A LEADER IN ASIA'S GREEN ENERGY BUSINESS

Energy Absolute is leading the way in Thailand's fast growing alternative energy industry, maximizing the best knowledge and in-house technology to really make a difference.

For Q4/2018

Energy Absolute

Energy for Future

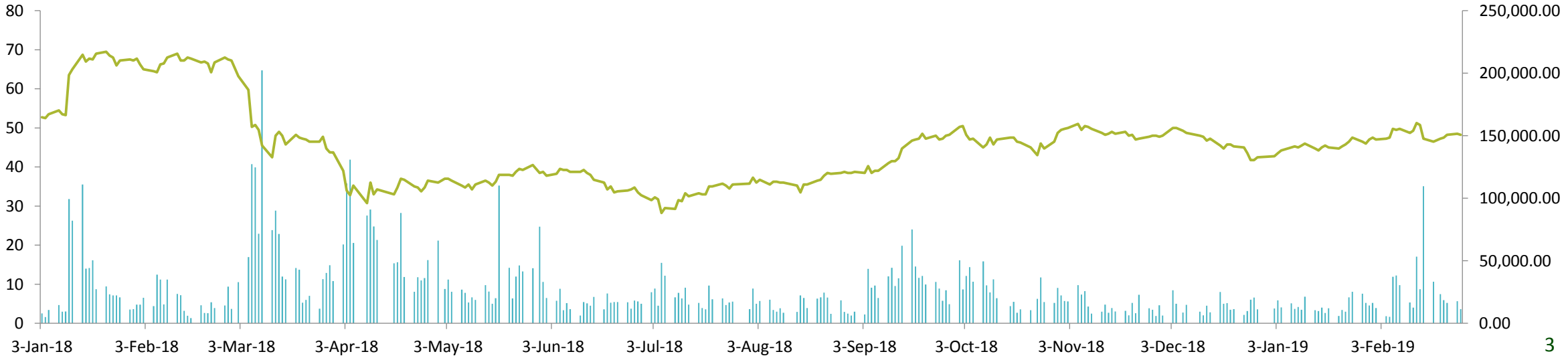
AGENDA

1. Over View
2. Our Power Business
3. Our Biodiesel Business
4. Our Financial Results
5. Our Growth

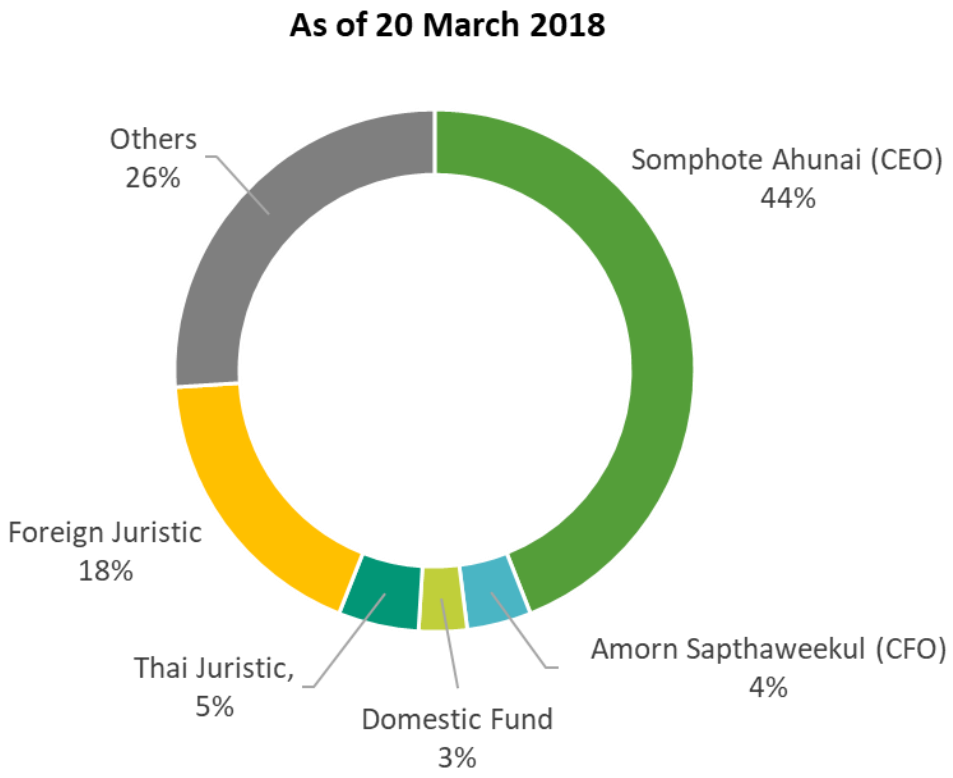
E@ at a Glance

Established	In 2006 to produce palm oil
Core Business	Energy (Renewable and Utilities)
Secondary Market	The Stock Exchange of Thailand since 30 Jan 2013
Market Capitalization As of 1 Mar 2019	Approximately THB 178.11 billion (US$ 5.57 billion) SET50 Index 1 Jul 2017 · FTSE 15 Sep 2017 · THSI 18 Oct 2018
Credit Rating	Corporate rating : **A-**
Liquidity	Free Float 39.87%

Closed price : THB/share **'000 shares**



Shareholder Structure



Number of Total Shareholders	= 17,888
Free Float	= 39.86%

Mr.Somphote Ahunai
Chief Executive Officer

Education
- MBA from University of Pittsburgh, USA
- Bachelor of Engineering from Chulalongkorn University, Thailand

Previous Work
- Analyst and Researcher in USA.
- Managing Director of a Securities Brokerage company in Thailand
- Managing Director of a Renewable Energy company in Thailand

Mr.Amorn Sapthaweekul
Deputy to CEO and Chief Finance Officer

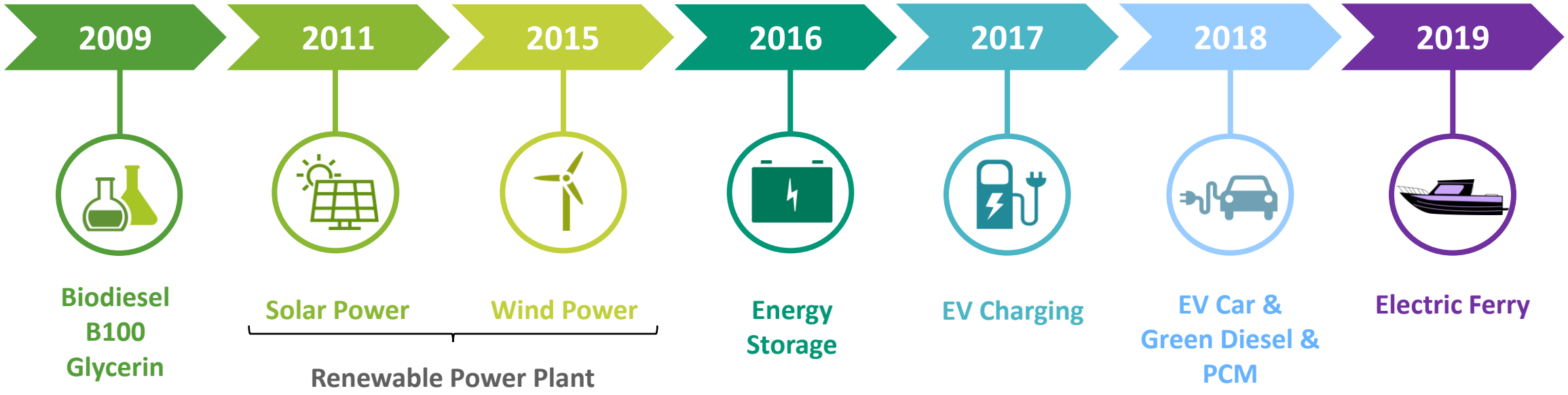
Education
- Master of Science from Chulalongkorn University, Thailand
- Bachelor of Business Administration (Finance and Banking) from Thammasat University, Thailand

Previous Work
- Investment Banker and Financial Advisor,
- Director in a Renewable Energy company

Our Business & Group Structure

E@

"A leader in alternative energy business, by using the modern technology and environmentally friendly"



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Electricity Price Structure

Base Tariff + **Adder** 10 years from COD + **Ft** Fuel Adjustment Charge = **Baht/kWh**

Peak Time:
Weekdays
09.00 –22.00
4.2243 Bt./kWh

Off-Peak Time:
Weekdays
22.00 – 09.00
+ Weekend + Holidays
2.3567 Bt./kWh

Solar		Wind
8 Bt.	6.5 Bt.	3.5 Bt.
Lopburi 8 MWh Until Oct 2022	**Nakornsawan** 90 MWh Until Dec 2023	**HKH 1** = 36 MWh Until Mar 2027
	Lampang 90 MWh Until Feb 2025	**HKH 2&3** = 90 MWh Until Jun 2027
	Phitsanulok 90 MWh Until Apr 2026	**Hanuman Projects** 260 MWh

-0.116 Bt./kWh
For Jan – Apr 2019

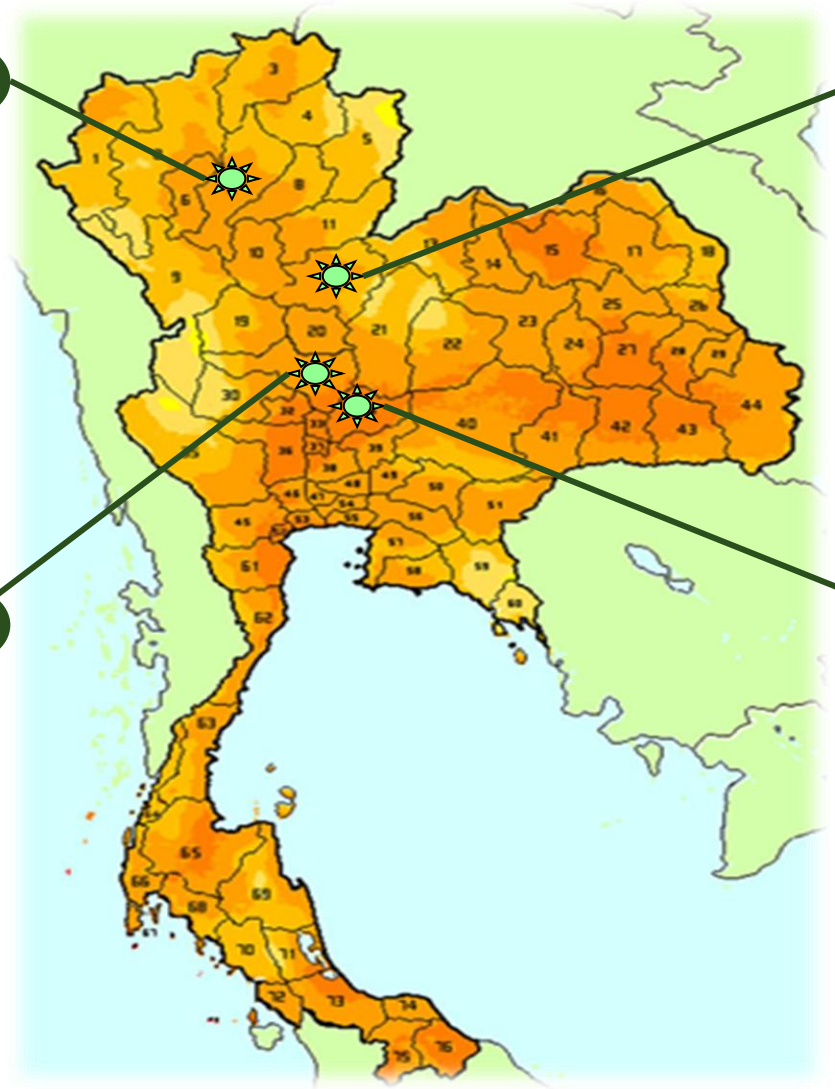
Solar Power 278 MW

3 Lampang (THB 8.07 bil)

Contracted Cap:	90 MW
Installed Cap :	128.396 MW
Technology:	**Tracking system**
COD :	**17 Feb 2015**
Land area :	2,354 Rais (930 acres)
Adder :	**6.50 baht/kwh**

2 Nakornsawan (THB 6.7 bil)

Contracted Cap:	90 MW
Installed Cap :	126.126 MW
Technology:	**Fixed system**
COD :	**23 Dec 2013**
Land area:	1,858 Rais (735 acres)
Adder :	**6.50 baht/kwh**



4 Phitsanulok (THB 9.5 bil)

Contracted Cap:	90 MW
Installed Cap :	133.92 MW
Technology:	**Tracking system**
COD :	**1 Apr 2016**
Land area :	1,800 Rais (732 acres)
Adder :	**6.50 baht/kwh**

1 Lopburi (THB 812 mil)

Contracted Cap:	8 MW
Installed Cap :	9.33 MW
Technology:	**Fixed System**
COD :	**17 Oct 2012**
Land area:	315 Rais (124.5 acres)
Adder :	**8 baht/kwh**

1 acre = 2.529 rais

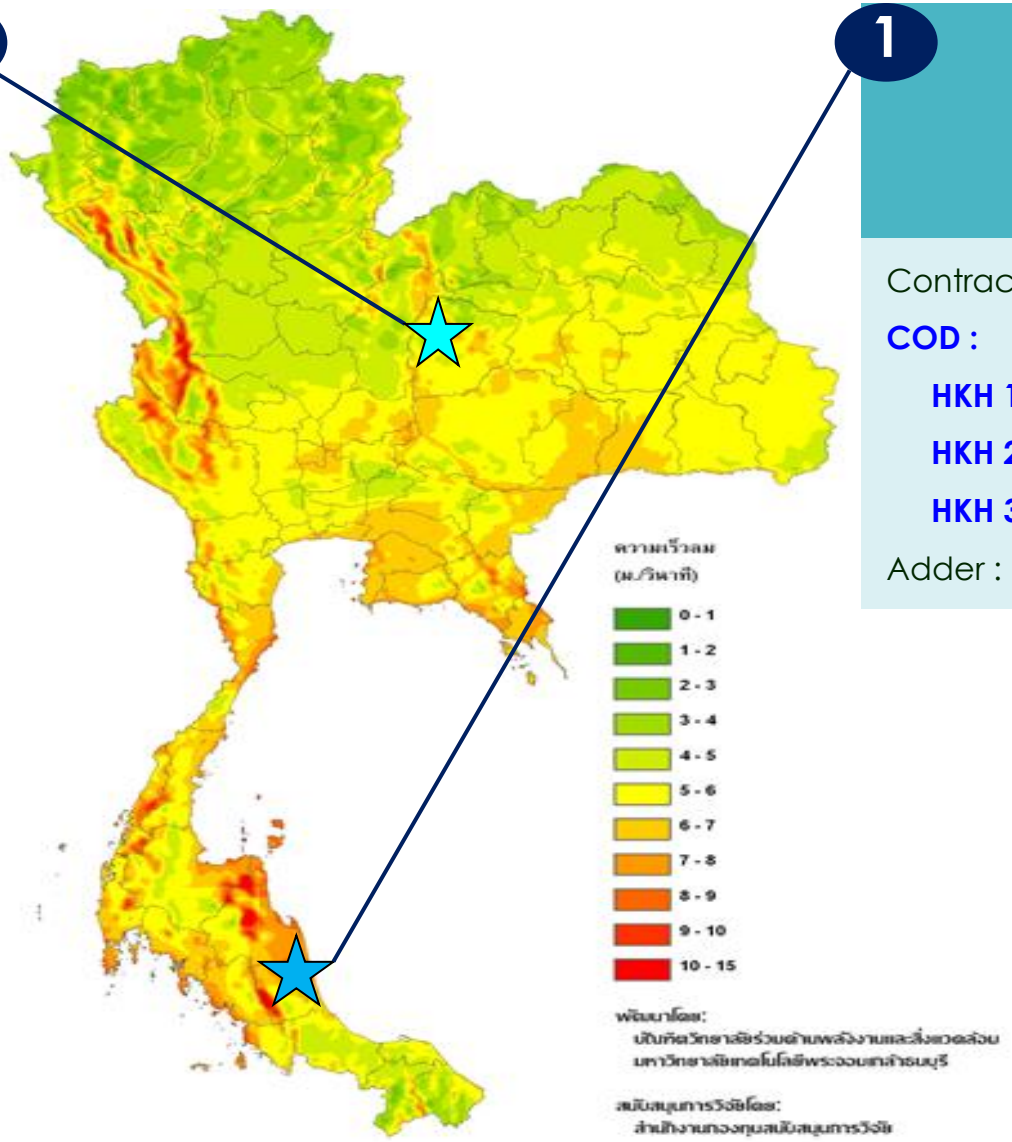
Wind Power 386 MW

2 Hanuman : HNM (Chaiyaphum) THB 20 bil.

Contracted Cap:	260 MW
SCOD :	Q1/2019
Adder :	3.50 baht/kwh
Status:	**To be COD in 1Q19**

Project Specification :
Technology from
Siemens Gamesa, Spain

- ✓ **103 sets of Wind Turbine Generator at 2.5 MWh each**
- ✓ **Hub height 163 m.**
- ✓ **Blade length 67 m.**
- ✓ **Cut in wind speed = 3 m/sec**



1 Hadkanghan : HKH (East Coast Southern) THB 10.4 bil.

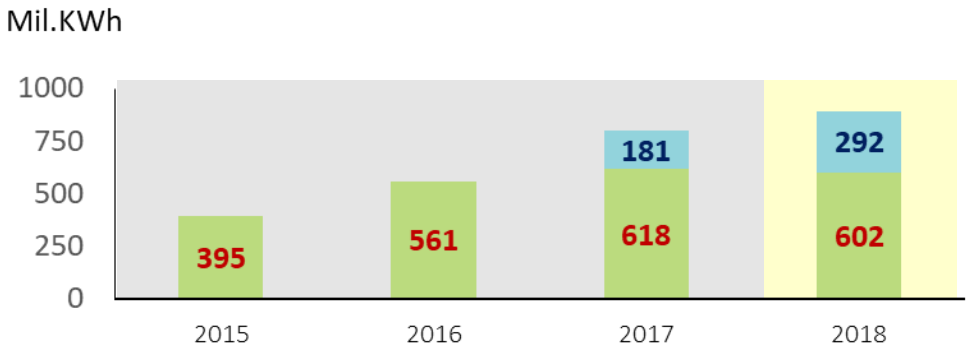
Contracted Cap:	126 MW
COD :	
HKH 1 = 36 MW	**COD 3 Mar 17**
HKH 2 = 45 MW	**COD 10 Jun 17**
HKH 3 = 45 MW	**COD 23 Jun 17**
Adder :	3.50 baht/kwh

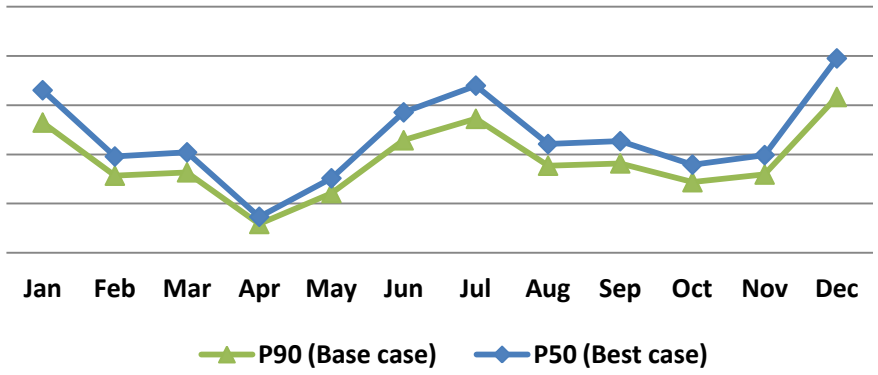
Project Specification :
Technology from
Vestas, Denmark

- ✓ **70 sets of Wind Turbine Generator at 1.8 MWh each**
- ✓ **Hub height 137 m.**
- ✓ **Blade length 51 m.**
- ✓ **Cut in wind speed = 3 m/sec**

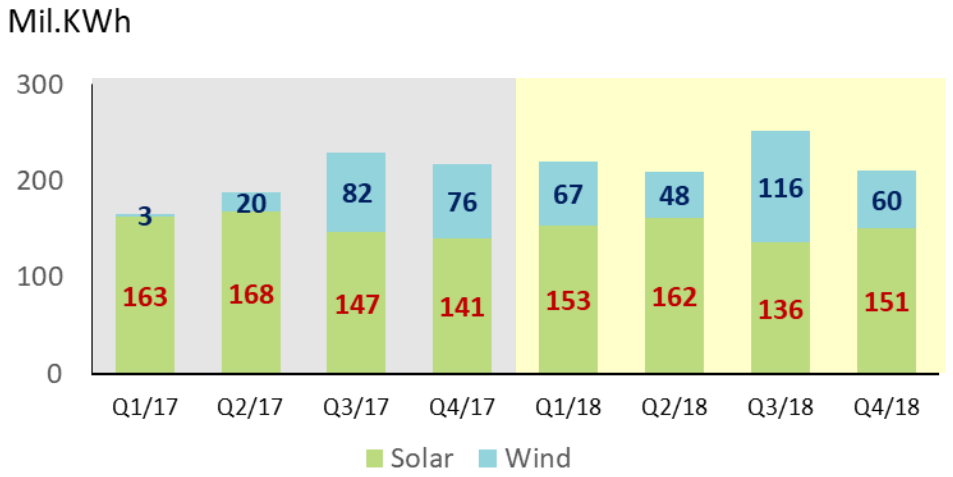
Output from power production

Total Capacity : YOY





Total Capacity : QOQ



In Q4/2018 : Full operation of 4 Solar Power Plants and 3 Wind Power Plants with the total contract capacity of 404 MWh

Power production output from Wind Power Plants QoQ decreased 48.28% due to delaying of monsoon that normally occurs at the end of year (Dec) to the beginning of year (Jan), average capacity factor in Q4/2018 = 21.41% (Q4/2017 = 29.32%) and for 2018 = 26.48%

Power production output from Solar Power Plants increased QoQ 11.03% and decreased YoY 2.59% there was more rain in this year compared to previous year.

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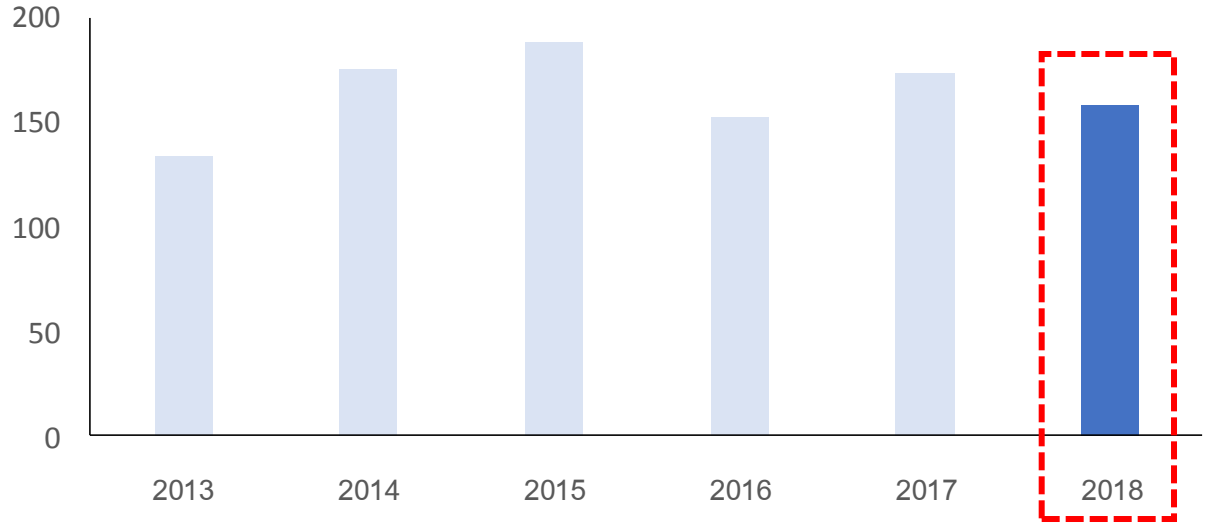
Biodiesel Production



Location	Kabinburi Industrial Estate, Prachinburi under BOI promotion & privileges
Plant Capacity	• Biodiesel 800,000 Liters per day • Pilot production of green diesel/PCM 1 Ton per day • Refined Glycerin 80 Tons per day (by product)

- B100 volume 2018 = 158.36 mil.liters decreased 24.04%.
- Blending of B100 to high speed diesel = 7-20%
- Glycerin volume 2018 = 11.85 mil.kg. decreased 1.41% price increased 12.46% due to stronger demand

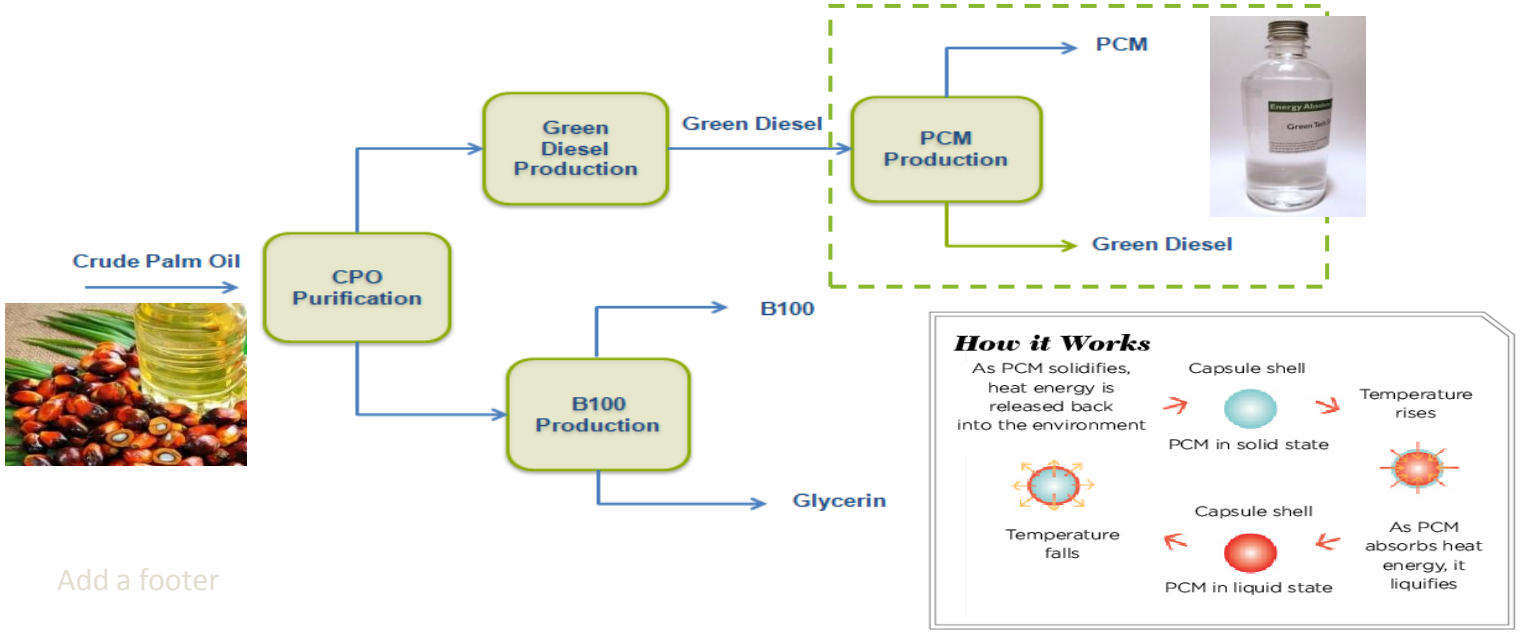
Oleochemicals : Green Diesel and PCM

Green Diesel and PCM : Total feed capacity *130 tons/day*

Total Investment of New Plant in Rayong *THB 2 bil.*

- ✓ Started pilot plant in Q2 with production capacity of GD at 1 liter/hour and PCM at 1 ton/day
- ✓ Phase I : Capacity = 65 tons (feed)/day is during construction, to be completed within Dec 2019
- ✓ Phase II : To be completed within Dec 2020

Green Diesel or Bio Hydrogenated Diesel (BHD)
: Advance product of biodiesel



While making free energy from the sun using PV solar; we can turn on and off a reverse cycle air conditioner to push and pull the BioPCM, delivering performance independent of outside air temperatures. **BioPCM works as a thermal storage battery and is pre-frozen or warmed for a particularly hot or cold evening**. Mat Q24 can deliver the maximum comfort and zero net running costs.

Source : http://phasechange.com.au

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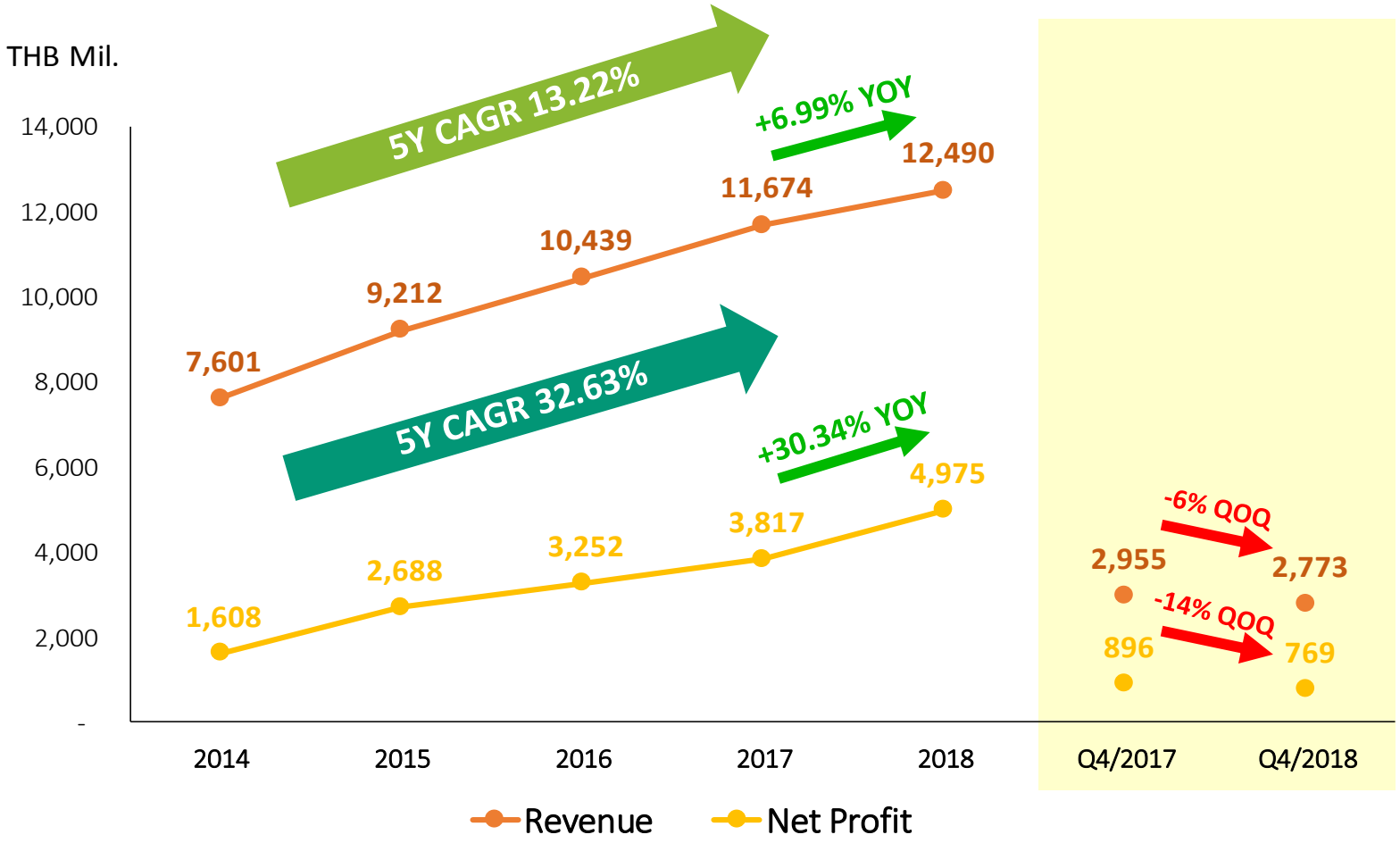
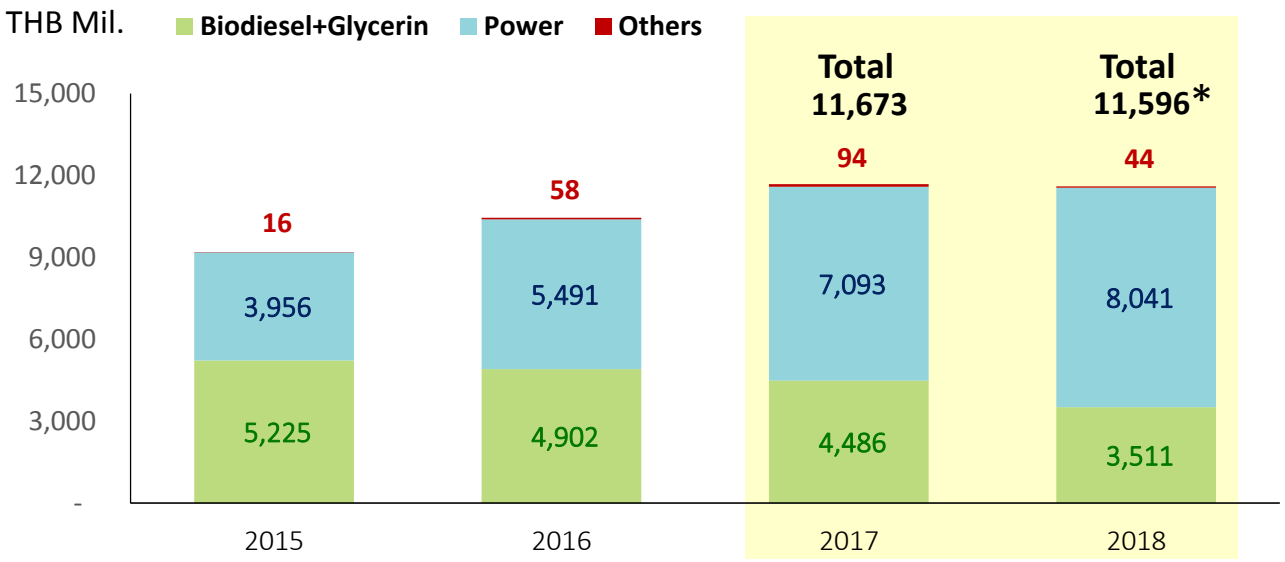
Strong Growth in Revenue and Net Profit

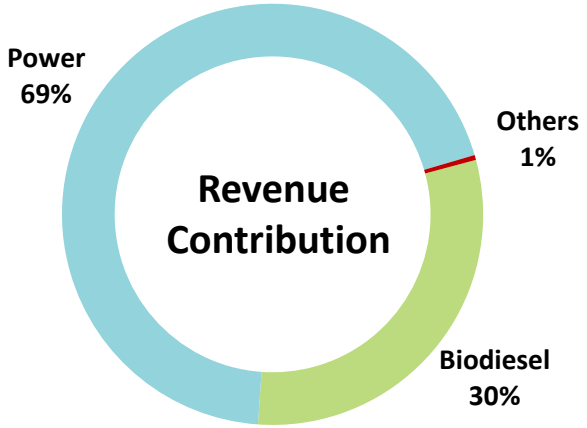


- **Total revenue for 2018** was THB 12,490.22 mil. including accounting gain on a business combination (AMITA) THB 894.58 mil.
- **Total revenue from normal operation for 2018** was THB 11,595 mil. increased 7.5%
- **Net profit from normal operation for 2018** was THB 4,080 mil. increased 39.6%
- **Incremental operating revenue and net profit** resulted from full operation of power business, contributed from 4 Solar Power Plants (278 MW) and 3 Wind Power Plants (126 MW)
- **Successful in power business** strengthen operating EA's cash flow of 2018 to reach THB 7.19 bil.,which is planned to invest in new projects

Growth from Power Business



*In 2018, Excluding 894.58 mil.bt. from accounting gain on business combination achieved without the transfer of consideration (AMITA)



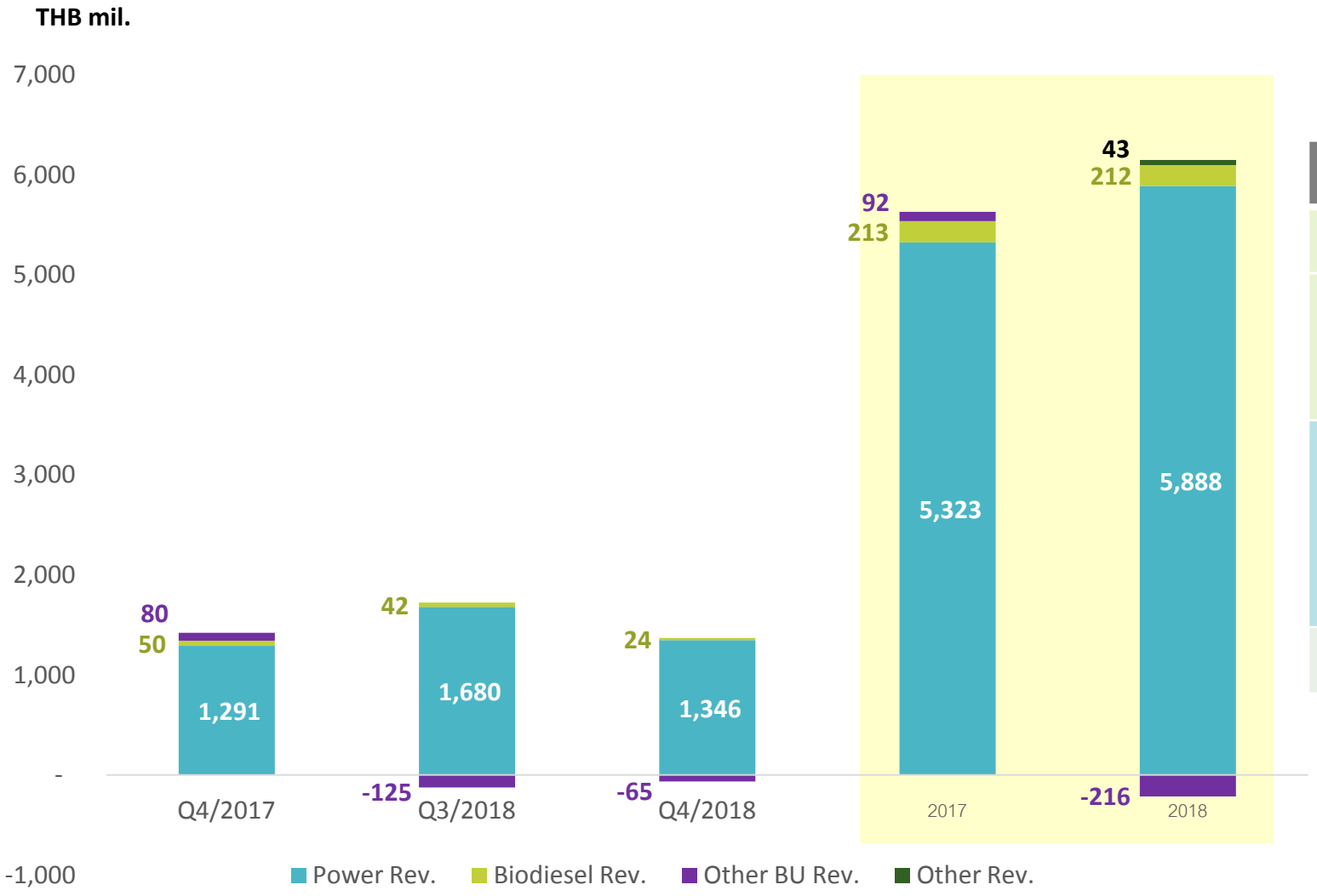
Power Business : contribution 69%

- Total capacity was 404 MW comprised of 278 MW of solar and 126 MW of wind
- *Solar* : Total units sold decreased 2.82% resulted from lower of solar radiation and heavy rain in this year. But average selling price increased 0.97% due to FT adjustment.
- *Wind* : Total units sold increased 61.69% resulted from full operation but the wind speed was lower than previous year due to of monsoon that normally occurs at the end of year. The average selling price increased 0.65% due to FT adjustment.
- *Gross profit margin = 72% and EBT = THB 5,888 mil.*

Biodiesel Business : contribution 30%

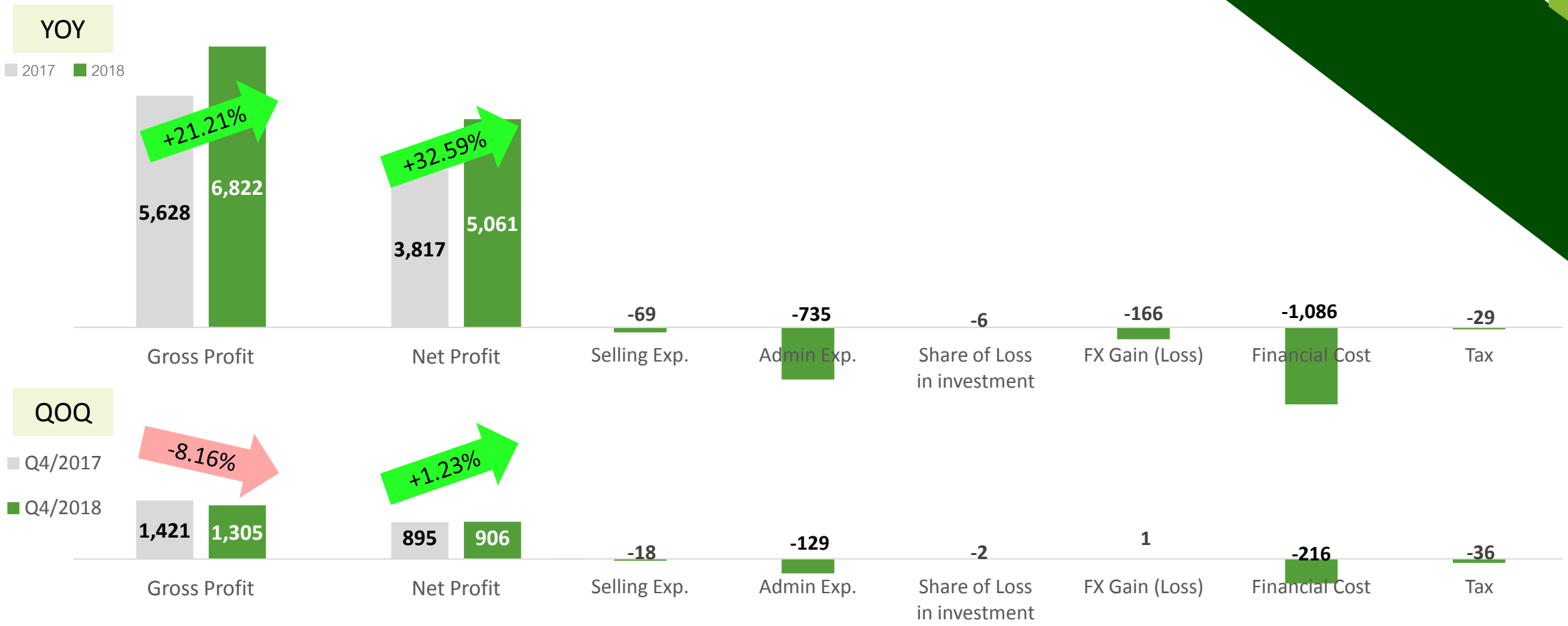
- *B100* : Total sale volume decreased 8.96% and average selling price decreased 16.57% resulted from over supply of crude palm oil that effected the total market
- *Glycerin* : Revenue from Glycerin increased 10.89% effected from the increase of selling price by 12.46% resulted from stronger demand in global market while decrease of sale volume by 1.41% because a major customer repaired its machinery during Q4/18
- *Gross profit margin = 6% and EBT = THB 212 mil.*

Gross Profit Margin 2018



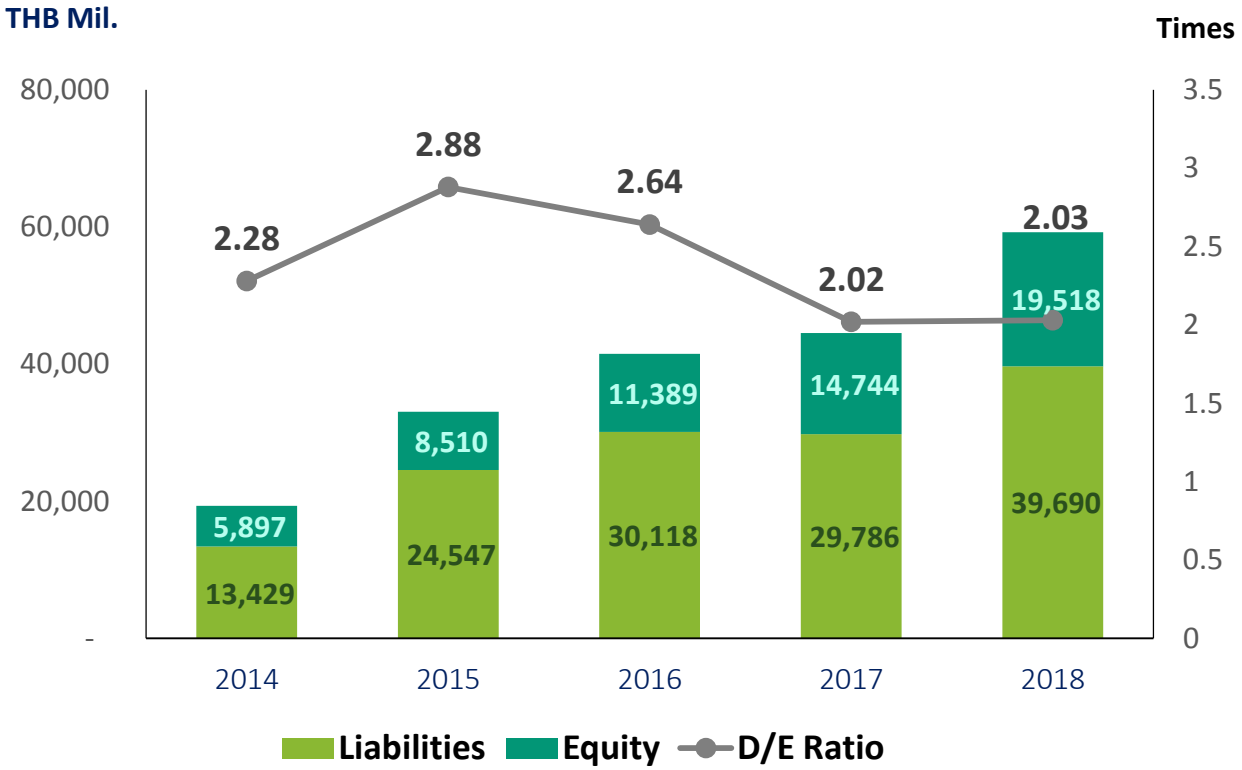
Gross Profit Margin	2017	2018
Biodiesel BU.	5%	6%
Note: • Increasing from effective in managing cost of raw material and production. • Increasing from success in glycerin market.		
Power BU. • **Solar** (Adder is higher than wind) • **Wind** (HKH COD since 2017)	 78% 59%	 81% 63%
Total GPM	**48%**	**54%**

Effects on Net Profit

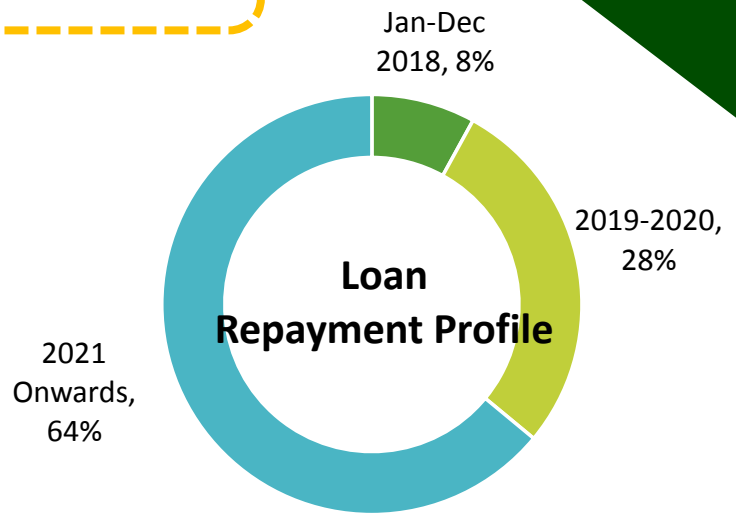


- Total admin expense THB 735 mil. (+YOY THB 127 mil.) from AMITA THB 119 mil. and recognition of selling expense from AMITA THB 45 mil.
- R&D, PR and advertising expense increased THB 47 mil. due to activities to promote EA Anywhere and MINE Mobility as EA's strategic plan.
- Dividend per share THB 0.25 from non-BOI activities. (pay out ratio = 18.80%)
- Ex-dividend date = 12 Mar 2019 and payment date = 24 May 2019

Source of Fund Management



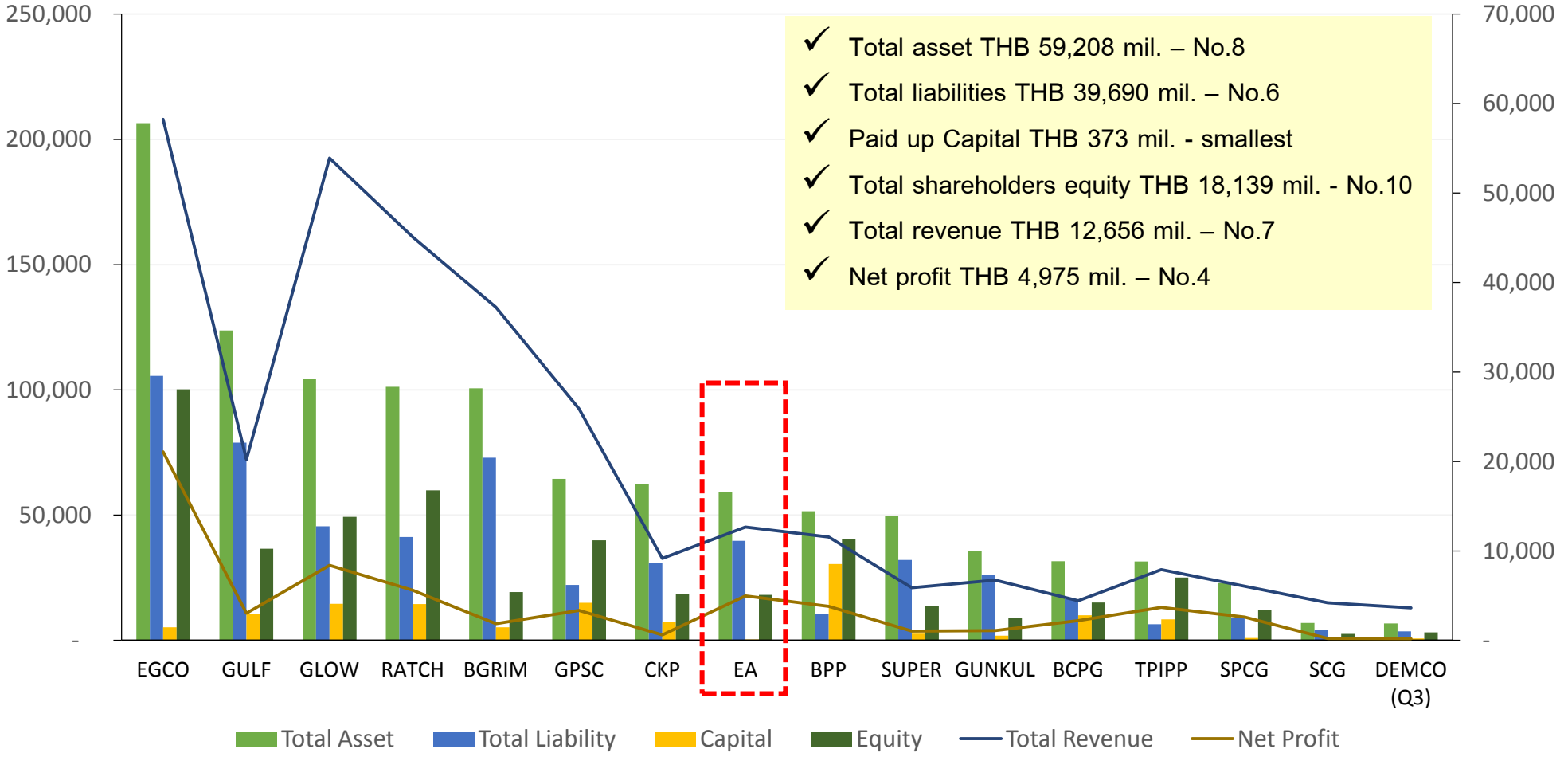
TRIS RATING A-
A Strategic Partner of S&P Global



Debentures	Amount	Maturity	Interest rate
Tranche 1: Partial secured	THB 1,000 mil.	Jul 2019	fixed 2.36%
Tranche 2: Fully secured	THB 3,000 mil.	Jul 2020	fixed 2.22%
Tranche 3: Fully secured	THB 4,000 mil.	Jul 2021	fixed 2.37%

Long-term loans	Interest rate
THB 800 mil.	2.77-3.80%
THB 372 mil.	THB Fix 3 m.++
THB 18,486 mil.	3.30-4.37%
NTD 3 mil.	3.345%

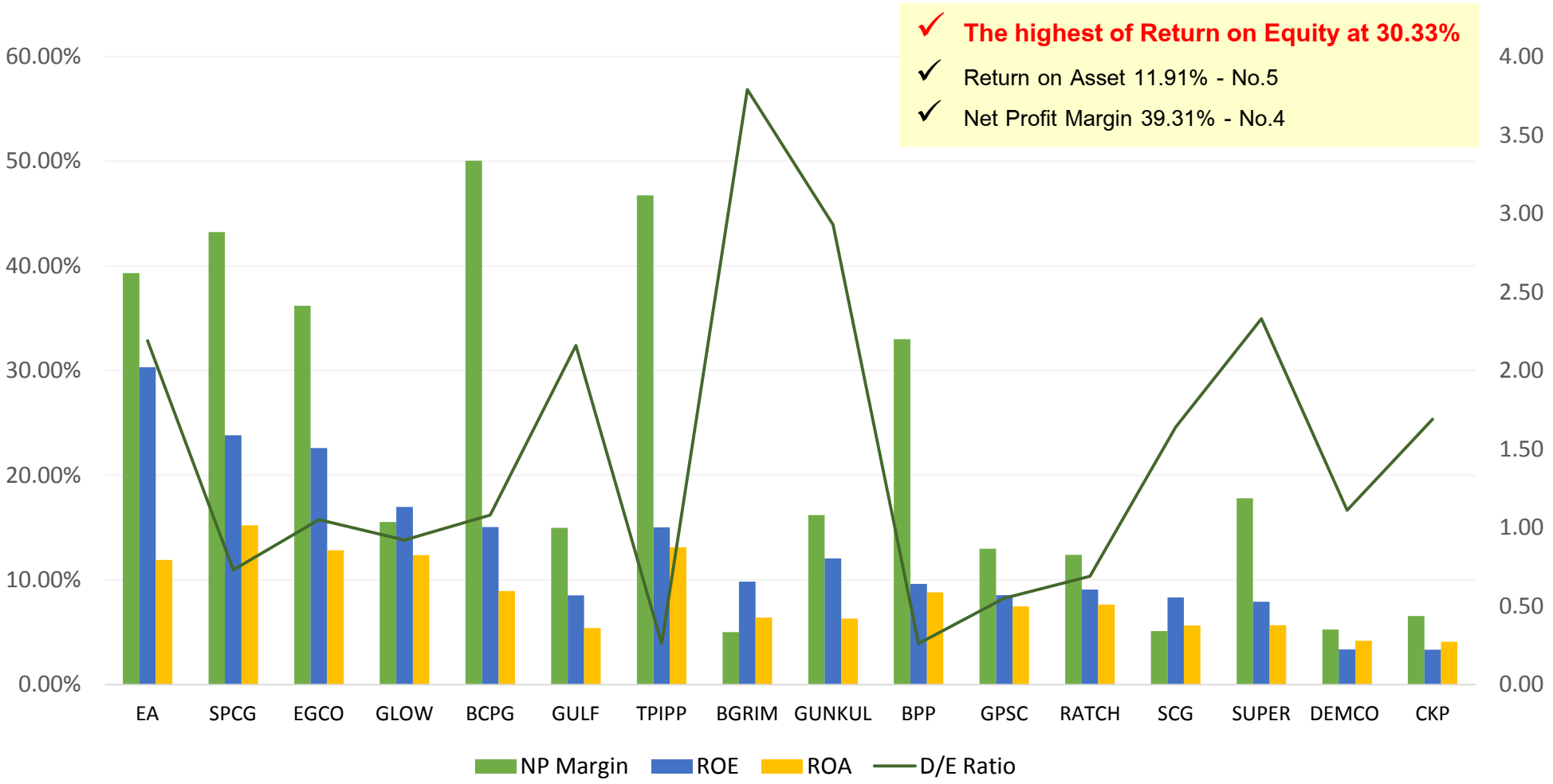
Compare with peer companies



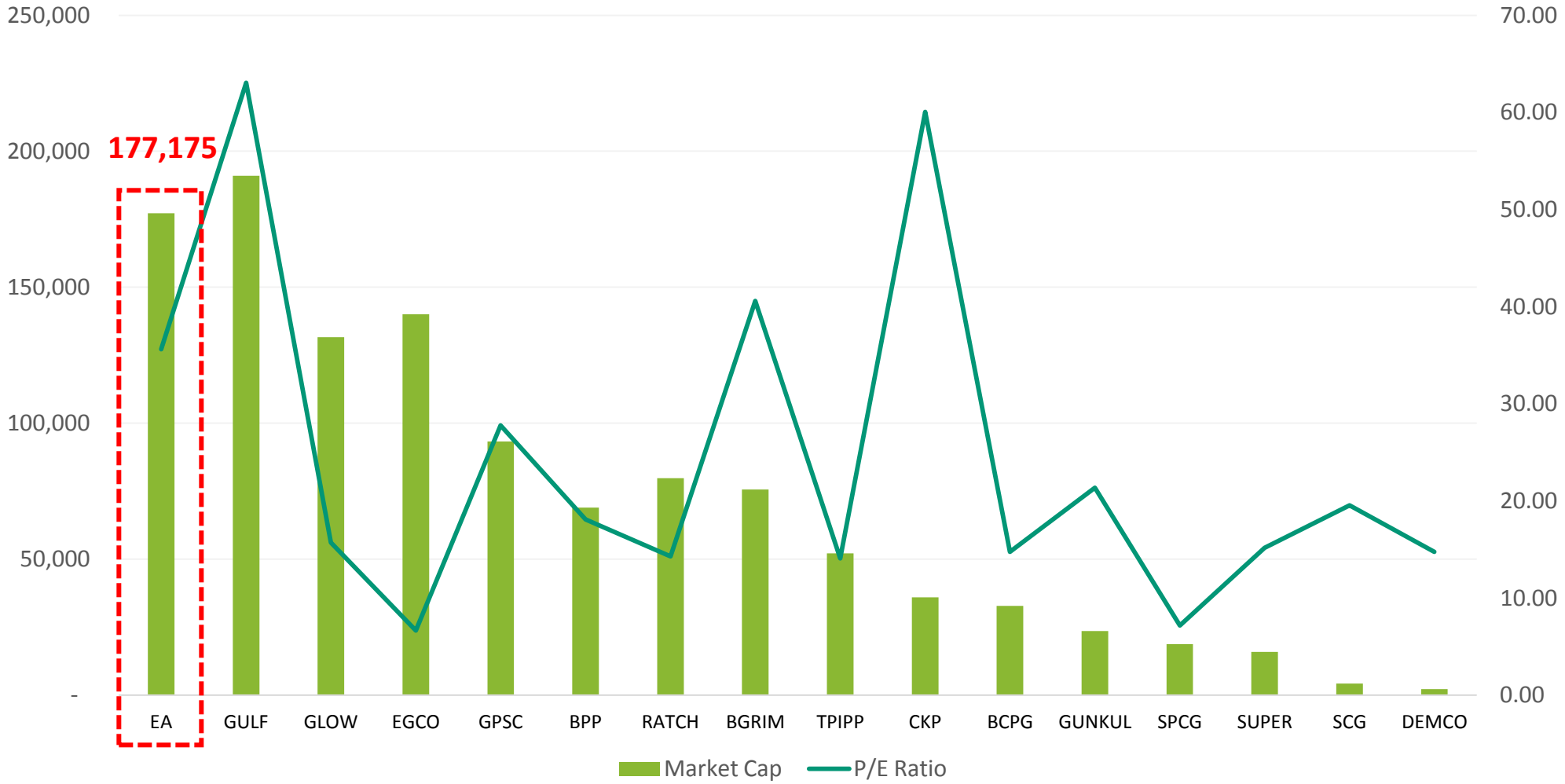
- ✓ Total asset THB 59,208 mil. – No.8
- ✓ Total liabilities THB 39,690 mil. – No.6
- ✓ Paid up Capital THB 373 mil. - smallest
- ✓ Total shareholders equity THB 18,139 mil. - No.10
- ✓ Total revenue THB 12,656 mil. – No.7
- ✓ Net profit THB 4,975 mil. – No.4

* Total revenue and net profit of EA included accounting item from acquired AMITTA THB 894.58 mil.(Excluded the item, total revenue rank is no. 8 and net profit rank is no. 4)

Compare with peer companies



Market Data : Second largest power producer and The largest renewable power company.



Source : The Stock Exchange of Thailand, as of 1 March 2019

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New chapter of EA

E@

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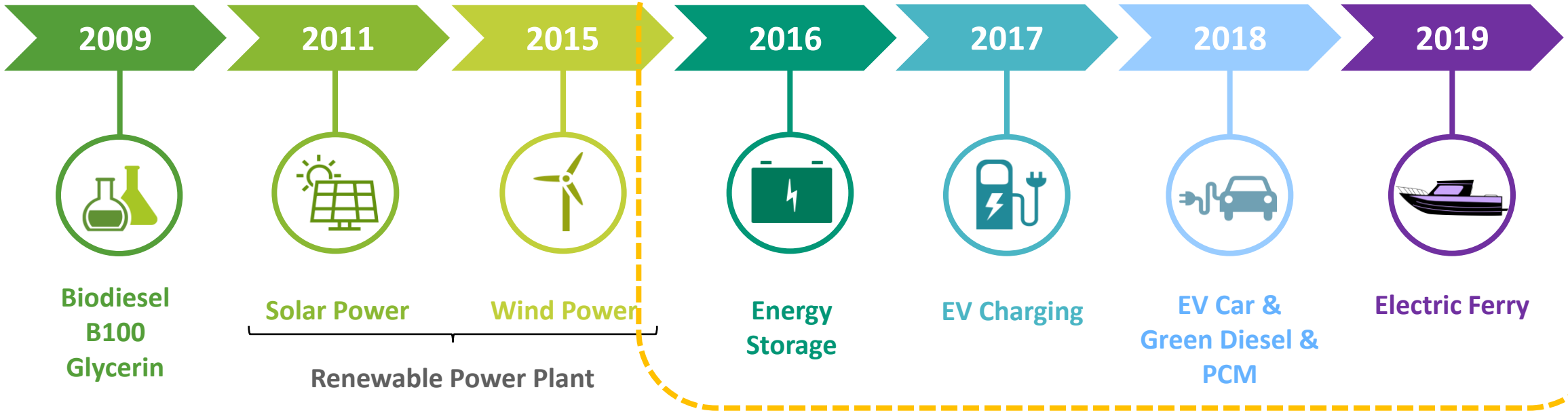
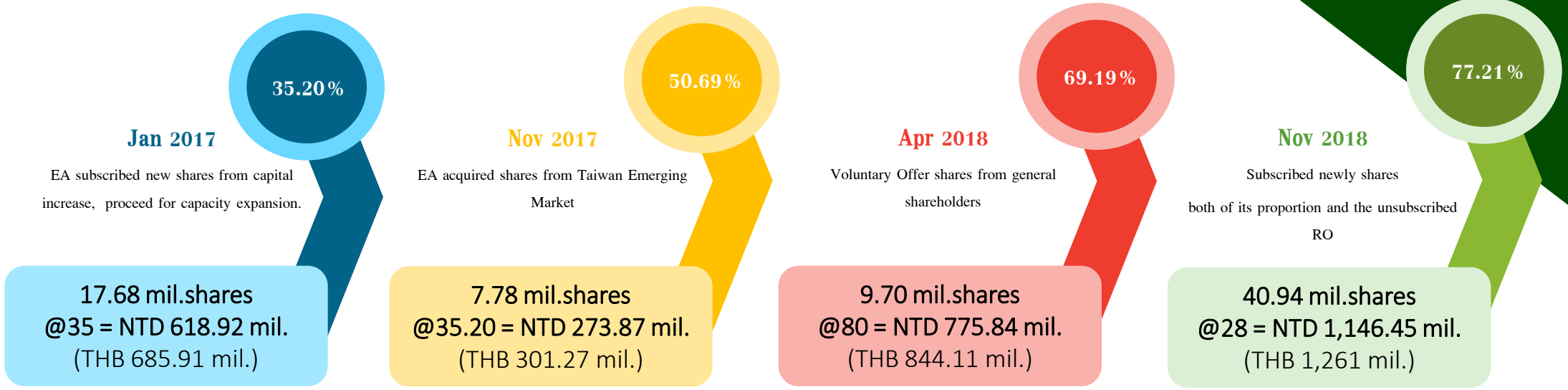


Start investing in energy storage business : Amita Technologies Inc.

Investment in Amita



Fair value of equity interest (50.69%)	= 1,821.695
Book value of equity interest (50.69%)	= 911.135
Fair value of equity interest	= 910.560
Less FX loss	(15.983)
Accounting gain	= **894.577**

Patents	*805.776 mil.*
Brand	*277.869 mil*
Goodwill	*962.546 mil.*

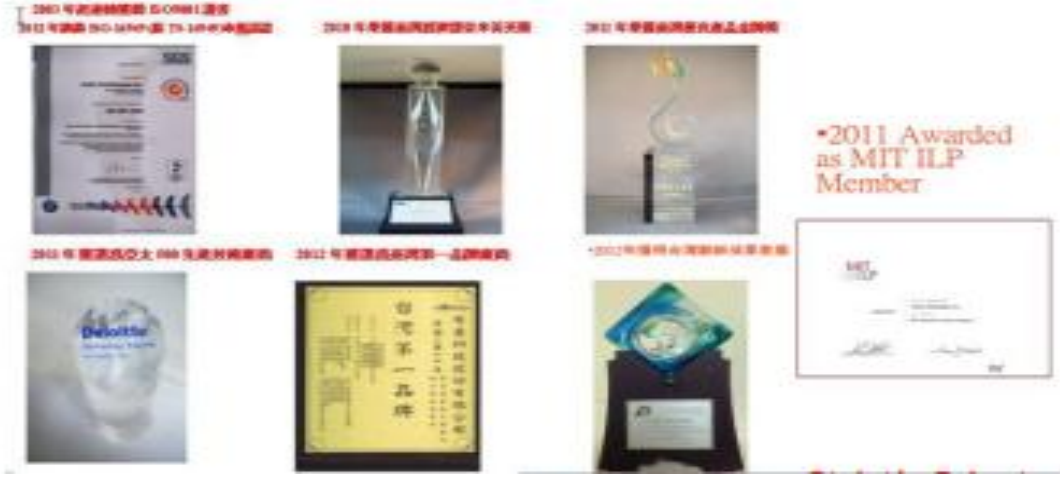
The patents and brand are amortized based on its estimated useful life which is 20 years (THB 54 mil. each year)
Goodwill is not amortized but is tested for impairment annually.

Patents & Certificates

For Example:

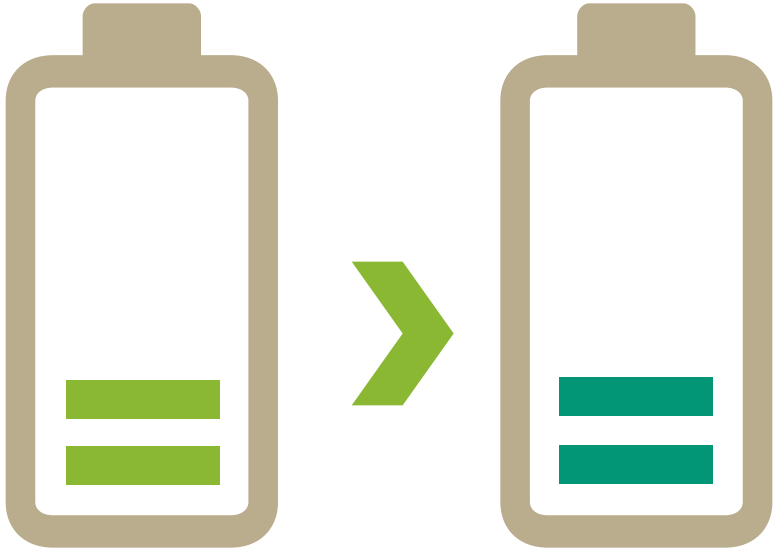
- IEC Safety Certified Since 2012
- QC-T 743 (China Certified in 2011)
- Electric Vehicle Battery Cell Safety Certification
- Certificate IATF (EV)
- Certificate SGS TW12/11511
- ISO 9001:2008
- ISO/TS 16949:2009

Awards



Patents

50 GWh Energy Storage Factory



1 GWh

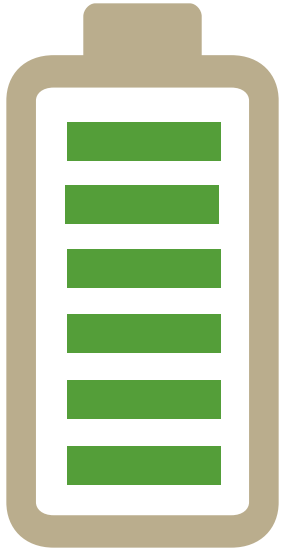
2017-2018

Phase I : EA group
Start developing of
1 GWh worth THB 4 bil.

2H/2019

Phase I :
Start commercial operation

The production in Phase I at 1 GWh will be served topower plant to stabilize the system and to electric vehicle i.e. car and ferry.



Total of 50 GWh

2021

Phase II : Partnership
investment of 49 GWh worth
THB 98 bil.

The production in Phase II to reach the total of 50 GWh will cover to all products of EA group.

Energy Storage Applications

Mobile

Electric Transport

- Batteries for plug-in electric vehicles
- Batteries for hybrid vehicles
- Batteries for other electric vehicles (buses, train etc)

Electronic Devices

- Mobile Phones, Smart phones
- Laptops
- Power tools
- Mobile games

Stationary

On/Off grid Storage

- Storage for utilities
- Used to shift energy produced
- Useful for integrating intermittent energy source
- Provide grid stability and range of other benefits

Low — Energy Requirements (kW or MW) — High

High — Technology & Market Maturity — Low

Source : Silicon Valley Bank- Energy Storage Overview

Phase I : 1 GWh Energy Storage Factory

Financial Support from Financial Institution

EA

77.21%

Management & Public

22.79%

Amita Taiwan

100%

Amita New Technology Pte.Ltd. Singapore

100%

Amita Technology (Thailand) Phase I : 1 GWh

Technical Support from Strategic Partners

2017 R&D 100 WINNER

Growatt

powering tomorrow

- Lead Power Control System (PCS) for Battery

ITRI Industrial Technology Research Institute

- One of the World's Leading Technology R&D
- Co-Developed STOBA Technology with Amita

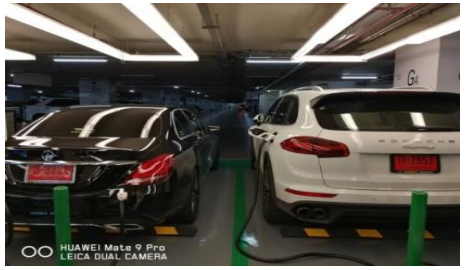
Carnegie commissions solar-plus-storage plant on Garden Island

February 22 (Renewables Now) - Carnegie Clean Energy Ltd (ASX:CCE) announced on Thursday it has commissioned the Garden Island Microgrid (GIMG) project in Western Australia, which includes a 2-MW solar photovoltaic (PV) system coupled with a 2-MW/0.5-MWh battery.

The plants were installed on HMAS Stirling, Australia's largest naval base, located on Garden Island. They will commence commercial operations as soon as they receive clearance, which the company expects to happen shortly.

The Garden Island solar power plant. Source: Carnegie Clean Energy

Energy Mahanakorn Co., Ltd. :
EV Charging EA Anywhere 1,000 station



As of Feb 2019 : 241 Quick charge and 812 Normal charge

EA ANYWHERE

Partnership investment between EMN and landlord in order to secure strategic location rolling out charging station to serve EV in the near future.

SIAM PARAGON · SIAM CENTER · CDC Crystal Design Center · THE CRYSTAL

SCB · MaxValu SUPERMARKET · Index livingmall · AIA

MAJOR CINEPLEX · SUSCO · a.c.t Bridgestone AutoCare & Tire · สำนักข่าว อีไฟแนนซ์ไทย www.efinanceThai.com · online asset www.onlineasset.co.th

อาคเนย์ SOUTHEAST

MINE Mobility : Mission No Emission in Bangkok International Motor Show 2018

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

Range : 200-250 km per charge

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

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

Electric Ferry

13 Feb 2019 : Silent Sound of the River

- Unveiling the prototype electric ferry to serve along the Chao Phraya River this year. To revolutionize the transportation system of Thailand into entire Smart Transportation.
- Each electric ferry is going to use 800 KWh lithium-ion battery to carry at least 200 passengers .
- Total project investment is THB 1 billion.

2019 **20** E-Ferry + 2020 **34** E-Ferry = **54** E-Ferry THB 1 bil.

Thank you

Energy Absolute PCL