

Phatra Sales Report



EA – BUY the future now

Price: Bt47.75 | Consensus's price objective Bt69

Pioneering Thailand's RE industry since 2011

Becoming Thailand's largest EV and ES battery producer

Appealing growth story following future trend and demand

Favorable competitive landscape with government's support

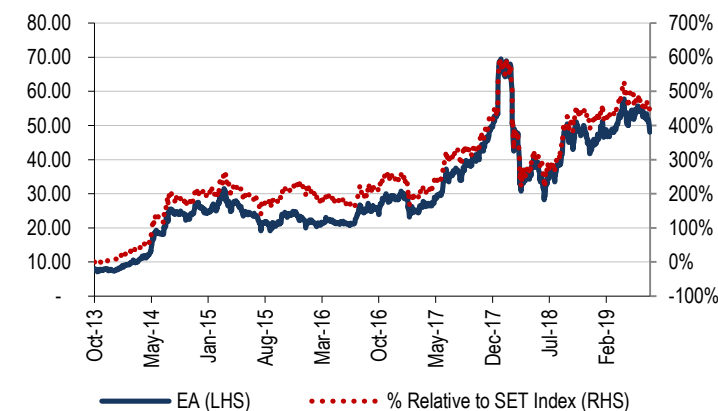
Proven track record with 664MW solar and wind delivered

Atttractive risk-reward profile; upside of 42% to current price

52-Week Range	Bt58.50-Bt33.25
Mrkt Val / Shares Out (m)	US\$5,813 / 3,730
Market Value (Bt m)	179,040
Average Daily Value (Bt m)	629.64
Free Float	39.88%

Price Chart

Source: SET



Disclaimer:

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EA – Energy Absolute PCL

Chart 1: Global EV battery capacity growth (CAGR18%) : 2018-30E

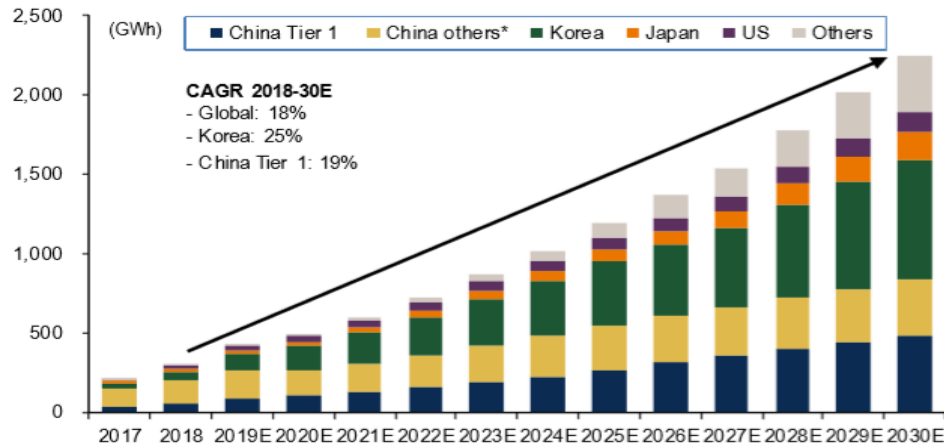
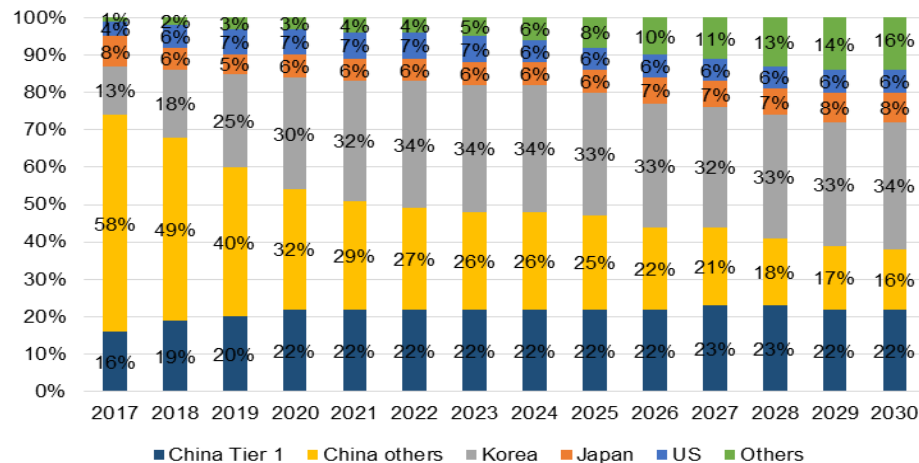


Chart 2: China and Korea to dominate EV battery market



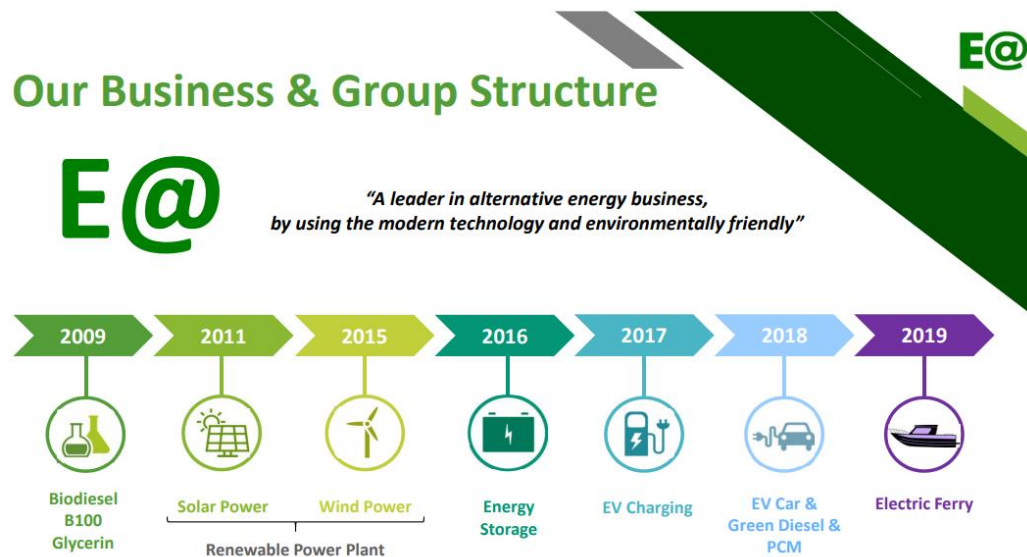
Energy Storage – Just a matter of time

- EV battery and energy storage (ES) are the future technology trend with rising demand over the next ten years.
- EA will be the first and largest EV & ES battery producer Thailand; the production plant is expected to commence in 1Q20.
- Thailand’s Energy Minister aims to include ES into the new Power Development Plan 2018-2037, which would favor ES demand and the possibility of EA’s ES factory.
- While there is a concern on feasibility of EA’s ES factory. We believe its premature to take this as a failure.
- EA has a visible chance to run at least 20GWh ES factory within 2030. The capacity is only 1% of global market share and in line with the potential domestic demand given 5GWh from vehicles and 15GWh from renewable energy.
- There will be three cases for EA’s valuation, including; blue-sky case, base case, and bear case. Each case would offer upside/downside, based on the valuation of ES capacity. Despite using a base case (20GWh), the stock still offers a 33% upside to the current share price.

Source: Company data, BofA Merrill Lynch Global Research

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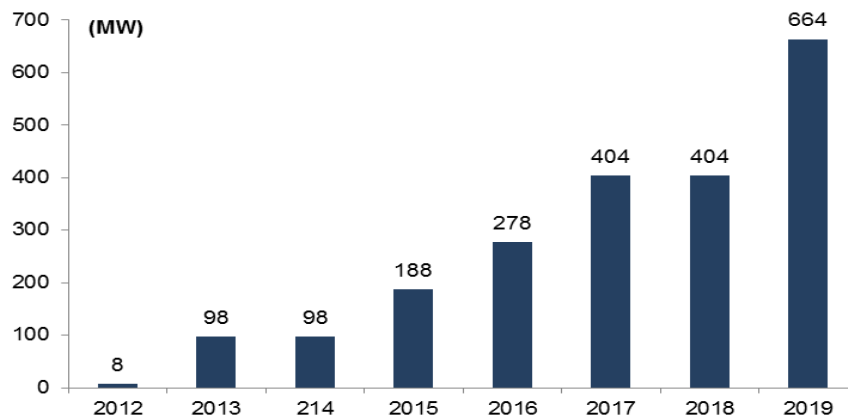
Chart 3: EA's businesses



All eyes on EA

- EA is one of the largest renewable energy (RE) companies in Thailand and currently operates three core businesses, including biodiesel, solar farm, and wind farm.
- Biodiesel business contributes minimal earnings given a low utilization rate of 50-60% due to an oversupply.
- Solar and wind farms are the primary source of earnings, which have a total capacity of 664MW, comprising solar farm of 278MW and wind farm of 386MW. EA's Solar farm has a substantial high margin given Bt6.5/kWh adder, whereas wind farm has Bt3.5/kWh.
- Core businesses generate steady operating cash flow of c.Bt7bn/year. The adder, however, will start to expire by Oct22 onwards, which will reduce earnings significantly in 2024-2027.
- This encouraged EA to venture into a new business such as Energy Storage (ES), Electric cars (EV), and charging station.

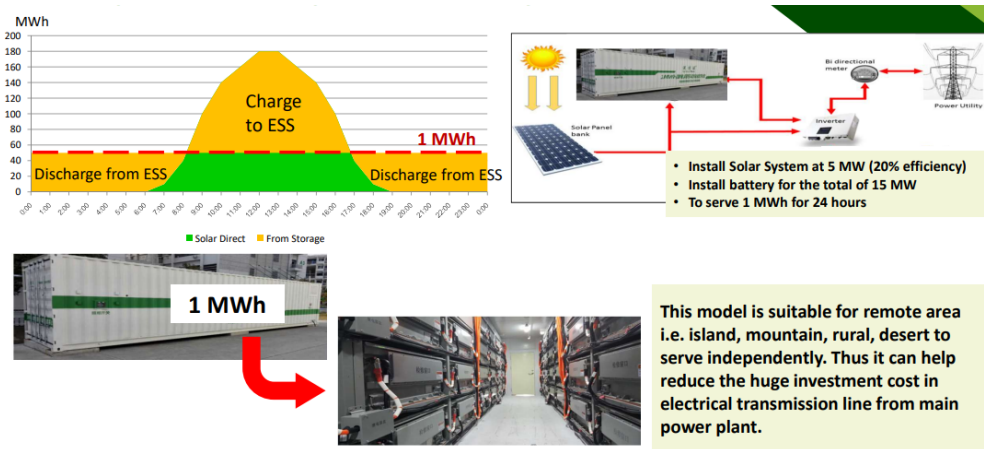
Chart 4: Proven execution record in RE business



Source: Company report, Phatra sales team

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Chart 5: Example of solar system and energy storage system



All eyes on EA

- For the initial phase, EA will invest Bt5bn for 1GWh, which is expected to commence in 1Q20. After that, they will expand to 50GWh within 2022 with total CAPEX plan of Bt100bn for the whole project, implying ~Bt2bn/GWh.
- The factory is located close to Bluetech City industrial estate in Chachoengsao province and has already been approved by the local government.
- Management expects total domestic demand of EV battery at 50GWh/year, based on 50% of total car production at ~2mn cars/year with an average capacity of 50kWh/car.
- Besides, energy storage system (ESS) will play a vital role in RE. ESS would stabilize and raise yields for 24 hours by charging power during the off-peak hours and discharging electricity during the on-peak hours.
- EA believes that the RE in ASEAN will be an addressable market to penetrate. According to the International Renewable Energy Agency, RE capacity (Solar and Wind) in ASEAN is expected to increase to 75GW by 2040 from 5GW in 2016.
- Assuming 10MW solar farm with 100% capacity factor, it will need to install 190MWh ES capacity. However, the possible case should be 40-60% capacity factor, which would result in 50-100MWh ES demand. These imply huge demand opportunity for ESS.

Chart 6: Huge demand opportunity for ESS

Solar farm 10MW

Install 50MW for 24 hours	438,000,000 kWh/year
Capacity factor	20%
Total capacity	87,600,000 kWh/year
Send to the grid	17,520,000 kWh/year
Storage capacity	70,080,000 kWh/year
Battery requirement	192,000 kWh/day
Battery requirement	192 MWh/day
Battery requirement	0.19 GWh

Source: Company report, Phatra sales team

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Chart 7: EA's electricity price structure

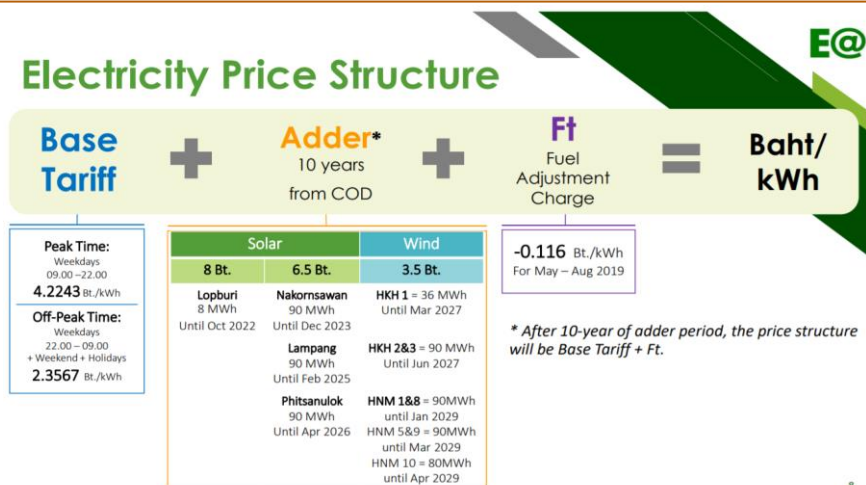
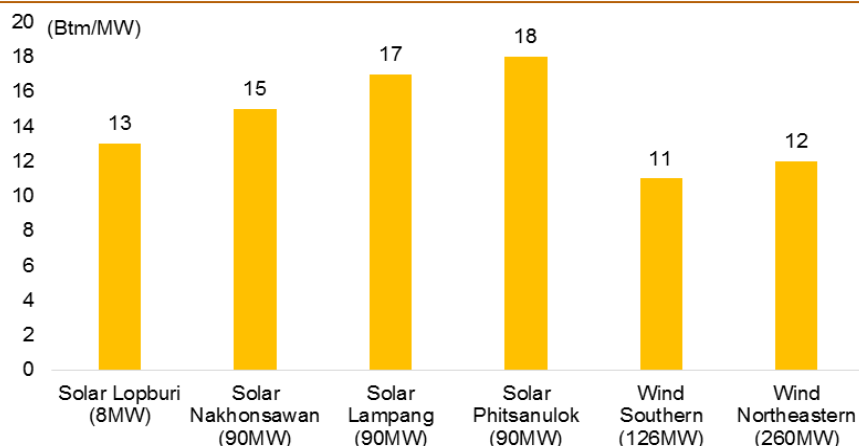


Chart 8: EA's profit per MW for each RE project



Source: Company report

RE business - A source of current cash flow

- EA has a total solar power capacity of 278MW with an average capacity factor of 20-30% vs. 20% industry average given the installation of tracking-system solar panel.
- Had Kangan wind farms in Songkhla and Nakhon Sritammarat (126MW) have an average capacity factor at 24%.
- Hanuman wind farms in Chaiyaphum (260MW) deliver higher capacity factor at 26%. Average wind speed at Hanuman is 5.8m/s, slightly higher than at Had Kangan at 5.3m/s.
- EA plans to develop 10-40MW solar-plus-energy-storage system (ESS) farm in Con Dao island in Vietnam. The project will replace the current diesel generators.
- The initial phase will be 8-10MW solar and 50MW ES capacity, which is expected to COD within 1H20.
- EA believes that it has the potential to develop up to 200MW in Vietnam.

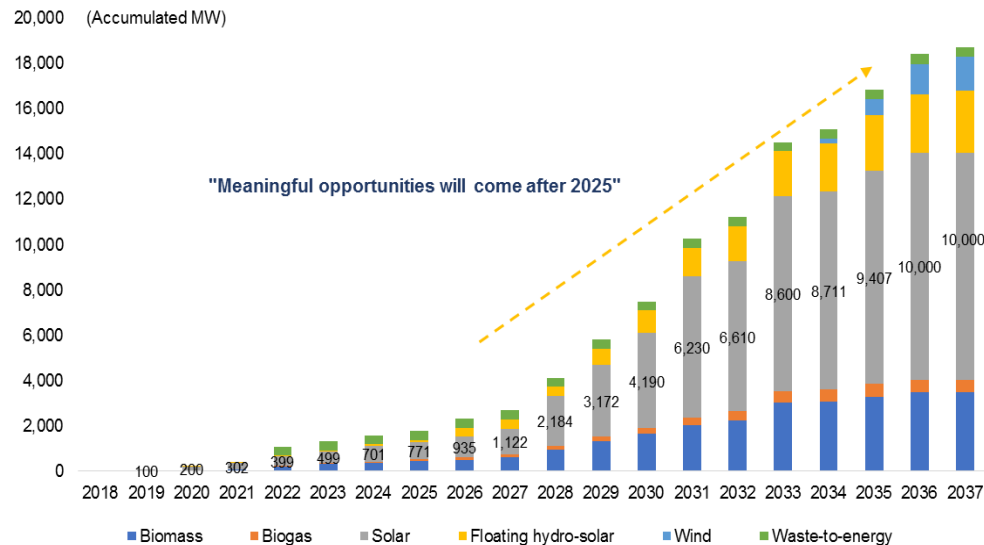
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Chart 9: Example of solar-plus-ESS projects in Hawaii

Project name	Island	Developer	Size	Storage	Cost per kWh
Waikoloa Solar	Hawaii	AES	30 MW	120 MWh	\$0.08
Hale Kuawehi	Hawaii	Innergex	30 MW	120 MWh	\$0.09
Kuihelani Solar	Maui	AES	60 MW	240 MWh	\$0.08
Paeahu Solar	Maui	Innergex	15 MW	60 MWh	\$0.12
Hoohana	Oahu	174 Power Global	52 MW	208 MWh	\$0.10
Mililani I Solar	Oahu	Clearway	39 MW	156 MWh	\$0.09
Waiawa Solar	Oahu	Clearway	36 MW	144 MWh	\$0.10

Source: [energy-storage.news](#)

Chart 10: Renewable energy opportunities (PDP2018)



Source: PDP2018

ES business – The future driver

- According to energy-storage news, Hawaii is an excellent example of the solar-plus-ESS project. Each project will have four hours of energy storage duration. The ESS will help reduce the usage of fossil fuels in Hawaii, particularly at times of peak demand and other times when solar production is low.
- EA targets to commence its first phase of 1GWh in 1Q20. Most investors concern on supply surplus in the battery business, but EA will mainly focus on ES for renewable energy given ample demand.
- Solar farm is the most suitable for the use of ES. Solar farms generally have a capacity factor of 20%. Assuming 10MW solar farm with 40-60% capacity factor, it will need to install 50-100MWh ES capacity.
- The company gave limited information and details on further expansion of 50GWh. EA aims to reach 50GWh within 2022, making the plant larger than Japanese electronics maker Panasonic's 35GWh factory for US-based Tesla in the state of Nevada.
- Moreover, EA expects revenue from batteries to account for half of its total revenue in the next five years.

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Chart 11: EA's charger station



Chart 12: EA's MINE Electric Vehicle



ES business – The future driver

- There are potential demand for EA's "MINE" EV cars. EA has signed an MOU with the taxi cooperative to deliver 3,500 EV cars and other retail sales of 1,500 EV cars by 1H20.
- An average selling price is Bt1.0-1.2mn/car, which is similar to MG EV car of Bt1.2m but lower about half compared to Nissan Leaf at Bt2mn.
- EA will start its EV assembly plant in Chachoengsao province worth Bt200mn within 4Q19 with a total production capacity of 15,000 units/year, while mgmt targets to sell 10,000 EV cars in 2020.
- Mgmt expects to reduce EV car price to Bt500,000-600,000 per car in 2020, which would drive up EV demand in tandem.
- EA's EV car sales target may be too optimistic as its price range and driving distance of 250km/charge are not competitive vs. MG EV car of 337km/charge with the same pricing. Hence, we do not expect to see a surge in demand for EA's EV car in the near term.
- The company will also be a public transport operator via 47 800kWh battery-powered ferries in 4Q19, and this project will be a showcase to prove that its batteries are capable.
- The charging network is on track to reach 1,000 stations by end 2019 to strengthen EV infrastructure.

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Energy Storage System (ESS) snapshot

- The most three beneficiaries of ESS that have widely claimed in public information include:

1) Time of Use (TOU): ESS can reduce electricity bill for residential users or enhance more return for power generators by storing the excess capacity during day-to-day operations, and then consume or sell it to the grid latter at peak times.

2) Energy Management: ESS can store an excess electricity during day-to-day operations, and then use or sell the stored electricity at other time as an energy management.

3) Uninterruptible Power Supply (UPS).

Chart 13: Solar vs. Solar-plus-ESS

Assumptions	Solar	Solar plus ESS
PPA (MW)	10	10
Capacity factor	20%	35%
Feed-in Tariff (Bt)	4.12	4.12
D/E	3/1	3/1
Interest rate	4%	4%
Installed capacity of solar PV (MW)	10	15
CAPEX per MW (Btm)	45	45
Battery cost per kWh (US\$/kWh)		150
Installed capacity of ESS (MWh)		24
Total CAPEX (Btm)	450	787
IRR	12.6%	10.0%
Annual FCFF (Btm)	65	97
Annual net profit (Btm)	33	45

Possibility of ESS in Thailand

- For residential:** Installing ESS aiming for reducing TOU charges is currently not practical in Thailand since the electricity generated from solar rooftop during the day has higher opportunity cost. So, the power should be used or sold to the grid immediately. Note that, EGAT set an electricity purchase price at Bt1.68/kWh and an electricity fee at Bt3.68/kWh. Need Govt. support!
- For solar operator:** Under power purchasing agreement (PPA), an electricity generator will receive contractual terms which generally last for 25 years, while electricity rates and expected power production are agreed upon as the basis for a PPA. Thus, installing ESS and adding more installed capacity are prohibited for the present solar farm projects in Thailand. Need Govt. support!

Deregulation to support ESS's possibility

- On a positive note, Thailand's Energy Minister revealed that the country's power development plan (PDP2018) should be reviewed and included ESS. Higher proportion of renewable energy is expected, especially solar farm, which should be a captive demand for ESS. And this should favor the possibility of EA's ES factory.
- If, however, Thai government allows the installation of ESS with no tariff subsidy, the project will provide higher free cash flow under the same PPA given larger capacity factor. Cheaper ESS price would result in higher IRR and encourage operators to invest solar plus ESS.

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Chart 14: Projected renewable MW breakdown under new PDP

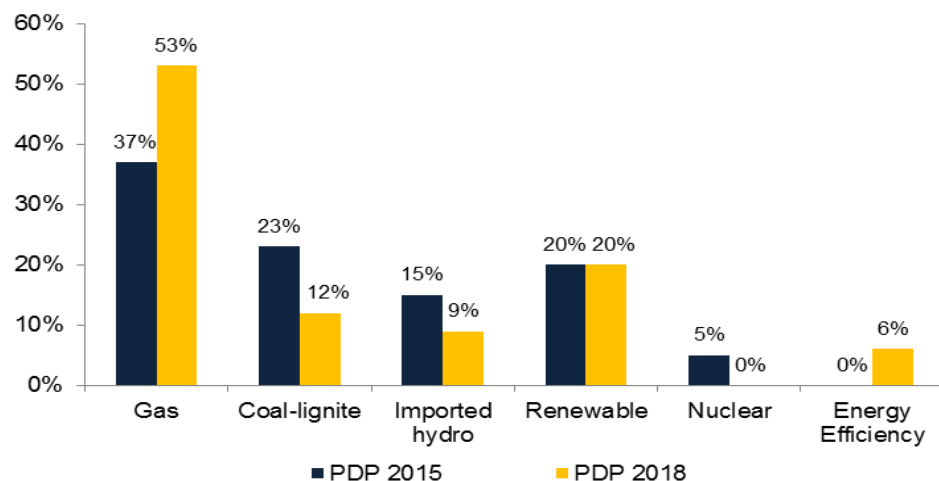
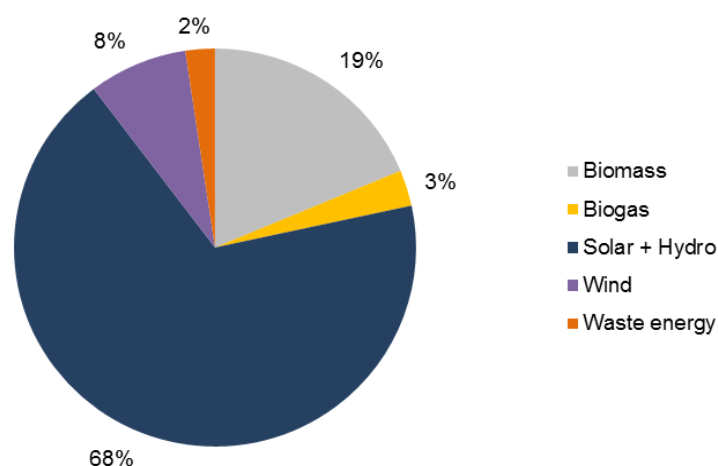


Chart 15: Projected renewable MW breakdown under new PDP



Potential opportunities from new revised PDP2018

- According to the latest PDP2018, renewable energy became less attractive compared to the past 10 years, given lower IRR and limited quotas. The renewable quotas will come after 2025 onwards due to the recent country's excessive power capacity. That is why we have seen many private investors seeking new opportunities overseas like in Vietnam and Japan.
- However, the PDP2018 may have some changes to support renewable energy according to the Energy Minister. The minister targets people at all levels should reach electricity and participate in electricity production to reduce personal expense.
- We still have limited information on the new revised PDP2018. But, we expect the government to revise up electricity proportion of renewable energy, increase the purchase price of solar rooftop, and encourage installing ESS for new renewable projects under PPA.
- **Government's support is a must for domestic ESS demand!**

Chart 16: Projected renewable MW

	PDP 2015	PDP 2018	% change
Biomass	5,570	3,496	-37%
Biogas	1,280	546	-57%
Solar + Hydro	9,282	12,725	37%
Wind	3,002	1,485	-51%
Waste energy	500	444	-11%
Total	19,634	18,696	-5%

Source: PDP 2018, Phatra Securities

Source: PDP 2015, PDP 2018, Phatra Securities

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Chart 17: Cathode materials trend

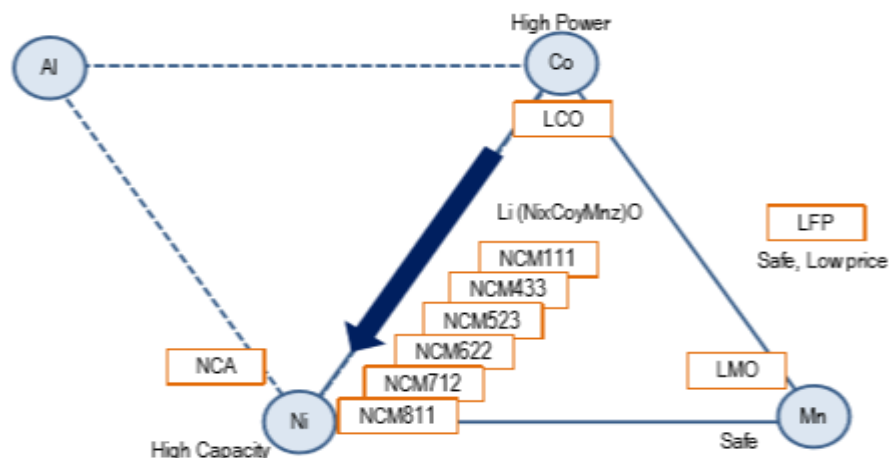


Chart 18: Main companies exposed to the EV battery value chain

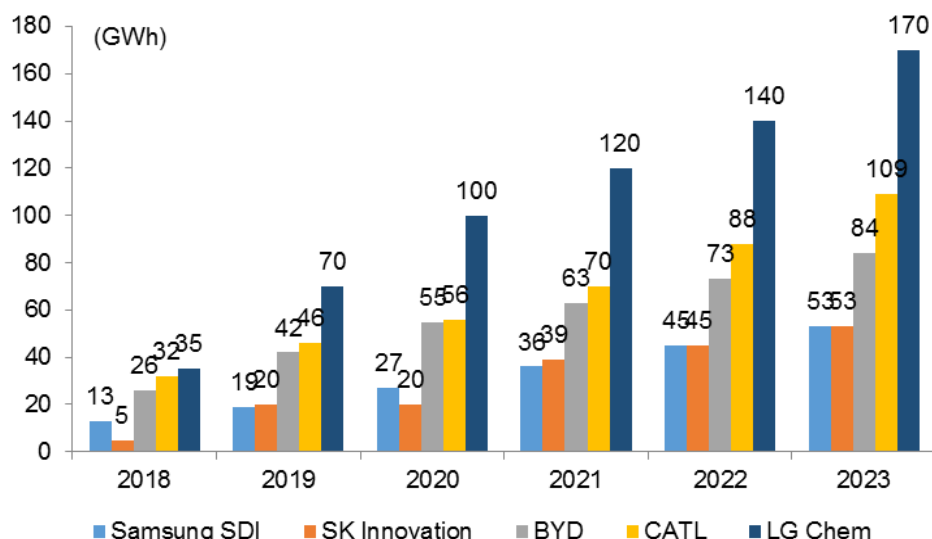
Mining		Component & Module Production & Assembly		EV Vehicle	
Companies Exposed		Companies Exposed		Companies Exposed	
Lithium	Cobalt	Cathode	Separator	Battery suppliers	Auto OEM
SQM	Glencore	Umicore	Asahi Kasei	LG Chem	Tesla
Albemarle	China Molybdenum	Ningbo Shanshan	Toray	Samsung SDI	Nissan
FMC	Manganese	Beijing Easpring	Sumitomo Chem	BYD	Renault
Tianqi Lithium	Eramet	Toda Kogyo	W-Scope	Panasonic	GM
Ganfeng Lithium	Anglo American	Sumitomo MM	Ube Industries	SK Innovation	BMW
Nickel		L&F	Teijin	CATL	Volkswagen
Vale		Ecopro	Electrolytic foil	Guoxuan Hitech	Hyundai Motor
Norilsk Nickel		Anode	Furukawa Electric	GS Yuasa	SAIC
BHP Billiton		Hitachi Chem	Ijin Materials		Geely
		Mitsubishi Chem			
		Mitsui Mining & Smelting			
		POSCO Chemical			

Global EV battery industry at a glance

- There is no denying that EV battery and energy storage are the future technology trend that is going to change our lives. These attract giant companies such as SK Innovation, Samsung, LG, CATL, BYD, Panasonic, and Tesla to focus on the battery business.
- Many automakers have started their R&D and production units for battery to compete with pure battery producers.
- Some governments subsidize funding and other resources to enhance battery technology.
- A lithium-ion battery (Li-ion) is currently the most reliable, stable, and safest solution. Most of the li-on producers are shifting into high nickel NCM811 (the number represents the mixing ratio of nickel, manganese, and cobalt) to reduce costs and increase capacity.
- The competition seems very intense. Economies of scale have yet to reach; most of the battery producers are contributing loss at the initial stage. Only CATL company that reported operating profit in 2018 given 31.5GWh sold with 40% EV battery market share in China.

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Chart 19: Capacity growth from Korean and Chinese tier-1 manufacturers



Source: Company data, BofA Merrill Lynch Global Research

Chart 20: Comparison between global leading battery players

Key players	CATL	Panasonic	LG Chem	BYD	Samsung SDI	SK Innovation
2018 EV battery sales (USD mn)	3,659	3,840	2,727	NA	1,242	291
2018 EV battery OP margin (%)	15.5%	Operating loss	Operating loss	NA	Operating loss	Operating loss
2018 year end EV battery capacity (Mwh)	31,500	32,000	35,000	26,500	15,500	4,700
2018 EV battery shipment (Mwh)	21,180**	21,000	13,500	13,370	6,400	1,500
Sales breakdown by battery type	NCM 55%, LFP 45%	NCA 90%+, NCM 10%	NCM 100%	NCM 61%; LFP 39%	Mostly NCM 622	NCM 100%
Key clients	Geely, SAIC, GAC, Dongfeng, Chery	TESLA, Toyota, VW	GM, Renault, Hyundai/Kia, Ford, Audi, Volvo	Mainly for internal use; will ship to DFM and Changan soon	Volkswagen, BMW, Audi, Porsche, Jaguar	Daimler, Hyundai, Kia
Battery shape	Prismatic, Pouch	Cylindrical, Prismatic	Pouch	Prismatic	Prismatic	Pouch

Source: BofA Merrill Lynch Global Research, Company data

*Note that for Samsung SDI, sales and margins are for pure EV batteries but capacity includes ESS which can also be used for EV.

Global EV battery will grow by 18% CAGR till 2030

- BAML expects global battery capacity will grow by 18% CAGR to 2,250GWh in 2030 from 300GWh in 2018 (205GWh in China). China and Korea will account for 70% of total capacity. China demand should be 500GWh in 2030 (vs. 56GWh in 2018) vs. expected total capacity of 850GWh.
- Current utilization remains low at only 30% due to a supply surplus but should improve shortly following a higher battery demand.
- Battery demand is forecast to grow by 20-25% CAGR during the same period driven by lower cost differential between EV and Internal Combustion Engine (ICE) coupled with improving infrastructure.
- Battery cell/full pack price per KWh is expected to reduce to \$80/\$104 in 2025 and \$58/\$73 in 2030 (from \$172/\$232 currently). Lower battery prices would boost the demand for EV cars over ICE as 40-50% of total costs are EV battery.
- If battery demand increases as analyst expectation, li-ion batteries will require enormous scaling up of manufacturing to lower per-unit cost. Utilization rate will improve substantially, and higher economies of scale would enable battery producers to become profitable.

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Chart 21: EV cost breakdown (Hyundai Motor)

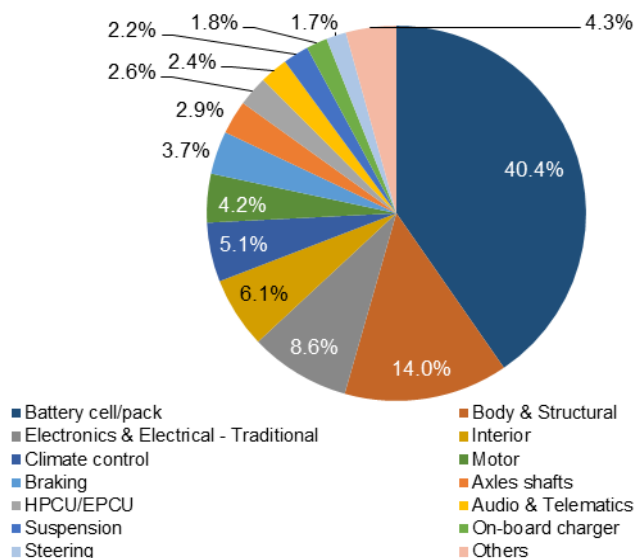


Chart 22: Battery cell cost

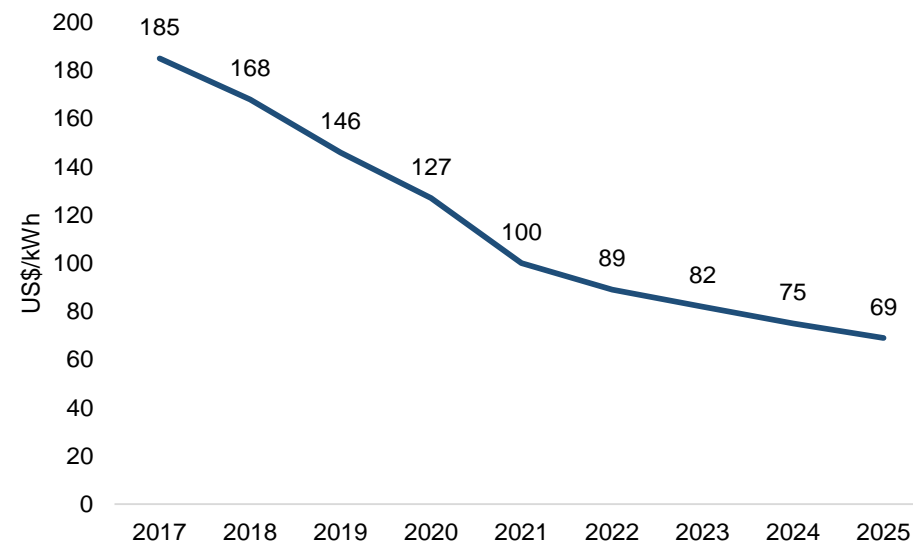


Chart 23: Comparison of Li-ion battery with future technology batteries

	Lithium ion	Fuel cell	Solid state batteries	Lithium-Sulfur	Metal-Air
Cathode	LCO, LFP, NCA, NCM, LMO	Air	LiCoO2/LiMn2O4/N/2O5	Carbon/ Sulfur	Air
Anode	Graphite, Lithium titanate	Hydrogen gas	Li Metal or Sn3N4	Lithium metal	Aluminum, Zinc, Lithium, Potassium
Specific energy	100-250Wh/Kg	400-600Wh/kg	400Wh/Kg	300-800Wh/Kg	800-6,000Wh/Kg
Energy density	250-676Wh/L			350Wh/L	
Pros	High energy density Low self-discharge Low maintenance	High efficiency Longer range	High-energy density No leakage problem Long shelf lives	Relatively light in weight Nonlinear discharge	Higher energy density Longer driving range
Cons	Expensive to manufacture Protection required Subject to ageing effect	High cost Thermal instability Low safety	Low-power density Expensive Difficult to manufacture	Unwanted reactions with electrolytes Rapid degradation	Limited shelf life Low areal power
Application	Tesla, Nissan and many others	Electric vehicles, powerback-up	Toyota and Sakti3 researching for EV	Electric vehicles	Electric vehicles, grid backup

Source: BofA Merrill Lynch Global Research estimates

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Valuation – Belief and disbelief

- We believe that there will be three cases for EA's valuation, including; blue-sky case, base case, and bear case. The assumptions are subjective in each case, based on the capacity of the ES business. The current RE business will be a base for every case.
- We value the RE business at Bt27.7/sh, based on solar farms of 278MW and wind farms of 386MW by using WACC at 4.7%, RF of 2.5%. The adder will expire in 10 years after COD, and we have already factored in our assumption.
- For ES business, EA expects the ES factory to commence its Phase 1 (1GWh) in 1Q20 and will expand to 50GWh within three years with several phases of 4GWh each. But, that seems to be a blue-sky case. We assumed 7.2% WACC and 3% terminal growth with 25-30% GPM in our assumption vs. guidance of 40%.
- The EA's ES has the potential to be a loss-making business in the initial ramping-up period (~3 years). But, EBITDA level should remain positive and earnings to turn profitable later given higher utilization. Note that our assumptions are based on the company guidance with limited information provided.

Solar farm business

Project	Contracted capacity (MW)	Ownership	COD	Status	Revenue	Solar panel's base
Lopburi	8	100%	17-Oct-12	Sign PPA	Adder Bt 8.0	Non-adjustable
Nakhonsawan	90	100%	23-Dec-13	Sign PPA	Adder Bt 6.5	Non-adjustable
Lampang	90	100%	17-Feb-15	Sign PPA	Adder Bt 6.5	Tacker
Phitsanulok	90	100%	01-Apr-16	Sign PPA	Adder Bt 6.5	Tacker

Wind farm business

Project	Contracted capacity (MW)	Ownership	COD	Status	Revenue	Location
Had Kanghan 1	36	100%	03-Mar-17	Sign PPA	Adder Bt 3.5	Songkla
Had Kanghan 2	45	100%	10-Jun-17	Sign PPA	Adder Bt 3.5	Nakohon Si Thammarat
Had Kanghan 3	45	100%	23-Jun-17	Sign PPA	Adder Bt 3.5	Nakohon Si Thammarat
Hanuman 1 & 8	90	100%	25-Jan-19	Sign PPA	Adder Bt 3.5	Chaiyaphum
Hanuman 5	48	100%	22-Mar-19	Sign PPA	Adder Bt 3.5	Chaiyaphum
Hanuman 9	42	100%	30-Mar-19	Sign PPA	Adder Bt 3.5	Chaiyaphum
Hanuman 10	80	100%	13-Apr-19	Sign PPA	Adder Bt 3.5	Chaiyaphum

Source: Company report

EA – Energy Absolute PCL

Blue-sky case (a real believer)

Blue-sky case: Based on the EA's guidance, we assumed US\$110-150/kWh selling price, Bt31/US\$ FX and, 30% GPM. If we impute Phase 2 of 50GWh within 2030, we will derive the ES business value of Bt80/sh. In sum, we expect total company value of c.Bt108/sh. We have yet factored in PCM, EV cars, and public transport businesses in our valuation, which could raise the business value by Bt3-5/sh.

Blue-sky case valuation

Project	Project Capacity (MW)	EA's Capacity	Target Price (Bt)
Power business			27.7
Solar power business	278	278	12.2
Wind power business	386	386	14.6
Bio-diesel business			0.9
Energy Storage business			80.3
50GWh Energy Storage (100% owned)			77.5
50MWh overseas projects			2.8
Total			108.0

EA's 50GWh ES factory assumptions

	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Selling price \$US/kWh	150	150	150	130	130	130	130	120	120	120	110
Capacity (GWh)	0.5	2	4	12	16	20	28	36	40	44	50
Total revenue (Bt mn)	1,628	7,440	14,880	38,688	51,584	64,480	90,272	107,136	104,160	114,576	119,947
EBIT (Bt mn)	107	1,078	2,648	6,843	8,428	10,431	14,854	16,896	14,989	16,447	16,585
Net profit (Bt mn)	(118)	(392)	(502)	3,643	5,278	7,731	12,604	15,096	12,276	13,526	13,715

EA – Energy Absolute PCL

Bear case (a disbeliever)

Bear case: We value EA based on the current RE business, 50MWh overseas projects, and 1GWh ES factory, deriving the company value of Bt33/sh. **If there is no government support on ESS, it would be difficult to boost domestic demand of ES battery.**

Bear-case valuation

Project	Project Capacity (MW)	EA's Capacity	Target Price (Bt)
Power business			27.7
Solar power business	278	278	12.2
Wind power business	386	386	14.6
Bio-diesel business			0.9
Energy Storage business			5.3
1GWh Energy Storage			2.4
50MWh overseas projects			2.8
Total			33.0

EA's 1GWh ES factory assumptions

	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Selling price \$US/kWh	150	150	150	130	130	130	130	120	120	120	110
Capacity (GWh)	0.5	1	1	1	1	1	1	1	1	1	1
Total revenue (Bt mn)	1,628	4,185	4,185	3,627	3,627	3,627	3,627	3,348	3,348	3,348	3,069
EBIT (Bt mn)	107	597	754	626	626	626	626	561	561	561	497
Net profit (Bt mn)	(118)	372	551	446	468	491	513	471	445	449	404

EA – Energy Absolute PCL

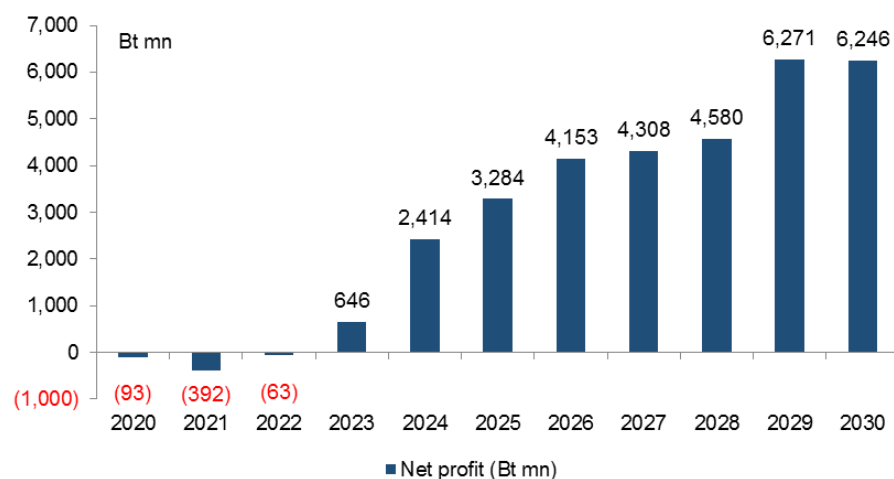
Base case

Base case: We value EA based on the current RE business, 50MWh overseas projects, and 20GWh ES factory with our assumptions of US\$110-150/kWh selling price, Bt31/US\$ FX, and 25% GPM. We derive the company value of Bt67/sh.

Base-case valuation

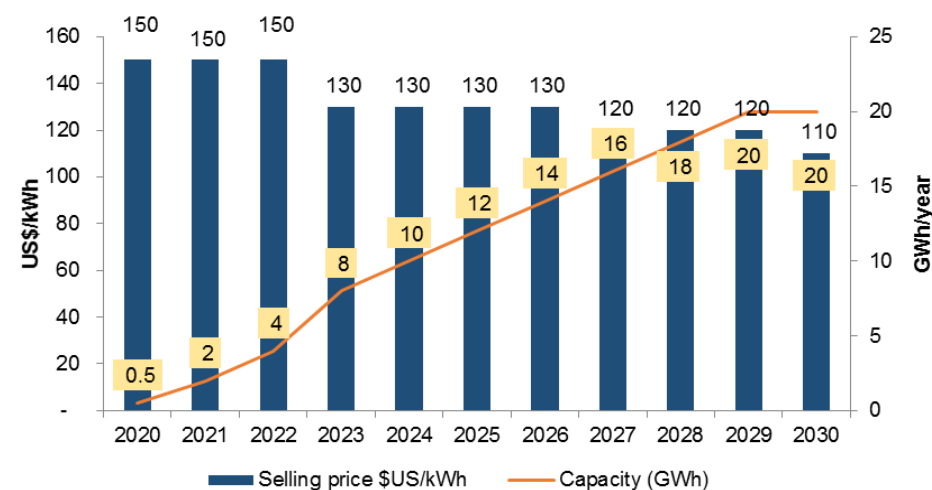
Project	Project Capacity (MW)	EA's Capacity	Target Price (Bt)
Power business			27.7
Solar power business	278	278	12.2
Wind power business	386	386	14.6
Bio-diesel business			0.9
Energy Storage business			39.3
20GWh Energy Storage (100% owned)			36.5
50MWh overseas projects			2.8
Total			67.0

Chart 24: EA's 20GWh ES factory net profit forecast



Source: Company guidance, Phatra sales team

Chart 25: EA's 20GWh ES factory assumptions



EA – Energy Absolute PCL

Summary

We believe it is premature to take this battery factory as a failure given the rising battery demand, while there are many Solar+ESS projects in Hawaii, Australia, and Korea. Meanwhile, other ASEAN countries started to study and develop renewable energy plus ESS that could drive the demand. Besides, some Japanese carmakers plan to invest facilities and produce plug-in hybrid electric vehicles, hybrid electric vehicles, and EV cars in Thailand in the next few years, which would support EV battery demand.

Investors may concern on competitive advantage of its ES's factory compared to Chinese and Korean producers. Battery is heavy and pricey to transport. We believe that EA has favorable competitive landscape in ASEAN given no competitor here and lack of R&D technology. The market of EV and ES batteries are huge. EA has a visible chance to run at least 20GWh ES factory within 2030; the capacity is only 1% of global market share.

Despite using a base case (20GWh ES factory), the stock still offers a 42% upside to the current share price. All bets are off if the government does not support ESS in Thailand, but that that is unlikely to happen in our view.

Chart 26: Financial summary

Year to Dec	2014	2015	2016	2017	2018	2019F	2020F	2021F
Sales (Btm)	7,583	9,197	10,392	11,580	12,447	16,157	22,460	34,832
Growth (%)	93	21	13	11	7	30	39	55
EBITDA (Btm)	2,343	4,066	5,529	6,395	6,912	10,201	12,206	14,791
Growth (%)	475	74	36	16	8	48	20	21
Recurring profit (Btm)	1,608	2,687	3,354	3,757	3,915	6,442	7,814	9,640
Growth (%)	500	67	21	17	4	65	21	23
Net profit (Btm)	1,608	2,687	3,251	3,817	4,975	6,442	7,814	9,640
EPS (Bt)	0.43	0.72	0.87	1.02	1.33	1.73	2.09	2.58
Growth (%)	500	67	21	17	30	29	21	23
PE (x)	111	66	55	47	36	28	23	18
DPS (Bt)	0.02	0.02	0.10	0.20	0.20	0.50	0.68	1.07
Yield (%)	0.0	0.0	0.2	0.4	0.4	1.0	1.4	2.2
BVPS (Bt)	1.6	2.3	3.1	4.0	5.2	6.1	7.0	7.9
P/BV (x)	30.2	20.9	15.6	12.1	9.1	7.8	6.8	6.0

Source: Company report, Consensus estimate

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