

# Thailand Utilities - EV

## Arrival of Tesla, BYD to boost EV industry

- We believe the entry of big names like Tesla and BYD into Thailand's EV market will greatly stimulate the industry's development in both demand and supply.
- The Thai government's EV package effectively lowers the retail selling price of EVs to be comparable or even 20-30% less than internal combustion engine vehicles.
- EA and NEX are now in the process of ramping up production.

### A win-win for consumers, investors, and government

We believe the move by Tesla and BYD into Thailand's EV market could revolutionise and turn Thailand's stagnant automotive industry into a fast-growing and increasingly competitive sector in 2022-25. While Tesla aims to market its EVs under the Tesla brand, BYD, the leading Chinese EV manufacturer, plans to import made-in-China EVs into Thailand under the government's EV package, which effectively makes the retail selling prices of EVs on par with or even 20-30% lower than their internal combustion engine (ICE)-based rivals when comparing vehicles of similar size and efficiency. Currently, EV selling prices range from as low as THB0.3m for the tiny eco EV "Pocco" DD (2.96kWh battery size) to as high as THB3.4m for Germany's BMW iX3 M Sport (80kWh).

### Shark Tank effect: Tesla, BYD could spark great leap forward for Thai EV industry

We believe the advent of Tesla and BYD will greatly stimulate the development of Thailand's EV industry in both demand and supply. On the supply side, we think the EV products from Tesla and BYD will encourage – if not force – the other incumbent players, mostly Japanese and European car manufacturers, and newcomers such as Great Wall Motors from China, to expedite their plans for production, marketing and distribution to prepare ahead of looming industry competition. On the demand side, we think the presence of Tesla and BYD will encourage consumers to switch from ICE-based vehicles in favour of the new and more affordable EVs.

### Growth in new EVs rises in line with affordability and charging station availability

In Apr-22, the number of new registered battery EVs (BEVs) doubled y-y to 1,232, while new hybrid EV (HEV) and plug-in hybrid EV (PHEV) registrations grew by 53% y-y and 45% y-y, respectively. Based on the announced expansion plans by current and new operators, we estimate that the number of charging stations will significantly increase from 693 stations and 2,285 chargers in 2021 to over 1,500 stations and 4,000 chargers by the end of 2022, based on the expansion plans of major charging operators, led by EA (+500) in 2022, OR (+450), EGAT (+57), Evolt (+120), MEA (+17), and PEA (+11) in 2022.

### EA for the all-inclusive win; NEX for an EV turnaround and growth play

After disappointing production and deliveries of new e-buses in 4Q21-1Q22 due to the skilled worker shortage, EA and NEX have successfully resolved the problem and are now in the process of ramping up production. Management projects 150 e-buses will roll off the assembly line in Jun-22 before rising to 400-500 per month starting in Jul-22, putting production on track to reach 2,500-3,000 e-bus deliveries in 2022.



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## Tesla and BYD to electrify the pace of EV industry development

In the past month, there were two key events that could revolutionise and turn Thailand's stagnant automotive industry into a fast-growing and increasingly competitive sector in 2022-25.

First, Tesla (TSLA), the world's leading EV manufacturer, officially entered Thailand's market by establishing Tesla (Thailand) Company (TTC) on 25 Apr-22 with registered capital of THB3m. According to PPTV, TTC aims to market EVs under the Tesla brand.

Second, BYD, the leading Chinese EV manufacturer, established its official presence via a new subsidiary, BYD Thailand (BYT). It launched the website bydthai.com and announced plans to import Chinese-produced EVs into Thailand. While BYD already markets electric forklifts and EV minivans in the country via agents, BYT plans to import EVs under the Thai government's EV promotional package that provides up to THB150,000 in subsidies and a range of tax cuts on EV imports in 2022-23.

Exhibit 1: Tesla's price list for its models in Thailand



Source: Smart SME

Exhibit 2: BYD EV minivan prices in Thailand

























Source: BYDThailand.com

## Thailand's EV market

The government's EV subsidy package aims to promote demand for EVs in Thailand to spur the development of a local EV industry value chain, which includes battery manufacturing plants, EV production facilities, auto parts businesses, and EV charging stations.























**Exhibit 3: EV models in Thailand 2022**

|                              | MINE SPA1   | FOMM One  | BYD e6  | BYD M3, T3  | ORA Good cat  | MG EP Wagon EV  | MG ZS EV   | VOLVO XC40 Recharge   | Hyundai KONA Electric   | Hyundai IONIQ Electric  | KIA All-new Soul EV   |
|------------------------------|---|---|---|---|---|---|--|---|---|---|---|
| Brand                        |  |  |  |  |  |  |  |  |  |  |  |
| Model                        |  |  |  |  |  |  |  |  |  |  |  |
| Socket type                  | AC Type 2   | AC Type 2   | AC Type 2   | AC Type 2   | AC Type 2 & CCS2  | AC Type 2 & CCS2  | AC Type 2 & CCS2   | AC Type 2 & CCS2  | AC Type 2 & CCS2  | AC Type 2 & CCS2  | AC Type 1 & CCS1  |
| EV range (km)                | 220   | 160   | 400   | 300   | 400(Teach)<br>400(Pro)<br>500(Ultra)  | 380   | 337  | 418   | 312(SE)<br>482(SEL)   | 280   | 452   |
| Battery size (KWh)           | 30  | 11.8  | 80  | 50.3  | 47.8(Teach)<br>47.8(Pro)<br>63.1(Ultra)   | 50.3  | 44.5   | 78  | 39.2(SE)<br>64(SEL)   | 28  | 64  |
| Country of origin            | Thailand  | Thailand  | China   | China   | China   | China   | China  | China   | Korea   | Korea   | Korea   |
| Import tax (%)               | 0   | 0   | 0   | 0   | 0   | 0   | 0  | 0   | 40  | 40  | 40  |
| Excise tax (%)               | 2   | 2   | 8   | 8   | 8   | 8   | 8  | 8   | 8   | 8   | 8   |
| Price tag – Thailand (THB m) | 1.2   | 0.664   | 1.4   | 1.89(M3)<br>1.059(T3)   | 0.989(Teach)<br>1.059(Pro)<br>1.199(Ultra)  | 0.988   | 1.19   | 2.59  | 1.849(SE)<br>2.259(SEL)   | 1.749   | 2.387   |

Source: EVAT

According to the Electric Vehicle Association of Thailand (EVAT), there are many EV models actively being marketed to consumers. However, after the Thai government approved its EV package in 4Q21, the retail selling price of EVs is now comparable or even 20-30% lower than ICE-based vehicles of similar size and efficiency.

**Exhibit 4: EV models in Thailand 2022**

|                              | NISSAN LEAF   | LEXUS UX 300e   | JAGUAR I-Pace   | MINI Cooper SE  | TESLA Model 3   | PORSCHE Taycan  | AUDI e-tron55 quattro  | BMW i3s   | BMW iX  | BMW iX3   | BMW i4  |
|------------------------------|---|---|---|---|---|---|--|---|---|---|---|
| Brand                        |  |  |  |  |  |  |  |  |  |  |  |
| Model                        |  |  |  |  |  |  |  |  |  |  |  |
| Socket type                  | AC Type 1 & DC CHadeMO  | AC Type 2 & DC CHadeMO  | AC Type 2 & CCS2  | AC Type 2 & CCS2  | AC Type 2 & CCS2  | AC Type 2 & CCS2  | AC Type 2 & CCS2   | AC Type 2 & CCS2  | AC Type 2 & CCS2  | AC Type 2 & CCS2  | AC Type 2 & CCS2  |
| EV range (km)                | 311   | 360   | 470   | 217   | 386   | 407(4s)<br>447(Turbo)<br>412(Turbo s)   | 417  | 280   | 960   | 460   | 590   |
| Battery size (KWh)           | 40  | 54  | 90  | 32.6  | 62  | 79(4s)<br>93(Turbo)<br>93(Turbo s)  | 95   | 33  | 111.5   | 80  | 83.9  |
| Country of origin            | Japan   | Japan   | UK  | UK  | USA   | Germany   | Germany  | Germany   | Germany   | Germany   | Germany   |
| Import tax (%)               | 20  | 20  | 80  | 80  | 80  | 80  | 80   | 80  | 80  | 80  | 80  |
| Excise tax (%)               | 8   | 8   | 8   | 8   | 8   | 8   | 8  | 8   | 8   | 8   | 8   |
| Price tag – Thailand (THB m) | 1.49  | 3.49  | 5.499(S)<br>6.299(SE)<br>6.999(HSE)   | 2.29  | 2.99  | 7.1(4s)<br>9.9(Turbo)<br>11.7(Turbo s)  | 5.099  | 2.23  | 5.99  | 3.399   | 4.499   |

Source: EVAT

The EV package provides a price subsidy of THB75,000-150,000 per EV depending on the battery size. Also, the new comprehensive EV promotion plan is supplementary to the previous policies issued by Thailand's Board of Investment (BOI), creating a comprehensive set of incentives covering all major aspects of the EV supply chain, with a focus on BEVs, local production of critical parts, and the inclusion of commercial vehicles of all sizes, as well as ships.

#### Exhibit 5: EV promotion plan for passenger BEVs and motorbikes with retail selling prices under THB2m

|   | Policy                    | Beneficiary         | Amount   | Effective promotion duration |
|---|---------------------------|---------------------|--|------------------------------|
| 1 | Subsidy from energy fund  | Consumers/EV buyers | THB70,000 per EV under 30kWh<br>THB150,000 per EV over 30kWh | 1-3 years                    |
| 2 | Excise tax reduction      | Producers/EV buyers | From 8% to 2%  | 2-3 years                    |
| 3 | Import duty tax reduction | Producers/EV buyers | From 20-80% to 0-40%   | 2-3 years                    |

| Conditions for eligibility |  |  |  |  |
|----------------------------|--|--|--|--|
| 1                          | Must be domestic manufacturers   |  |  |  |
| 2                          | Must produce EVs at 1.0x to 1.5x the number of imported and subsidised EVs during the promotion's duration |  |  |  |
| 3                          | Must produce and use a domestically produced battery (from cell level) for EVs produced domestically       |  |  |  |
| 4                          | Must produce the same models as the imported models  |  |  |  |

Source: Bangkok Post

The EV package brings the selling prices of imported EVs down to as low as THB0.3m for made-in-China models such as the eco EV "Pocco" DD (2.96kWh) and THB0.8-1.2m for the mid-sized ORA Good Cat (47.8-63.1kWh), to THB2.6m for Sweden's high-end luxury Volvo XC40 (78kWh) and THB3.4m for Germany's BMW iX3 M Sport (80kWh).

#### Exhibit 6: Pocco DD mini eco EV



Source: [Sanook.com](https://www.sanook.com)

#### Exhibit 7: ORA Good Cat EV



Source: [Sanook.com](https://www.sanook.com)



Exhibit 8: BMW iX3 M sport EV

Source: [Sanook.com](https://www.sanook.com)

Exhibit 9: Volvo XC40 EV

Source: [Sanook.com](https://www.sanook.com)

**Tesla is coming to town.** Despite gaining no benefit from the EV package, which requires that EV importers produce one EV locally in exchange for one imported EV, Tesla plans to import its EVs from China, which would allow it to benefit from the zero-import tax rate under the bilateral free trade agreement between Thailand and China. Tesla buyers will have to pay other taxes including the excise tax, value-added tax, and other taxes, that together account for over 25% of the final retail selling price.

According to News.trueid.net, Tesla will import four models to be marketed in Thailand, including 1) the model S with the original selling price of THB3.5m-4.7m based on the selling prices in the US; 2) model 3 at THB1.59m-2.15m; and model X at THB3.9m-4.7m.

While the selling prices for imported EVs from China will be 25% higher due to Thailand's excise, duty, and VAT taxes, we think Tesla should be able to sell its products in Thailand given its strong brand position and premium value position.

Exhibit 10: Tesla model S

Source: [News.trueid.net](https://www.news.trueid.net)

Exhibit 11: Tesla model Y

Source: [News.trueid.net](https://www.news.trueid.net)

**BYD is coming to town.** BYD, which stands for “Build Your Dream”, is a leading Chinese EV manufacturer that has already entered the Thailand market via a JV with Siam Motors Group (SMP), Thailand’s leading Nissan dealer, to sell its flagship EV “Dolphin” SUV.

According to AutolifeThailand.tv, BYD will invest up to THB20b to set up a new EV manufacturing plant in Thailand under the name BYD Automotive (Thailand). Previously, BYD granted SMP the rights to market and distribute its imported EVs in Thailand. The investment will include THB17.3b for the manufacturing plant and THB2.3b for sales and distribution with an 85% investment from Thai companies and 15% from BYD.

**Exhibit 12: BYD Dolphin model EV**



Source: [autolifeThailand.tv](http://autolifeThailand.tv)

**Exhibit 13: BYD Dolphin model EV**



Source: [autolifeThailand.tv](http://autolifeThailand.tv)

**Could the “Shark Tank effect” occur from the entries of Tesla and BYD in Thailand?** We believe the EV industry in Thailand could develop at a significantly faster pace following the entries of Tesla and BYD, the world’s two largest EV producers.

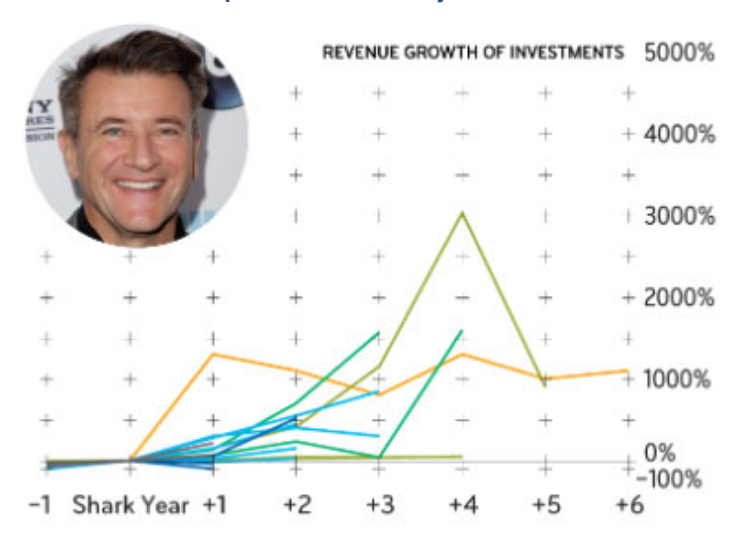
The Shark Tank effect is a term derived from the American reality TV series “Shark Tank” that premiered on 9 Aug-09 on the ABC network. The show featured entrepreneurs pitching their business plans to a panel of five investors or “sharks”, who would then decide whether to invest in the company. The Shark Tank effect meant that any business gaining publicity by appearing on the show – even without getting an offer – had the potential to significantly boost their sales by over 10-20x after the show’s airing.

**Exhibit 14: ABC’s Shark Tank**



Source: [Wikipedia](https://en.wikipedia.org/wiki/Shark_Tank)

**Exhibit 15: The investment track record of one of five judges on the Shark Tank panel – Robert Herjavec**



Source: [Inc.com](http://inc.com)

We believe that the arrival of Tesla and BYD represents a sea change in Thailand's EV industry, not only for demand but also for the supply-side value chain, that could lead to a potential "great leap forward" for the EV and automotive industry.

On the supply side, we think the presence of highly competitive EV products from Tesla and BYD is likely to encourage – if not force – the incumbent players, mostly Japanese and European car manufacturers, and newcomers such as Great Wall Motors from China, to speed up their plans to enter, invest and build production plants and marketing and distribution channels ahead of looming industry competition.

On the demand side, we think the appearance of Tesla and BYD products on Thailand's roads and highways will encourage consumers who are still reluctant about the switch from ICE to EV to move forward with their purchases of new EVs, considering:

- 1) the greater availability of highly recognised EV brands at affordable prices thanks to the government's EV package; and
- 2) the projected mushrooming growth of charging stations nationwide, given that both Tesla and BYD's market penetration strategies are preceded by adding new charging stations. We think this tactic will boost consumer confidence regarding the convenience of EV mobility and chargeability via increased access to an adequate number of convenient and reliable charging stations outside Bangkok and the vicinity.

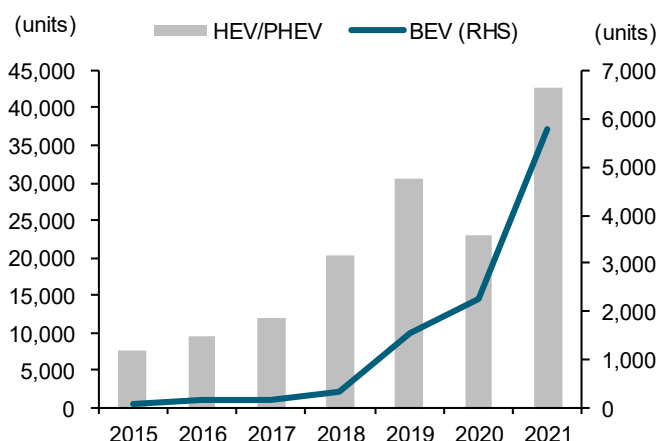
### Current EV market trends following the government's EV package approval

According to the Department of Land Transportation (DLT), BEV numbers grew significantly in April-22, with BEV registrations doubling y-y to 1,232. At the same time, the number of newly registered HEVs and PHEVs grew at a much slower rate of 53% y-y for HEVs and 45% y-y for PHEVs.

During 2018-21, the accumulated total of BEVs was 11,382 – comprising 6,749 e-bikes, 4,132 EV cars, 238 e-buses, and 263 e-tricycles (e-Tuk-Tuks). HEVs and PHEVs totalled 227,727, comprising 219,121 cars, 11,382 motorbikes, one bus and one truck.

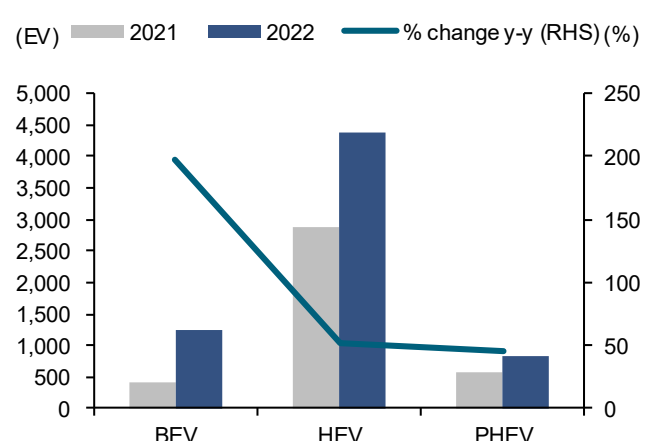
The higher growth in new EV registrations reflects the success of the government's EV package to stimulate the demand for EVs. However, the total number of EVs (BEV, HEV, and PHEV) remains low at only 3.0% of the total 215,907 new registered vehicles in Apr-22, but still up from less than 1% in Apr-21.

Exhibit 16: Number of new EV registrations in 2015-21



Source: DLT

Exhibit 17: Number of new EV registrations in Apr-22



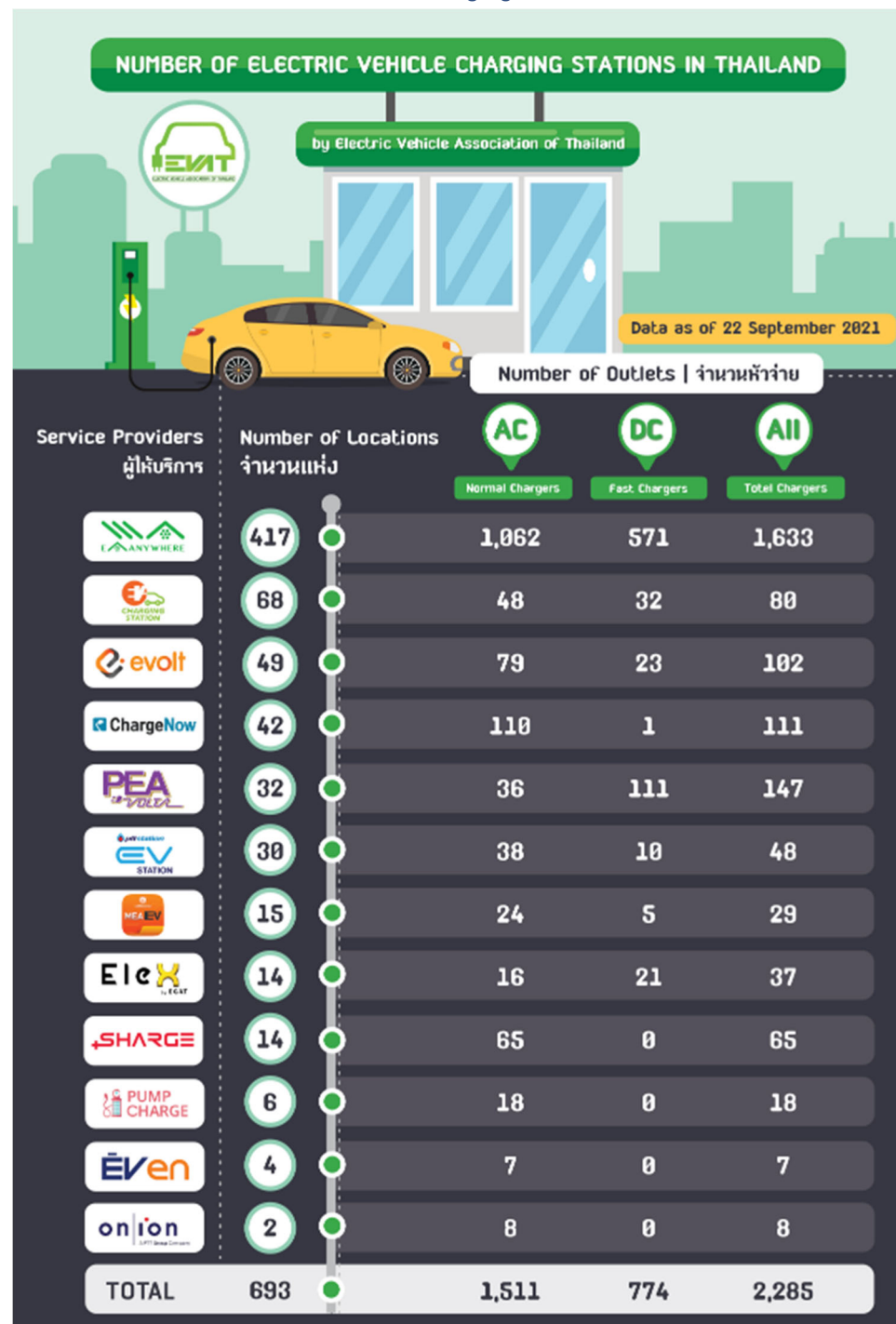
Source: DLT



While the total number of charging stations in Thailand remains unavailable in 2022, we estimate that the number of charging stations will significantly increase from 693 stations and 2,285 chargers in 2021 to over 1,500 stations and 4,000 chargers by the end of 2022, based on the expansion plans of major charging operators.

Major charging operators have already stepped up their plans to add charging stations in 2022 and target further increases in the next 10-20 years, based on company announcements. Energy Absolute (EA TB, BUY), Thailand's largest and most integrated EV provider, plans to add 500 new charging stations in 2022 and targets 1,000 by 2023; PTT Oil and Retail Business (OR TB, BUY) plans to add 450 by end-2022 and 7,000 more by 2030; the Electricity Generating Authority of Thailand (EGAT) intends to add 57; Evolt plans to add 120 stations in 2022 and 12,000 stations by 2040; the Metropolitan Electricity Authority (MEA) +17 stations; and the Provincial Electricity Authority (PEA) +11.

**Exhibit 18: Number of electric vehicle charging stations in Thailand**



Source: EVAT



## Winners of the EV market boom in 2022

In 2021, the number of new EV registrations surged by over 2x y-y, even though consumers had been waiting for the government's plan to subsidise the price of EVs and offer multiple tax incentives for producers in the EV value chain (batteries, EVs, charging stations).

We believe that in 2022, with the government's incentive plan for EVs already in place, the number of new BEV registrations should almost double to over 15,000, up from a mere 5,781 new EVs in 2021.

We think EA and Nex Point (NEX TB, BUY) – Thailand's two leading players in the battery and EV businesses – will see their share prices outperform in 2022, thanks to the strong net profit growth momentum that we project in 2021-23 due to their fully integrated, first-mover advantage over competitors that has allowed them to timely capture regulatory benefits ahead of the booming demand for EVs expected in 2022 onward.

After disappointing production and deliveries of new e-buses in 4Q21-1Q22 due to the skilled worker shortage, EA and NEX have successfully resolved the problem and are now in the process of ramping up production to 150 e-buses in Jun-22 before rising to 400-500 per month starting in Jul-22. The rising production rate puts them on track to reach their 2,500-3,000 e-bus delivery target in 2022, according to management.

### Exhibit 19: Peer comparisons

| Company                                  | BBG code | Rec  | Share Price | Target price | Up side | Market Cap     | 3Y EPS CAGR | ----- PE ----- |             | ----- ROE ----- |             | ----- PBV ----- |             | EV / EBITDA |             |
|--|----------|------|-------------|--------------|---------|----------------|-------------|----------------|-------------|-----------------|-------------|-----------------|-------------|-------------|-------------|
|  |          |      | (LCY)       | (LCY)        | (%)     | (USD m)        | (%)         | 22E            | 23E         | 22E             | 23E         | 22E             | 23E         | 22E         | 23E         |
| THAILAND                                 |          |      |             |              |         |                |             |                |             |                 |             |                 |             |             |             |
| Energy Absolute                          | EA TB    | BUY  | 89.25       | 101          | 13      | 9,699          | 28.5        | 28.0           | 28.1        | 31.5            | 25.0        | 7.8             | 6.4         | 24.4        | 23.2        |
| BANPU                                    | BANPU TB | BUY  | 12.9        | 18.8         | 46      | 2,543          | (10.0)      | 3.2            | 3.9         | 30.4            | 24.0        | 0.8             | 0.8         | 3.6         | 3.9         |
| Banpu Power                              | BPP TB   | BUY  | 16          | 20           | 25      | 1,421          | 29.1        | 9.0            | 8.7         | 11.5            | 11.2        | 1.0             | 0.9         | 34.5        | 25.8        |
| Nex Point                                | NEX TB   | BUY  | 17.4        | 21.6         | 24      | 849            | nm          | 44.5           | 23.0        | 20.1            | 30.0        | 8.0             | 6.1         | (240.7)     | 179.7       |
| Global Power                             | GPSC TB  | HOLD | 66.0        | 70.0         | 6       | 5,422          | 11.2        | 38.2           | 24.2        | 4.5             | 7.0         | 1.7             | 1.7         | 20.5        | 17.2        |
| <b>Thailand avg</b>                      |          |      |             |              |         | <b>19,934</b>  | <b>15.3</b> | <b>27.0</b>    | <b>22.4</b> | <b>22.1</b>     | <b>19.2</b> | <b>4.8</b>      | <b>4.0</b>  | <b>10.1</b> | <b>25.9</b> |
| US                                       |          |      |             |              |         |                |             |                |             |                 |             |                 |             |             |             |
| Tesla Inc                                | TSLA US  | NA   | 714.84      | NA           | NA      | 740,581        | 59.1        | 60.1           | 45.9        | 33.6            | 31.6        | 17.9            | 12.4        | 36.6        | 26.9        |
| Nio Inc - Adr                            | NIO US   | NA   | 19.18       | NA           | NA      | 32,041         | nm          | nm             | nm          | (18.0)          | (7.8)       | 6.8             | 7.6         | nm          | 360.7       |
| Nikola Corp                              | NKLA US  | NA   | 6.49        | NA           | NA      | 2,733          | nm          | nm             | nm          | (68.4)          | (87.2)      | 4.1             | 7.0         | nm          | nm          |
| Workhorse                                | WKHS US  | NA   | 2.94        | NA           | NA      | 481            | nm          | nm             | nm          | (62.8)          | (24.5)      | 3.3             | 3.0         | nm          | nm          |
| <b>US avg</b>                            |          |      |             |              |         | <b>775,836</b> | <b>59.1</b> | <b>57.3</b>    | <b>43.8</b> | <b>31.0</b>     | <b>29.6</b> | <b>17.4</b>     | <b>12.1</b> | <b>34.9</b> | <b>40.6</b> |
| <b>Alternative energy under coverage</b> |          |      |             |              |         | <b>19,934</b>  | <b>15.3</b> | <b>27.0</b>    | <b>22.4</b> | <b>22.1</b>     | <b>19.2</b> | <b>4.8</b>      | <b>4.0</b>  | <b>10.1</b> | <b>25.9</b> |
| <b>Average (all)</b>                     |          |      |             |              |         | <b>795,770</b> | <b>58.7</b> | <b>56.6</b>    | <b>43.3</b> | <b>30.8</b>     | <b>29.3</b> | <b>17.1</b>     | <b>11.9</b> | <b>34.3</b> | <b>40.2</b> |

Share prices as of 6 June 2022

Sources: Bloomberg, FSSIA estimates

## Corporate Governance report of Thai listed companies 2020

| EXCELLENT LEVEL |        |        |       |       |       |        |        |        |        |        |
|-----------------|--------|--------|-------|-------|-------|--------|--------|--------|--------|--------|
| AAV             | ADVANC | AF     | AIRA  | AKP   | AKR   | ALT    | AMA    | AMATA  | AMATAV | ANAN   |
| AOT             | AP     | ARIP   | ARROW | ASP   | BAFS  | BANPU  | BAY    | BCP    | BCPG   | BDMS   |
| BEC             | BEM    | BGRIM  | BIZ   | BKI   | BLA   | BOL    | BPP    | BRR    | BTS    | BWG    |
| CENTEL          | CFRESH | CHEWA  | CHO   | CIMBT | CK    | CKP    | CM     | CNT    | COL    | COMAN  |
| COTTO           | CPALL  | CPF    | CPI   | CPN   | CSS   | DELTA  | DEMCO  | DRT    | DTAC   | DTC    |
| DV8             | EA     | EASTW  | ECF   | ECL   | EGCO  | EPG    | ETE    | FNS    | FPI    | FPT    |
| FSMART          | GBX    | GC     | GCAP  | GEL   | GFPT  | GGC    | GPSC   | GRAMMY | GUNKUL | HANA   |
| HARN            | HMPRO  | ICC    | ICHI  | III   | ILINK | INTUCH | IRPC   | IVL    | JKN    | JSP    |
| JWD             | K      | KBANK  | KCE   | KKP   | KSL   | KTB    | KTC    | LANNA  | LH     | LHFG   |
| LIT             | LPN    | MAKRO  | MALEE | MBK   | MBKET | MC     | MCOT   | METCO  | MFEC   | MINT   |
| MONO            | MOONG  | MSC    | MTC   | NCH   | NCL   | NEP    | NKI    | NOBLE  | NSI    | NVD    |
| NYT             | OISHI  | ORI    | OTO   | PAP   | PCSGH | PDJ    | PG     | PHOL   | PLANB  | PLANET |
| PLAT            | PORT   | PPS    | PR9   | PREB  | PRG   | PRM    | PSH    | PSL    | PTG    | PTT    |
| PTTEP           | PTTGC  | PYLON  | Q-CON | QH    | QTC   | RATCH  | RS     | S      | S & J  | SAAM   |
| SABINA          | SAMART | SAMTEL | SAT   | SC    | SCB   | SCC    | SCCC   | SCG    | SCN    | SDC    |
| SEAFCO          | SEOIL  | SE-ED  | SELIC | SENA  | SIRI  | SIS    | SITHAI | SMK    | SMPC   | SNC    |
| SONIC           | SORKON | SPALI  | SPI   | SPRC  | SPVI  | SSSC   | SST    | STA    | SUSCO  | SUTHA  |
| SVI             | SYMC   | SYNTEC | TACC  | TASCO | TCAP  | TFMAMA | THANA  | THANI  | THCOM  | THG    |
| THIP            | THRE   | THREL  | TIP   | TIPCO | TISCO | TK     | TKT    | TTB    | TMILL  | TNDT   |
| TNL             | TOA    | TOP    | TPBI  | TQM   | TRC   | TSC    | TSR    | TSTE   | TSTH   | TTA    |
| TTCL            | TTW    | TU     | TVD   | TVI   | TVO   | TWPC   | U      | UAC    | UBIS   | UV     |
| VGI             | VIH    | WACOAL | WAVE  | WHA   | WHAUP | WICE   | WINNER | TRUE   |        |        |

| VERY GOOD LEVEL |         |        |       |        |       |        |        |        |        |       |
|-----------------|---------|--------|-------|--------|-------|--------|--------|--------|--------|-------|
| 2S              | ABM     | ACE    | ACG   | ADB    | AEC   | AEONTS | AGE    | AH     | AHC    | AIT   |
| ALLA            | AMANAHA | AMARIN | APCO  | APCS   | APURE | AQUA   | ASAP   | ASEFA  | ASIA   | ASIAN |
| ASIMAR          | ASK     | ASN    | ATP30 | AUCT   | AWC   | AYUD   | B      | BA     | BAM    | BBL   |
| BFIT            | BGC     | BJC    | BJCHI | BROOK  | BTW   | CBG    | CEN    | CGH    | CHARAN | CHAYO |
| CHG             | CHOTI   | CHOW   | CI    | CIG    | CMC   | COLOR  | COM7   | CPL    | CRC    | CRD   |
| CSC             | CSP     | CWT    | DCC   | DCON   | DDD   | DOD    | DOHOME | EASON  | EE     | ERW   |
| ESTAR           | FE      | FLOYD  | FN    | FORTH  | FSS   | FTE    | FVC    | GENCO  | GJS    | GL    |
| GLAND           | GLOBAL  | GLOCON | GPI   | GULF   | GYT   | HPT    | HTC    | ICN    | IFS    | ILM   |
| IMH             | INET    | INSURE | IRC   | IRCP   | IT    | ITD    | ITEL   | J      | JAS    | JCK   |
| JCKH            | JMART   | JMT    | KBS   | KCAR   | KGI   | KIAT   | KOOL   | KTIS   | KWC    | KWM   |
| L&E             | LALIN   | LDC    | LHK   | LOXLEY | LPH   | LRH    | LST    | M      | MACO   | MAJOR |
| MBAX            | MEGA    | META   | MFC   | MGT    | MILL  | MITSI  | MK     | MODERN | MTI    | MVP   |
| NETBAY          | NEX     | NINE   | NTV   | NWR    | OCC   | OGC    | OSP    | PATO   | PB     | PDG   |
| PDI             | PICO    | PIMO   | PJW   | PL     | PM    | PPP    | PRIN   | PRINC  | PSTC   | PT    |
| QLT             | RCL     | RICHY  | RML   | RPC    | RWI   | S11    | SALEE  | SAMCO  | SANKO  | SAPPE |
| SAWAD           | SCI     | SCP    | SE    | SEG    | SFP   | SGF    | SHR    | SIAM   | SINGER | SKE   |
| SKR             | SKY     | SMIT   | SMT   | SNP    | SPA   | SPC    | SPCG   | SR     | SRICHA | SSC   |
| SSF             | STANLY  | STI    | STPI  | SUC    | SUN   | SYNEX  | T      | TAE    | TAKUNI | TBSP  |
| TCC             | TCMC    | TEAM   | TEAMG | TFG    | TIGER | TITLE  | TKN    | TKS    | TM     | TMC   |
| TMD             | TMI     | TMT    | TNITY | TNP    | TNR   | TOG    | TPA    | TPAC   | TPCORP | TPOLY |
| TPS             | TRITN   | TRT    | TRU   | TSE    | TVT   | TWP    | UEC    | UMI    | UOBKH  | UP    |
| UPF             | UPOIC   | UT     | UTP   | UWC    | VL    | VNT    | VPO    | WIJK   | WP     | XO    |
| YUASA           | ZEN     | ZIGA   | ZMICO |        |       |        |        |        |        |       |

| GOOD LEVEL |      |        |        |       |        |       |       |        |        |       |
|------------|------|--------|--------|-------|--------|-------|-------|--------|--------|-------|
| 7UP        | A    | ABICO  | AJ     | ALL   | ALUCON | AMC   | APP   | ARIN   | AS     | AU    |
| B52        | BC   | BCH    | BEAUTY | BGT   | BH     | BIG   | BKD   | BLAND  | BM     | BR    |
| BROCK      | BSBM | BSM    | BTNC   | CAZ   | CCP    | CGD   | CITY  | CMAN   | CMO    | CMR   |
| CPT        | CPW  | CRANE  | CSR    | D     | EKH    | EP    | ESSO  | FMT    | GIFT   | GREEN |
| GSC        | GTB  | HTECH  | HUMAN  | IHL   | INOX   | INSET | IP    | JTS    | JUBILE | KASET |
| KCM        | KKC  | KUMWEL | KUN    | KWG   | KYE    | LEE   | MATCH | MATI   | M-CHAI | MCS   |
| MDX        | MJD  | MM     | MORE   | NC    | NDR    | NER   | NFC   | NNCL   | NPK    | NUSA  |
| OCEAN      | PAF  | PF     | PK     | PLE   | PMTA   | POST  | PPM   | PRAKIT | PRECHA | PRIME |
| PROUD      | PTL  | RBF    | RCI    | RJH   | ROJNA  | RP    | RPH   | RSP    | SF     | SFLEX |
| SGP        | SISB | SKN    | SLP    | SMART | SOLAR  | SPG   | SQ    | SSP    | STARK  | STC   |
| SUPER      | SVOA | TC     | TCCC   | THMUI | TIW    | TNH   | TOPP  | TPCH   | TIPIP  | TPLAS |
| TTI        | TYCN | UKEM   | UMS    | VCOM  | VRANDA | WIN   | WORK  | WPH    |        |       |

## Description

## Score Range

Excellent

90-100

Very Good

80-89

Good

70-79

## Disclaimer:

The disclosure of the survey results of the Thai Institute of Directors Association ("IOD") regarding corporate governance is made pursuant to the policy of the Office of the Securities and Exchange Commission. The survey of the IOD is based on the information of a company listed on the Stock Exchange of Thailand and the Market for Alternative Investment disclosed to the public and able to be accessed by a general public investor. The result, therefore, is from the perspective of a third party. It is not an evaluation of operation and is not based on inside information.

The survey result is as of the date appearing in the Corporate Governance Report of Thai Listed Companies. As a result, the survey results may be changed after that date. FSS International Investment Advisory Company Limited does not confirm nor certify the accuracy of such survey results.

\* CGR scoring should be considered with news regarding wrong doing of the company or director or executive of the company such unfair practice on securities trading, fraud, and corruption SEC imposed a civil sanction against insider trading of director and executive; \*\* delisted

Source: Thai Institute of Directors Association (IOD); FSSIA's compilation

## Anti-corruption Progress Indicator 2020

| CERTIFIED |        |        |        |        |        |        |        |        |        |        |
|-----------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 2S        | ADVANC | AI     | AIE    | AIRA   | AKP    | AMA    | AMANAH | AP     | AQUA   | ARROW  |
| ASK       | ASP    | AYUD   | B      | BAFS   | BANPU  | BAY    | BBL    | BCH    | BCP    | BCPG   |
| BGC       | BGRIM  | BJCHI  | BKI    | BLA    | BPP    | BROOK  | BRR    | BSBM   | BTS    | BWG    |
| CEN       | CENTEL | CFRESH | CGH    | CHEWA  | CHOTI  | CHOW   | CIG    | CIMBT  | CM     | CMC    |
| COL       | COM7   | CPALL  | CPF    | CPI    | CPN    | CSC    | DCC    | DELTA  | DEMCO  | DIMET  |
| DRT       | DTAC   | DTC    | EASTW  | ECL    | EGCO   | FE     | FNS    | FPI    | FPT    | FSS    |
| FTE       | GBX    | GC     | GCAP   | GEL    | GFPT   | GGC    | GJS    | GPSC   | GSTEEL | GUNKUL |
| HANA      | HARN   | HMPRO  | HTC    | ICC    | ICHI   | IFS    | INET   | INSURE | INTUCH | IRPC   |
| ITEL      | IVL    | K      | KASET  | KBANK  | KBS    | KCAR   | KCE    | KGI    | KKP    | KSL    |
| KTB       | KTC    | KWC    | L&E    | LANNA  | LHFG   | LHK    | LPN    | LRH    | M      | MAKRO  |
| MALEE     | MBAX   | MBK    | MBKET  | MC     | MCOT   | MFC    | MFEC   | MINT   | MONO   | MOONG  |
| MPG       | MSC    | MTC    | MTI    | NBC    | NEP    | NINE   | NKI    | NMG    | NNCL   | NSI    |
| NWR       | OCC    | OCEAN  | OGC    | ORI    | PAP    | PATO   | PB     | PCSGH  | PDG    | PDI    |
| PDJ       | PE     | PG     | PHOL   | PL     | PLANB  | PLANET | PLAT   | PM     | PPP    | PPPM   |
| PPS       | PREB   | PRG    | PRINC  | PRM    | PSH    | PSL    | PSTC   | PT     | PTG    | PTT    |
| PTTEP     | PTTGC  | PYLON  | Q-CON  | QH     | QLT    | QTC    | RATCH  | RML    | RWI    | S & J  |
| SABINA    | SAT    | SC     | SCB    | SCC    | SCCC   | SCG    | SCN    | SEAOIL | SE-ED  | SELIC  |
| SENA      | SGP    | SIRI   | SITHAI | SMIT   | SMK    | SMPC   | SNC    | SNP    | SORKON | SPACK  |
| SPC       | SPI    | SPRC   | SRICHA | SSF    | SSSC   | SST    | STA    | SUSCO  | SVI    | SYNTEC |
| TAE       | TAKUNI | TASCO  | TBSP   | TCAP   | TCMC   | TFG    | TFI    | TFMAMA | THANI  | THCOM  |
| THIP      | THRE   | THREL  | TIP    | TIPCO  | TISCO  | TKT    | TTB    | TMD    | TMILL  | TMT    |
| TNITY     | TNL    | TNP    | TNR    | TOG    | TOP    | TPA    | TPCORP | TPP    | TRU    | TSC    |
| TSTH      | TTCL   | TU     | TVD    | TVI    | TVO    | TWPC   | U      | UBIS   | UEC    | UKEM   |
| UOBKH     | UWC    | VGI    | VIH    | VNT    | WACOAL | WHA    | WHAUP  | WICE   | WIIK   | XO     |
| ZEN       | TRUE   |        |        |        |        |        |        |        |        |        |
| DECLARED  |        |        |        |        |        |        |        |        |        |        |
| 7UP       | ABICO  | AF     | ALT    | AMARIN | AMATA  | AMATAV | ANAN   | APURE  | B52    | BKD    |
| BM        | BROCK  | BUI    | CHO    | CI     | COTTO  | DDD    | EA     | EFORL  | EP     | ERW    |
| ESTAR     | ETE    | EVER   | FSMART | GPI    | ILINK  | IRC    | J      | JKN    | JMART  | JMT    |
| JSP       | JTS    | KWG    | LDC    | MAJOR  | META   | NCL    | NOBLE  | NOK    | PK     | PLE    |
| ROJNA     | SAAM   | SAPPE  | SCI    | SE     | SHANG  | SINGER | SKR    | SPALI  | SSP    | STANLY |
| SUPER     | SYNEX  | THAI   | TKS    | TOPP   | TRITN  | TTA    | UPF    | UV     | WIN    | ZIGA   |

| Level     |   |
|-----------|---|
| Certified | This level indicates practical participation with thoroughly examination in relation to the recommended procedures from the audit committee or the SEC's certified auditor, being a certified member of Thailand's Private Sector Collective Action Coalition Against Corruption programme (Thai CAC) or already passed examination to ensure independence from external parties. |
| Declared  | This level indicates determination to participate in the Thailand's Private Sector Collective Action Coalition Against Corruption programme (Thai CAC)  |

### Disclaimer:

The disclosure of the Anti-Corruption Progress Indicators of a listed company on the Stock Exchange of Thailand, which is assessed by Thaipat Institute, is made in order to comply with the policy and sustainable development plan for the listed companies of the Office of the Securities and Exchange Commission. Thaipat Institute made this assessment based on the information received from the listed company, as stipulated in the form for the assessment of Anti-corruption which refers to the Annual Registration Statement (Form 56-1), Annual Report (Form 56-2), or other relevant documents or reports of such listed company. The assessment result is therefore made from the perspective of Thaipat Institute that is a third party. It is not an assessment of operation and is not based on any inside information. Since this assessment is only the assessment result as of the date appearing in the assessment result, it may be changed after that date or when there is any change to the relevant information. Nevertheless, FSS International Investment Advisory Company Limited does not confirm, verify, or certify the accuracy and completeness of the assessment results.

Note: Companies participating in Thailand's Private Sector Collective Action Coalition Against Corruption programme (Thai CAC) under Thai Institute of Directors (as of June 24, 2019) are categorised into: 1) companies that have declared their intention to join CAC, and; 2) companies certified by CAC.

Source: The Securities and Exchange Commission, Thailand; \* FSSIA's compilation

## GENERAL DISCLAIMER

### ANALYST(S) CERTIFICATION

Suwat Sinsadok, CFA, FRM, ERP FSS International Investment Advisory Securities Co., Ltd

The individual(s) identified above certify(ies) that (i) all views expressed in this report accurately reflect the personal view of the analyst(s) with regard to any and all of the subject securities, companies or issuers mentioned in this report; and (ii) no part of the compensation of the analyst(s) was, is, or will be, directly or indirectly, related to the specific recommendations or views expressed herein.

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| Company                     | Ticker   | Price     | Rating | Valuation & Risks   |
|-----------------------------|----------|-----------|--------|---|
| Energy Absolute             | EA TB    | THB 88.50 | BUY    | Downside risks to our SoTP-based TP include: 1) lower-than-expected demand for electricity in Thailand; 2) lower crude prices; and 3) lower-than-expected demand for batteries.   |
| Banpu                       | BANPU TB | THB 13.30 | BUY    | We see downside risks to our SoTP-based TP from lower coal prices, higher diesel costs and any unplanned shutdowns of its power plants.   |
| Banpu Power                 | BPP TB   | THB 15.60 | BUY    | Downside risks to our SOTP valuation are the start-up delays of its new projects and government intervention in the electricity tariff.   |
| Nex Point                   | NEX TB   | THB 17.50 | BUY    | Downside risks to our SOTP-based TP include: 1) a lower-than-expected bus sales volume; 2) delays in bus deliveries; and 3) risk from regulatory changes.   |
| Global Power Synergy        | GPSC TB  | THB 64.75 | HOLD   | The downside risks to our SoTP-based TP on GPSC include 1) lower-than-expected demand for electricity in Thailand; 2) a lower crude price; and 3) lower-than-expected demand from industrial users. Upside risks are a lower gas price and higher sales volume. |
| PTT Oil and Retail Business | OR TB    | THB 27.75 | BUY    | The downside risks to our SOTP-based TP include: 1) lower-than-expected demand for petroleum products; 2) a lower marketing margin; and 3) weaker-than-expected jet demand.   |

Source: FSSIA estimates

### Additional Disclosures

Target price history, stock price charts, valuation and risk details, and equity rating histories applicable to each company rated in this report is available in our most recently published reports. You can contact the analyst named on the front of this note or your representative at Finansia Syrus Securities Public Company Limited

FSSIA may incorporate the recommendations and target prices of companies currently covered by FSS Research into equity research reports, denoted by an 'FSS' before the recommendation. FSS Research is part of Finansia Syrus Securities Public Company Limited, which is the parent company of FSSIA.

All share prices are as at market close on 07-Jun-2022 unless otherwise stated.

## RECOMMENDATION STRUCTURE

### Stock ratings

Stock ratings are based on absolute upside or downside, which we define as (target price\* - current price) / current price.

BUY (B). The upside is 10% or more.

HOLD (H). The upside or downside is less than 10%.

REDUCE (R). The downside is 10% or more.

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 market price and the formal recommendation.

\* In most cases, the target price will equal the analyst's assessment of the current fair value of the stock. However, if the analyst doesn't think the market will reassess the stock over the specified time horizon due to a lack of events or catalysts, then the target price may differ from fair value. In most cases, therefore, our recommendation is an assessment of the mismatch between current market price and our assessment of current fair value.



## Industry Recommendations

**Overweight.** The analyst expects the fundamental conditions of the sector to be positive over the next 12 months.

**Neutral.** The analyst expects the fundamental conditions of the sector to be maintained over the next 12 months.

**Underweight.** The analyst expects the fundamental conditions of the sector to be negative over the next 12 months.

## Country (Strategy) Recommendations

**Overweight (O).** Over the next 12 months, the analyst expects the market to score positively on two or more of the criteria used to determine market recommendations: index returns relative to the regional benchmark, index sharpe ratio relative to the regional benchmark and index returns relative to the market cost of equity.

**Neutral (N).** Over the next 12 months, the analyst expects the market to score positively on one of the criteria used to determine market recommendations: index returns relative to the regional benchmark, index sharpe ratio relative to the regional benchmark and index returns relative to the market cost of equity.

**Underweight (U).** Over the next 12 months, the analyst does not expect the market to score positively on any of the criteria used to determine market recommendations: index returns relative to the regional benchmark, index sharpe ratio relative to the regional benchmark and index returns relative to the market cost of equity.