22 March 2019 | Sector Update

Power

Updates from Minister's session

KEY HIGHLIGHTS

- **MESTECC to grow a competitive local green industry to eventually export expertise to the region**
- **Introducing energy efficiency retrofitting schemes; RM200m worth of tender for 2 pilot projects**
- **Huge potential for rooftop solar driven by Net Energy Metering and SARE**
- **Maintain POSITIVE on Power; Tenaga, Ranhill, Cypark, Malakoff among potential plays into theme**

We hosted a Green Conference yesterday, which was graced by YB Yeo Bee Yin, Minister of the Ministry of Energy, Science, Technology, Environment and Climate Change (MESTECC). Below are key takeaways from the Minister's session related to the power sector:

"In every danger, there lies opportunity". While it is well acknowledged that the CO2 emission issue is something that the country wants to address, the strong push for green initiatives is not just for emission control and meeting the Paris Agreement commitments, but is also seen as a business opportunity. The push is meant to build the green industry as well as capabilities of players and entrepreneurs, which can then be exported to the rest of the region - Malaysian green players could be looking at a potential market of 150m population in South East Asia and not just the 30m population size of Malaysia, provided industry players invest early and stays ahead of the game in order to establish leadership growth and first mover advantage.

Energy efficiency retrofitting schemes. As part of decarbonisation initiatives, MESTECC is also prioritising energy efficiency (EE) improvements. MESTECC is looking at introducing EE retrofitting schemes, which will involve the installation of EE equipment in buildings to achieve EE and electricity bill cost savings. The scheme involves, essentially a leasing scheme via an energy performance contract whereby an energy service provider (ESP) will retrofit a building and essentially own the EE assets. The benefitting building owner can choose to either share the cost savings with the ESP or allow the ESP to keep all the cost savings as payment of the EE retrofitting cost over a specific time period. Once the costs are fully paid off, ownership of the EE assets is transferred to the building owner. The Government is looking to kickstart this program with 2 tenders worth RM200m this year to retrofit 50 Government buildings, as pilot projects.

Rooftop solar. There is actually a huge potential for rooftop solar in Malaysia. To give a picture, Malaysia entails 3.3m landed residential properties, 450K shop houses, 90K terraced factories, 21K standalone factories and 1000 shopping complexes which can be retrofitted with rooftop solar. To give a ballpark figure, a typical residential property rooftop can fit 2kw of solar PV capacity. If the whole 3.3m landed residential property is retrofitted, this alone can potentially entail some 6600MW worth of solar capacity. The Net Energy Metering (NEM) program entails 500MW solar PV allocation for the next 2 years. Since introducing the improvised NEM in Jan19 (which basically levels the cost and price of importing from, and exporting to the grid, respectively) the NEM program has seen some 11MW take up. This compares to just 2% take up of the 500MW NEM allocation between 2016 and 2018. Programs such as NEM essentially give autonomy to the consumers in producing their own electricity and allow them to hedge their electricity bills against fluctuations. MESTECC has requested the Securities Commission (SC) to form a green financing taskforce to evaluate and recommend action plans on financing for RE and EE initiatives. The ministry is looking to include the taskforce's recommendations in the next budget and estimated that there is at least RM1bn worth of business opportunities for the private sector under NEM.

SECTOR VALUATION MATRIX

		Shr Price	PE (x)		P/BV	ROE	Div Yield	Target	Total
Companies	**Rating**	**(RM)**	**FY18**	**FY19**	**(x)**	**(%)**	**(%)**	**Price (RM)**	**Upside (%)**
Tenaga	Buy	12.68	12.2	12.2	1.4	10.7	5.0	14.40	18.6
YTL Power	Neutral	0.83	10.5	10.4	0.5	5.0	4.8	0.93	16.8
Ranhill	Buy	1.36	15.1	13.0	0.7	12.7	4.3	1.60	22.0
			12.6	*11.9*	*0.9*	*9.5*	*4.7*		

Source: Bloomberg, MIDF

Efficient land usage. The next round of the Large Scale Solar (LSS) program will entail incentives for use of "unusable" land, i.e. land that cannot be used for productive purposes, in order to attain efficiency in land usage for RE generation. Meanwhile, for LSS3, MESTECC estimates contracts for the 500MW to be tendered out to be worth some RM2b. Beyond solar, MESTECC is also looking to announce new policies on Waste-to-Energy (WTE) technologies within the next 3 months. MESTECC is also looking to grow biomass and small hydros, as part of its drive to hit its 20% RE capacity mix target by 2025.

Optimistic on RE potential. The Minister is optimistic on the potential of RE having seen solar panel prices drop by some 80% over 2010-2017 and estimates that based on current cost trends, i.e. the drop in solar installation cost and the rise in gas and coal price, solar technology could potentially hit grid parity by 2030. The Minister emphasized that around two thirds of electricity cost (from conventional sources) comprise of fuel cost, which is exposed to global price volatility and that RE will serve to stabilise electricity cost.

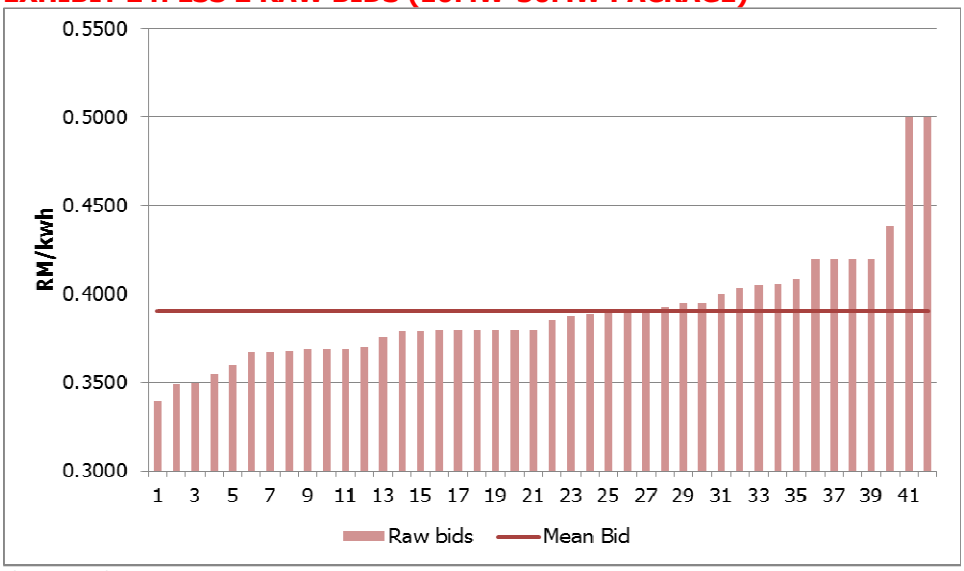
APPENDIX:

i) Large Scale Solar

New driver of solar power. The large Scale Solar (LSS) program has now taken a prominent role in driving Malaysia's RE initiative. The LSS tender, first introduced by the Energy Commission (EC) in 2016, invites players with relevant industry experience, suitable technical and financial capabilities and related resources to develop, operate and maintain large scale solar PV plants in Peninsular Malaysia and Sabah via a competitive bidding process. The LSS program has undergone 2 cycles of competitive bidding while the 3rd cycle was recently launched.

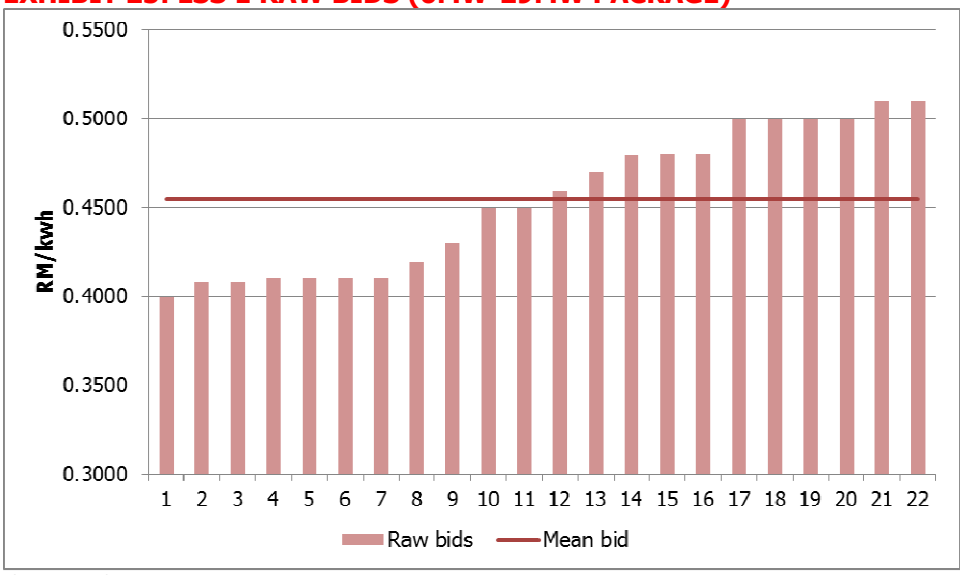
Biddings revolve around reference price. For the first two bidding rounds, the EC had suggested a reference price of 41sen/kwh based on its estimate of the prevailing market conditions and normal connection requirements. Bidders were advised to take heed of the reference price as the EC reserved its right not to accept any bid with an offer price exceeding the reference price.

EXHIBIT 24: LSS 2 RAW BIDS (10MW-30MW PACKAGE)



Source: EC, MIDF

EXHIBIT 25: LSS 1 RAW BIDS (6MW-29MW PACKAGE)



Source: EC, MIDF

LSS Cycle 3 opened for bidding. LSS Cycle 3 (LSS 3) was opened for bidding in Feb19. A total of 500MW capacity are expected to be awarded in LSS 3; LSS 1 saw a total 450MW capacity awarded (COD 2017/2018) while LSS 2 saw another 563MW capacity awarded (COD 2019/2020). LSS 2 projects are expected to be operational from end-2019 while LSS 3 projects are targeted to reach commercial operation date (COD) in 2021. The lowest bids will be selected provided their financial and technical specifications qualify - the cheapest aggregate 500MW will be selected. Players will have 6 months (Feb19-Aug19) to submit their bids.

Changes in LSS structure. The structure for LSS 3 has been improvised, involving among others: (1) No more specific capacity range packages as in previous cycles – participants are free to bid for any capacity between 1MW-100MW (2) Maximum bid is for 100MW versus 50MW for LSS 1 and 30MW for LSS 2 – MESTECC believes larger packages will allow for better finance rates (3) Projects can be located in multiple sites and can be consolidated under one bid (4) Bonus points will be given for rooftop locations (5) Engineering, construction and commissioning contractor has to be 100% local but parts procurement is unlimited i.e. can be sourced overseas (5) Projects can have a maximum of 49% foreign ownership.

Moving into sub-30sen range this time? Cycle 1 of the LSS (Sep16) saw mean bid of 45.43sen/kwh and lowest bid of 40sen/kwh – this is for the 6MW-29MW range package (Refer to Exhibit 1). For the largest, 30MW-50MW package, the lowest bid was 39sen/kwh (mean bid at 43.77sen/kwh). In Cycle 2 (Aug17), largest package scheme was smaller at the 10MW-30MW range. Lowest bid declined by 15% to 33.98sen/kwh while mean bid dropped 14% to 39.05sen/kwh. Taking this as a yardstick to the reduction in cost, we think the lowest bid for Cycle 3 could drop to sub-30sen/kwh levels while mean bid could drop to 33sen-34sen/kwh levels. In the past decade, solar panel prices have dropped by >70%. However, project cost is also determined by site location and proximity to interconnection points as this will impact infra cost and power loss – RE supply agreements are based on electricity output at the interconnection points.

EXHIBIT 26: LSS 1 30MW-50MW PACKAGE WINNERS

	2017/18 COD Bid Winners				
	Companies	**Capacity (MW)**	**Location**	**COD**	**PPA (years)**
1	Quantum Solar Park (Melaka)	50	Jasin, Melaka	Dec-17	21
2	Quantum Solar Park (Kedah)	50	Gurun, Kedah	Dec-17	21
3	Quantum Solar Park (Terengganu)	50	Merchang, Terengganu	Dec-17	21
4	UITM Solar Power	50	Gambang, Pahang	Nov-18	21
5	TNB Sepang Solar	50	Sepang, Selangor	Nov-18	21
6	Solar Management (Seremban)	50	Rembau, NS	Nov-18	21
7	Strong Elegance (Scomi/LTAT/Synergy Generated SB)	30	Kuala Muda, Kedah	Dec-18	21
8	Gading Kencana Development	30	Bidor, Perak	Jun-18	21
9	Sinar Kamiri (Mudajaya subsi)	49	Sungai Siput, Perak	Aug-18	21
	Total	**409**			

Source: EC, MIDF

EXHIBIT 27: LSS 2 10MW-30MW PACKAGE WINNERS

	2019/20 COD Bid Winners				
	Companies	**Capacity (MW)**	**Location**	**COD**	**PPA (years)**
1	Kenyir Gunkul	30	Dungun, Terengganu	Dec-19	21
2	Redsol (Fumase SB/Scatec Solar Malaysia)	30	Kerian, Perak	Dec-19	21
3	RE Gebeng	30	Kuantan, Pahang	Feb-20	21
4	Idiwan Solar	30	Machang	Sep-20	21
5	BGMC BRAS	30	Kuala Muda	Sep-20	21
6	Viva Sola	30	Sik, Kedah	Dec-20	21
7	Cypark Estuary Solar (Cypark/Revenue Vantage)	30	Empangan Terip, Negeri Sembilan	Dec-20	21
8	TNB Bukit Selambau Solar	30	Kuala Muda, Kedah	Dec-20	21
9	KBJ Hechmy	30	Bukit Keteri, Perlis	Dec-20	21
10	Cove Suria	30	Empangan Kelinchi, Negeri Sembilan	Dec-20	21
11	Greencells Majulia	30	Pekan, Pahang		
12	UITM Property Mgmt	25	Pasir Gudang, Johor		
13	Leader Energy	20	Kuala Muda, Kedah		
	Total	**375**			

Source: EC, MIDF

ii) Net Energy Metering

What is NEM? Net Energy Metering (NEM) is a mechanism which allows electricity consumers in Peninsular Malaysia and Sabah to sell excess electricity generated from their solar PV systems back to the grid. This scheme is applicable to all consumers in the domestic, commercial and industrial sectors who are customers of TNB or SESB.

How do participants benefit? Among its benefits is that it allows consumers to import less energy from the grid, save on electricity bills and export excess electricity back to the grid for credit to reduce electricity bills even further. On top of this NEM participants are essentially able to hedge against possibilities of future electricity tariff increases.

Improvised NEM structure. The Government has announced several initiatives to improve the NEM scheme which had, until recently, experienced a low take-up rate of approximately 3% of the 500MW quota allocated for the period of 2016-2020. This was due to the lower selling price of 31sen-kwh compared to the tariffs charged by the utilities

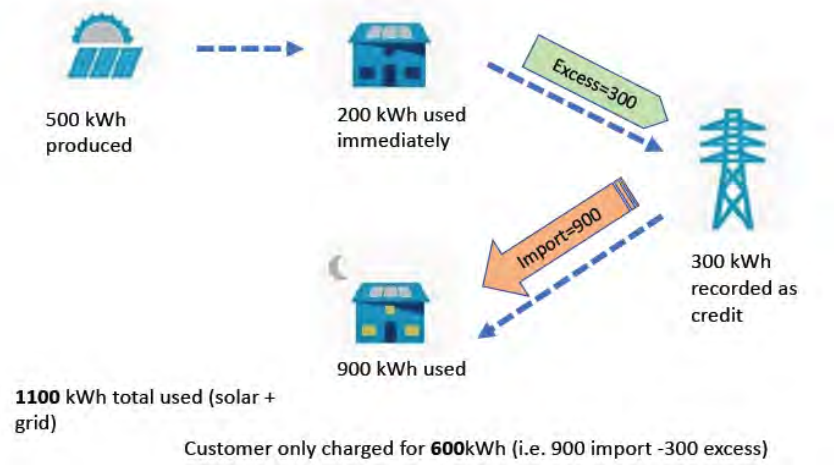
ranging from 21.8sen-57.1sen/kwh. Beginning 1st January 2019, excess electricity under the NEM program in Peninsular Malaysia, will be exported back to the grid on a one-to-one basis i.e. there will be no difference between the selling and buying price of the electricity. Additionally the agriculture sector has now been included as one of the sectors allowed to participate in NEM.

EXHIBIT 28: ENHANCEMENTS TO THE EXISTING NEM

Issues	Solutions
High cost of outright purchase	More affordable - Solar leasing, Solar PPA
Long payback period	1-to-1 NEM calculation -Excess energy exported to grid at retail tariff
Operations and Maintenance	Solar leasing. Peace of mind.
Risk of default repayment	SARE
Is now the right time to put solar on your rooftop?	YES! The fall of global PV module prices & inverter

Source: SEDA, MIDF

EXHIBIT 29: 1-TO-1 NEM (CASE FOR DOMESTIC CONSUMER)



Source: SEDA, MIDF

Implications from higher NEM rebates. Only 17MW of 500MW offered under the previous NEM program was taken up. This is because under the previous NEM program, excess power produced by the solar power producers are being sold back to the grid at displaced cost of 31sen/kwh compared with purchasing cost of 50sen/kwh. Under the updated NEM effective 2019; for every 1kw exported to grid, consumers will get back 1kw in rebate, ensuring the tariffs received for exporting power to the grid is the same as cost of purchasing. On initial thoughts, the impact on Tenaga Nasional (as the Single Buyer of electricity in Malaysia's power sector structure) could involve:

(1) If excess capacity is sold back to Tenaga (as the Single Buyer) at a higher rate of 50sen/kwh vs. 31sen/kwh previously – this essentially means additional electricity sourcing cost to Tenaga, similar to sourcing cost from existing IPPs or buying from LSS operators (first 2 cycles bid were higher than displaced cost). Cost of sourcing electricity and generation are built into tariffs under IBR.

(2) Lower electricity demand as consumers can generate electricity themselves – the impact is spread over the longer run and expected to be gradual. However, with current technologies, solar panels can only generate a maximum 4 hours/day (17% availability factor only), which means to meet electricity demand, the system will still rely a lot on more reliable sources with >90% availability factor), until storage technologies gain better scale and become more feasible.

Based on IBR (Incentive Based Framework) principles, both these factors are likely to be reflected in tariffs i.e. cost of sourcing and generating electricity and demand fluctuations given the revenue cap model under RP2 which limits upside but also protects downside for Tenaga. All in however, the changes made to NEM's structure allows consumers to have better control and for themselves, to play a larger role as part of the generation in the system.

iii) Solar Leasing

The updated NEM program also introduces a new solar leasing mechanism under a widened supply agreement for RE (SARE). The 3 key elements of the leasing mechanism are:

(1) Tariff – to be agreed upon with utility company, in this case, Tenaga,
(2) Capex – the company investing in the solar assets, in this case, G-Sparx
(3) Electricity cost savings - the consumer

A piece for everyone. The main thrust of SARE is that it makes participation in the NEM scheme more affordable as it eliminates upfront cost for consumers to install the solar PV system. Instead, SARE allows consumers (as the lessee), the investor/owner (the company that owns and leases out the solar PV system to the consumer) and the utility (Tenaga) to agree on the arrangement in which the leasing fee is paid to the investor/owner via electricity bills. The investor will earn a return on the investment into the solar panels while the customer will enjoy some saving on electricity charges according to NEM principles.

EXHIBIT 30: SOLAR LEASING FRAMEWORK

Solar solution	Business			Non-business		
	via SARE contract / Direct Contract			Outright Purchase		
	Solar PPA	Solar (Hybrid)	Solar Lease	Solar Cash	Solar via Loan	Solar via 0% (Credit Card)
Upfront cost	0%	Approx. 20%	0%	100%	Approx. 30%	0%
System owner	Investor/Owner	Investor/Owner	Investor/Owner	Customer	Financier	Customer
Contract term	21 to 25 years	21 to 25 years or lower @kWh rate	3 to 10 years	Nil	Loan term	Credit Card Payments
Installment	Monthly (based on units generated)	Monthly (based on units generated)	Monthly (Fixed)	One-off	Monthly (Fixed)	Monthly (min 5 %)
Solar tariff rate	32 to 45 cents	25 to 31 cents	0	0	0	0
Solar Segment	Commercial/ Industrial	Commercial/ Industrial	Residential/ Commercial/ Industrial	Residential	Residential	Residential
Metering Requirement	Yes	Yes	No	No	No	No
Carbon Credits	Investor/Owner	Investor/Owner	Investor/Owner	Asset Owner	Asset Owner	
Billing & Contracting Cost	Investor/Owner	Investor/Owner	Investor/Owner	Nil	By Financier	
PIA (Power Impact Assessment)	As per SEDA Guideline					
Cost of PIA	As per SEDA Guideline					
Units Exportable to Grid	By applying NEMS Quota					
NEMs Quota	Up to 500 MW					

Source: SEDA, MIDF

Status of NEM. Of the 500MW total quota allotted under the NEM scheme for 2016-2020, only 3% was taken up. The remaining of the quota i.e. 480MW was opened for application starting 1st January 2019. These will be allotted on a first come first serve basis and will only be applicable for Peninsular Malaysia.

EXHIBIT 31: STATUS OF NEM ALLOCATIONS (NO. OF QUOTAS)

Quota Allocation				
Location		Peninsular Malaysia		
Year		2019 - 2020		
		Quota Allocated	*Quota Taken	*Quota Balance
Category of Consumers	Domestic, MW	50	2	48
	Agriculture, MW	450	18	432
	Commercial, MW			
	Industrial, MW			
Total, MW		500	20	480

Source: SEDA, MIDF

EXHIBIT 32: STATUS OF NEM ALLOCATIONS (MW)

Quota Balance

Region	Peninsular Malaysia					Sabah				
Year	2016	2017	2018	2019	2020	2016	2017	2018	2019	2020
Domestic (MW)	0.0000	39.4349	18.6928	19.9959	0.0000	0.0000	7.9785	3.9870	4.0000	0.0000
Commercial (MW)	0.0000	67.9789	28.9225	35.0000	0.0000	0.0000	8.0000	4.0000	4.0000	0.0000
Industrial (MW)	0.0000	67.5696	25.5212	35.0000	0.0000	0.0000	4.0000	2.0000	2.0000	0.0000
Total (MW)	0.0000	174.9834	73.1365	89.9959	0.0000	0.0000	19.9785	9.9870	10.0000	0.0000

Quota Taken

Region	Peninsular Malaysia					Sabah				
Year	2016	2017	2018	2019	2020	2016	2017	2018	2019	2020
Domestic (MW)	0.0210	0.5441	1.3072	0.0041	0.0000	0.0000	0.0215	0.0130	0.0000	0.0000
Commercial (MW)	0.0064	2.0147	6.0775	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Industrial (MW)	0.0000	2.4304	9.4788	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total (MW)	0.0274	4.9892	16.8635	0.0041	0.0000	0.0000	0.0215	0.0130	0.0000	0.0000

Source: SEDA, MIDF

Renewable Energy Transition Roadmap 2035. Malaysia is in the midst of formulating the RE Transition Roadmap 2035 (RETR2035) to determine: (1) The future of electricity system and the RE targets in the electricity mix and total primary energy supply up to 2035 (2) The strategies, comprehensive action plans and resources required to transit to this future of electricity system and achieve the RE targets (3) The impact indicators with measurable economic (e.g. contribution to GDP, GNI), social (e.g. employment) and environmental (e.g. health indicator) benefits of the strategies for RE on annual basis till 2035. RETR2035 should map out a much clearer picture of the long-term goals of Malaysia's RE aspirations and its mission to reduce CO2 emissions in the long-run.

Potential plays into the RE theme. Ranhill (BUY, TP: RM1.60) is moving towards greener energy initiatives. Though its geothermal plant venture had hit a stumbling block, Ranhill is likely to put in a bid for LSS 3 via JVs with local land owners and might throw in a 2nd attempt at the Tawau geothermal project. We would not rule out **YTL Power (NEUTRAL, TP: RM0.93)** moving into RE in a bid to revive its domestic power business, which has only seen its Paka plant getting a short-term PPA extension up till 2021. Meanwhile, **Tenaga (BUY, TP: RM14.40)** has abundant balance sheet capacity and having acquired the track record in LSS 1 (Sepang) and LSS 2 (Bukit Selambau), is likely to make a return in LSS 3, especially given that the maximum capacity bid this time around is much larger at 100MW (vs 30MW and 50MW previously). Tenaga also locks in exposure to smaller scale/residential solar via G-Sparx which is targeting to offer 1500MW of self-generation for solar PV investment by 2025. Other potential plays into the RE theme include **Cypark (Not Rated)** and **Malakoff (Not Rated)**.

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BUY	Total return is expected to be >10% over the next 12 months.
TRADING BUY	Stock price is expected to *rise* by >10% within 3-months after a Trading Buy rating has been assigned due to positive newsflow.
NEUTRAL	Total return is expected to be between -10% and +10% over the next 12 months.
SELL	Total return is expected to be <-10% over the next 12 months.
TRADING SELL	Stock price is expected to *fall* by >10% within 3-months after a Trading Sell rating has been assigned due to negative newsflow.
SECTOR RECOMMENDATIONS	
POSITIVE	The sector is expected to outperform the overall market over the next 12 months.
NEUTRAL	The sector is to perform in line with the overall market over the next 12 months.
NEGATIVE	The sector is expected to underperform the overall market over the next 12 months.