3,306</b>	<b>3,819</b>	<b>4,177</b>	<b>6,522</b>	<b>8,050</b>
	% net margin	31.8%	33.0%	31.9%	37.6%	31.0%
	Shares in affiliates' Earnings	0	(62)	(10)	0	0
	Minority interests	(1)	(0)	85	100	(489)
	Extraordinary items	(54)	60	945	0	0
	<b>NET PROFIT</b>	<b>3,252</b>	<b>3,817</b>	<b>5,197</b>	<b>6,622</b>	<b>7,561</b>
	<b>Normalized profit</b>	<b>3,305</b>	<b>3,757</b>	<b>4,252</b>	<b>6,622</b>	<b>7,561</b>
	EPS (Bt)	0.9	1.0	1.4	1.8	2.0
	Normalized EPS (Bt)	0.9	1.0	1.1	1.8	2.0

## BALANCE SHEET

	FY ending Dec (Bt m)	2016A	2017A	2018F	2019F	2020F
	<b>ASSETS:</b>					
<i>Fixed assets and debt should rise due to Hanuman operations and ES Phase 1...</i>	Current assets:	6,132	7,022	14,063	11,420	12,490
	Cash & cash equivalent	4,039	4,506	10,700	7,000	6,000
	Account receivables	1,319	1,707	1,970	2,855	4,264
	Inventories	187	128	141	213	381
	Others	587	682	1,252	1,352	1,845
	Investments & loans	0	0	0	0	0
<i>...while capex spending for ES Phase 2 is due to start from 2021F</i>	Net fixed assets	33,485	35,220	52,291	64,244	71,229
	Other assets	1,890	2,289	2,400	2,433	2,800
	<b>Total assets</b>	<b>41,507</b>	<b>44,530</b>	<b>68,754</b>	<b>78,097</b>	<b>86,519</b>
	<b>LIABILITIES:</b>					
	Current liabilities:	3,538	2,587	4,456	5,845	6,958
	Account payables	420	91	364	426	762
	Bank overdraft & ST loans	946	882	1,585	1,607	2,579
	Current LT debt	1,651	603	1,608	2,459	1,715
	Others current liabilities	521	1,010	898	1,354	1,902
	<b>Total LT debt</b>	<b>25,780</b>	<b>26,386</b>	<b>44,341</b>	<b>46,712</b>	<b>47,289</b>
	Others LT liabilities	793	806	910	1,010	1,509
	<b>Total liabilities</b>	<b>30,118</b>	<b>29,787</b>	<b>49,707</b>	<b>53,567</b>	<b>55,756</b>
	Minority interest	6	76	76	450	1,250
	Preferreds shares	0	0	0	0	0
	Paid-up capital	373	373	373	373	373
	Share premium	3,681	3,681	3,681	3,681	3,681
	Warrants	0	0	0	0	0
	Surplus	(47)	(21)	(21)	(21)	(21)
	<b>Retained earnings</b>	<b>7,377</b>	<b>10,635</b>	<b>14,938</b>	<b>20,047</b>	<b>25,480</b>
	Shareholders' equity	11,383	14,668	18,971	24,080	29,513
	<b>Liabilities &amp; equity</b>	<b>41,507</b>	<b>44,530</b>	<b>68,754</b>	<b>78,097</b>	<b>86,519</b>

Sources: Company data, Thanachart estimates

**CASH FLOW STATEMENT**

*With a heavy capex cycle,  
we project negative FCF  
during 2018-22F*

<b>FY ending Dec (Bt m)</b>	<b>2016A</b>	<b>2017A</b>	<b>2018F</b>	<b>2019F</b>	<b>2020F</b>
Earnings before tax	3,327	3,842	4,244	6,601	8,235
Tax paid	(21)	(23)	(66)	(79)	(185)
Depreciation & amortization	1,116	1,528	1,734	2,467	3,287
Chg In working capital	(142)	(657)	(3)	(895)	(1,241)
Chg In other CA & CL / minorities	(1,146)	380	(845)	549	95
<b>Cash flow from operations</b>	<b>3,134</b>	<b>5,070</b>	<b>5,063</b>	<b>8,643</b>	<b>10,191</b>
Capex	(7,197)	(3,262)	(18,805)	(14,420)	(10,272)
ST loans & investments	(1)	0	0	0	0
LT loans & investments	0	0	0	0	0
Adj for asset revaluation	0	0	0	0	0
Chg In other assets & liabilities	(614)	(362)	222	348	403
<b>Cash flow from investments</b>	<b>(7,811)</b>	<b>(3,624)</b>	<b>(18,583)</b>	<b>(14,071)</b>	<b>(9,869)</b>
Debt financing	6,050	(446)	20,608	3,243	806
Capital increase	0	0	0	0	0
Dividends paid	(373)	(559)	(893)	(1,513)	(2,128)
Warrants & other surplus	(0)	26	(1)	(1)	(1)
<b>Cash flow from financing</b>	<b>5,677</b>	<b>(979)</b>	<b>19,714</b>	<b>1,729</b>	<b>(1,322)</b>
<b>Free cash flow</b>	<b>(4,063)</b>	<b>1,808</b>	<b>(13,742)</b>	<b>(5,777)</b>	<b>(81)</b>

**VALUATION**

*23x 2019F PE vs. 56%  
normalized earnings in  
2019F is undemanding in  
our view*

<b>FY ending Dec</b>	<b>2016A</b>	<b>2017A</b>	<b>2018F</b>	<b>2019F</b>	<b>2020F</b>
Normalized PE (x)	45.4	40.0	35.3	22.7	19.9
Normalized PE - at target price (x)	124.1	109.2	96.5	62.0	54.3
PE (x)	46.2	39.3	28.9	22.7	19.9
PE - at target price (x)	126.2	107.5	78.9	62.0	54.3
EV/EBITDA (x)	32.3	26.6	25.8	17.9	14.6
EV/EBITDA - at target price (x)	80.4	66.4	61.6	41.9	34.0
P/BV (x)	13.2	10.2	7.9	6.2	5.1
P/BV - at target price (x)	36.0	28.0	21.6	17.0	13.9
P/CFO (x)	47.9	29.6	29.7	17.4	14.7
Price/sales (x)	14.4	13.0	11.5	8.6	5.8
Dividend yield (%)	0.4	0.5	0.7	1.3	1.5
FCF Yield (%)	(2.7)	1.2	(9.2)	(3.8)	(0.1)
<b>(Bt)</b>					
Normalized EPS	0.9	1.0	1.1	1.8	2.0
EPS	0.9	1.0	1.4	1.8	2.0
DPS	0.2	0.2	0.3	0.5	0.6
BV/share	3.1	3.9	5.1	6.5	7.9
CFO/share	0.8	1.4	1.4	2.3	2.7
FCF/share	(1.1)	0.5	(3.7)	(1.5)	(0.0)

Sources: Company data, Thanachart estimates

**FINANCIAL RATIOS**

<b>FY ending Dec</b>	<b>2016A</b>	<b>2017A</b>	<b>2018F</b>	<b>2019F</b>	<b>2020F</b>
<b>Growth Rate</b>					
Sales (%)	13.0	11.4	12.9	32.8	49.4
Net profit (%)	21.0	17.4	36.1	27.4	14.2
EPS (%)	21.0	17.4	36.1	27.4	14.2
Normalized profit (%)	22.7	13.7	13.2	55.7	14.2
Normalized EPS (%)	22.7	13.7	13.2	55.7	14.2
Dividend payout ratio (%)	17.2	19.5	20.0	30.0	30.0
<b>Operating performance</b>					
Gross margin (%)	45.8	47.8	49.1	55.2	46.4
Operating margin (%)	41.3	43.2	42.3	48.2	39.0
EBITDA margin (%)	52.0	56.4	55.5	62.4	51.7
Net margin (%)	31.8	33.0	31.9	37.6	31.0
D/E (incl. minor) (x)	2.5	1.9	2.5	2.1	1.7
Net D/E (incl. minor) (x)	2.1	1.6	1.9	1.8	1.5
Interest coverage - EBIT (x)	4.3	4.2	4.1	4.5	5.1
Interest coverage - EBITDA (x)	5.4	5.5	5.4	5.9	6.7
ROA - using norm profit (%)	8.9	8.7	7.5	9.0	9.2
ROE - using norm profit (%)	33.2	28.8	25.3	30.8	28.2
<b>DuPont</b>					
ROE - using after tax profit (%)	33.2	29.3	24.8	30.3	30.0
- asset turnover (x)	0.3	0.3	0.2	0.2	0.3
- operating margin (%)	41.6	43.4	42.7	48.7	39.4
- leverage (x)	3.7	3.3	3.4	3.4	3.1
- interest burden (%)	77.0	76.4	75.9	78.1	80.5
- tax burden (%)	99.4	99.4	98.4	98.8	97.8
WACC (%)	5.8	5.8	5.8	5.8	5.8
ROIC (%)	15.4	13.9	14.3	14.8	14.6
NOPAT (Bt m)	4,267	4,973	5,441	8,265	9,899

Sources: Company data, Thanachart estimates

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Recommendations are based on absolute upside or downside, which is the difference between the target price and the current market price. If the upside is 10% or more, the recommendation is BUY. If the downside is 10% or more, the recommendation is SELL. For stocks where the upside or downside is less than 10%, the recommendation is HOLD. Unless otherwise specified, these recommendations are set with a 12-month horizon. Thus, it is possible that future price volatility may cause a temporary mismatch between upside/downside for a stock based on the market price and the formal recommendation.

For sectors, an "Overweight" sector weighting is used when we have BUYs on majority of the stocks under our coverage by market cap. "Underweight" is used when we have SELLs on majority of the stocks we cover by market cap. "Neutral" is used when there are relatively equal weightings of BUYs and SELLs.



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