AFSL: 259730

# **Lion Energy**

## NEW MANAGEMENT TEAM DRIVES SHALE GAS FOCUS IN INDONESIA

# **Capital Structure**

Capital Structure - LIO										
Code	LIO									
Shares	95.0 m.									
Options	4.1 m.@26cts									
Net cash (est)	\$ 7.5 m.									
Price	\$0.20									
Market Cap	\$ 19 m.									

## Valuation metric

Lion Energy	\$m.	\$/shr		
Cash	7.5	\$	0.08	
Seram	2.2	\$	0.02	
Unissued equity	1.1	\$	0.01	
Corpoate	-4.8	-\$	0.05	
Sub total	6.0	\$	0.06	
Risked Exploration	41.4	\$	0.42	
Risked Value	47.4	\$	0.48	

Source: Strachan Corporate

## **Board**

Russell Brimage	Chairman
Kim Morrison	Managing Director
Thomas Soulsby	Non Executive
Christopher Newton	Non Executive

## Opinion\*

Lion Energy hit the ground running during January 2014. The rejuvenated company has a talented management team, funding to address high impact conventional exploration leads and prospects targeting up to 80 million BOE to its account and a first mover advantage over prospective unconventional targets in Sumatra.

Strachan Corporate estimates that the value of its cash and equity in the Seram oilfield underpins a value of 6 cps, while 42 cps of risked exploration lifts total risked target value to 48 cent per share.

Peter Strachan

\*No recommendation is offered for this commissioned research.

## **Investment Drivers**

- Recapitalised and re-skilled Lion Energy is emerging as a completely rejuvenated company with highly credentialed management bringing strong technical and financial capabilities. New investors and management entering the share register have a proven track record of creating value in Indonesian oil & gas.
- Leveraging conventional petroleum into shale oil & gas

   Lion has high impact conventional exploration projects and a strategy of becoming a dominant player in Indonesia's emerging shale gas business, starting with 4 Unconventional Joint Study Applications over prospective sedimentary basins in Sumatra.
- Support from business environment Indonesia's government recognises that domestic reserves of oil and gas to supply its ballooning requirements are fast depleting. The Indonesian government has supported rising gas prices and improved fiscal terms for frontier and unconventional targets.
- ➤ Well funded Lion is funded from operating cash flow plus an estimated \$7.5 million of cash to apply towards early conventional exploration targets while moving forward with low cost studies aimed at de-risking its shale oil and gas project potential.
- Significant exploration appeal Exploration success at the Simpang Deep prospect on South Block A in Northern Sumatra could add value estimated at about \$1.50 per share.
- ➢ <u>High equity positions</u> The company's strong equity position in new projects enables it to attract farm-in funding for higher cost drilling on unconventional targets.
- Motivated management Lion's incoming management is motivated to increase shareholder wealth. It brings strong business development credentials as well as proven ability to do business in Indonesia.

Lion's major areas of interest

South Block A

Malacca Strats

Indian Ocean

Cas fields
Joint study pending
Joint study pending
Joint study pending
Gas pipeline

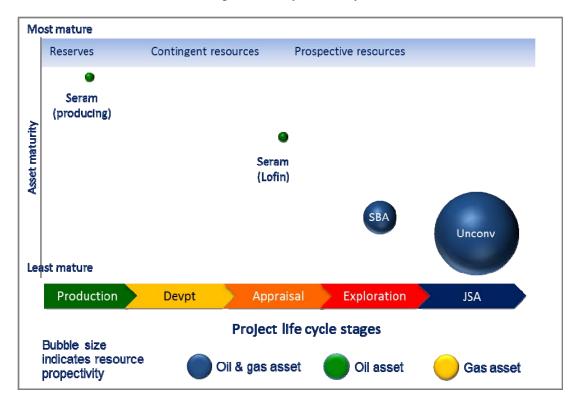
Source: LION

Rejuvenated with cash, new projects & motivated management team

## **Summary**

Lion has attracted new commercial and technical management along with new investment capital to fund a process of adding value to existing petroleum assets on Seram Island as well as newly acquired unconventional oil and gas exploration applications on the Indonesian island of Sumatra.

#### Summary of asset portfolio permit



Indonesia becoming net importer of gas as price rises

In an effort to stimulate local exploration and production, Indonesian authorities have allowed market forces to steadily lift the price paid to domestic producers of natural gas. Rapidly rising domestic gas consumption is overwhelming conventional suppliers who are unable to keep pace as the country makes plans to become a gas importer.

Lion has increased its interest in conventional Production Sharing Contracts (PSC) in Sumatra during December'13, while acquiring the sole right to progress four unconventional Joint Study Applications already submitted. These applications cover 17,334 km² of onshore Sumatran permits that are seen as prospective for shale and 'tight' oil and gas production.

New equity of ~\$9 million

Combined, new shareholders Risco Energy Investments and Tower Energy Indonesia have provided just under \$9 million of new equity while enhancing the company's access to capital and business development opportunities.

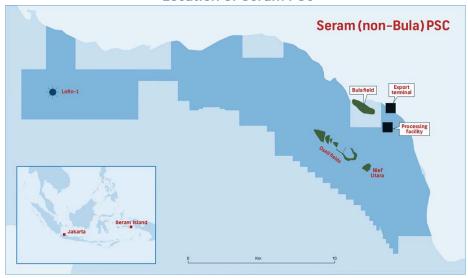
Following a 1 for 8 share consolidation, existing shareholders had an opportunity to coinvest up to \$2 million alongside the two major incoming shareholders.

## Seram Project 2.5%

Seram cash flow pays the rent

Seram production is operated by CITIC and includes KUFPEC and Gulf Petroleum Investment as partners, with Lion holding a 2.5% working interest. The license has a renewal date in October 2019. Partners are developing a renewal strategy with Indonesian authorities before spending significant effort on field development. As of 30 June 2013 the project has unrecovered costs of US\$250.7 million, so no tax is likely to be incurred for several years by the project.

#### **Location of Seram PSC**



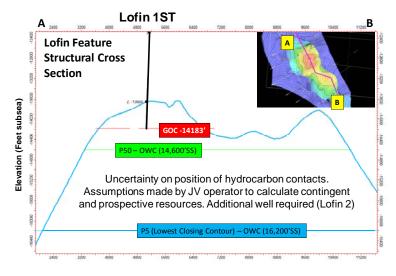
Source: LION

Since first production in January 2003, the Oseil oilfield has produced 11.9 million barrels of crude and 6.50 Bcf of natural gas, most of which is utilised to generate electricity on site for operations. Ongoing production currently runs at approximately 2,500 barrels of oil per day (62 BOPD to Lion's account) and total remaining 1P Reserves are estimated at 6.5 mmbbls.

The project holds an exciting appraisal and development opportunity in which Lion would like to increase its equity if an opportunity arose. The Lofin gas and oil field was discovered in early 2012 by a well drilled to a total depth of 4,428 metres. At total depth, the well was estimated to have penetrated a gas-oil contact. Interpretation of logging and pressure data indicates a 160 metre hydrocarbon column to the depth of drilling. After acid stimulation, flow testing produced a flow of 15.7 mmcuft per day of gas along with 171 bbls per day of 36.1 API gravity oil with a strong flowing wellhead pressure of 4,750 psi on 24/64 inch choke. Pressure data indicates potential for a significant hydrocarbon column of up to 770 metres to the lowest closing contour, mapped from seismic data at 4,940 metres.

Lofin gas & oil discovery could add value of~3 cps and up to 10 cps in P10 case

## Interpreted Lofin field profile



Source: LION

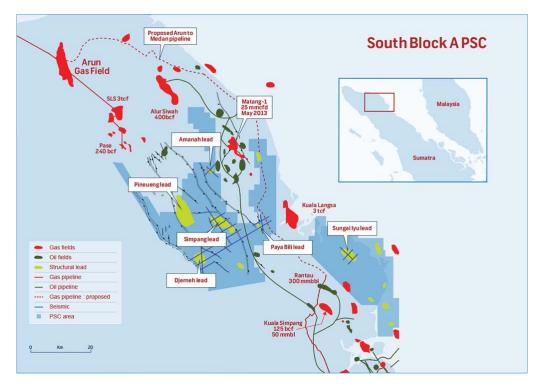
The Seram JV has approved drilling of Lofin-2 to appraise this discovery during 2014. The well aims to penetrate below the depth achieved at Lofin-1 to determine the hydrocarbon contact.

Early stage volumetrics indicate a Contingent Resource at Lofin of 25.8 Bcf of gas plus 0.26 mmbbls of condensate plus a P50 Prospective Resource of 5.1 mmbbls of oil and 7.1 Bcf of gas. The P10 Prospective Resource estimate of 42 mmBOE represents a significant upside target for the JV. While considerable uncertainty is attributable to a P10 estimate, successful drilling in 2014 has potential to add over 10 cps of value.

# South Block A Project 35%

The North Sumatra Basin is one of the most prospective hydrocarbon basins in Indonesia.

#### South Block A PSC location & prospectivity



Source: LION

This mostly onshore PSC is separated into Area 1 in the west and Area 2. Lion will have rights to both conventional and unconventional petroleum resources found within the perimeters.

Lion (through KRX, which it is buying) is part-way into a farm-in agreement with POGI. To date it has spent US\$1.61 million and is obliged to fund a further US\$1.61 million of expenditure for its 35% equity and POGI's 14% interest, to fulfil its farm-in commitment.

Acquiring 2D seismic ahead of drilling in 2014

South Block A (SBA) partners are in the process of acquiring 170 km of 2D seismic data over the Simpang Deep, Djernah, Amanah, Sungai Lyu and Paya Bili leads, ahead of drilling a well in 2014. The company estimates that in total, these leads have potential to hold Reserves to Lion's account amounting to 150 Bcf of gas plus 16.4 mmbbls of oil.

Lion's PSC is surrounded by significant oil and gas discoveries, including the 3 Tcf Kuala Langsa gas field, the 300 mmbbl Rantu oilfield and the 400 Bcf Alur Siwah field. Prospectivity within SBA was further enhanced in May '13 when Premier Oil, as a participant in the nearby Matang discovery, reported a flow test of 25 mmcuft per day of gas with a 15%  $\rm CO_2$  content and an estimated recoverable Resource of between 100 and 400 Bcf of gas.

Prolific basin with many nearby discoveries

Lion's conventional exploration focus in the PSC targets the proven Keutapang sandstone, the Baong Formation sandstones as well as sandstone and carbonate units in the underlying Peutu and Belumai Formations. In 2012, Pertamina made the Benggala gas and condensate discovery within the Belumai sandstone in a location to the south of Lion's PSC.

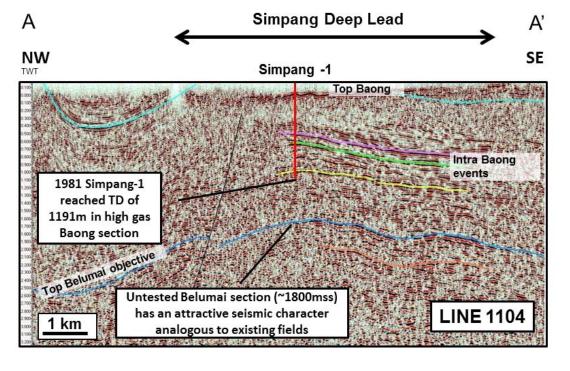
#### CHRONOSTRATIGRAPHY LITHOSTRATIGRAPHY **SBA Plays** EDUNTAD SYSTEM SERIES Keutapan g sandstone, especially 52 S. N 16 Mid to Late Mio Baong proximal shelf and turbidite sandstone œ Lower Baong shales/siltston e Ø Peutu carbonate EARLY Belu mai sandston e/carbonate 25.2 LATE Bampo shale/siltstone Basal con glo merate/sand 1 EOCENE AIDDLE Tampur Dolomite Fractured Basement??

## South Block A, Stratigraphic Column & Key Plays

Source: LION

Lion and its partners in SBA have preferential rights to conduct a study on the potential for unconventional petroleum targets within the SBA PSC. Oligocene to Miocene age shale units found in the lower Baong and Bampo Formations have been ranked against known productive shales in the USA, showing characteristics that are within the limits of those generally targeted by successful shale gas developers.

In the south of the SBA PSC, the Baong Formation is known to be oil prone, setting targets for both conventional and unconventional oil production. The company estimates that between 250 and 1,000  $\rm km^2$  of its total PSC has potential to hold shales that could host commercial gas or condensate.



Source: LION

High impact Simpang Deep prospect targets value of \$1.50 per share for discovery One of the high impact targets within the SBA PSC is Simpang Deep, while the Djerneh Lead targets gas in the same strata. This prospect targets oil or liquids rich gas within sandstones and carbonates of the Belumai Formation that are known reservoirs in the basin. Strachan Corporate estimates that after discounting the value of gas for its expected 10-20%  $\rm CO_2$  content, discovery of 285 Bcf of gas and 15.9 mmbbls of oil would be worth about US\$152 million to Lion's equity in such a discovery.

# **Unconventional, Joint Study Applications**

The Indonesian permit system characterises unconventional petroleum systems as those shale and other tight reservoirs that require fracture stimulation to promote commercial production.

4 additional study application areas

Lion has rights to Joint Study Applications (JSA) over 17,334 km² within the North and Central Sumatran Basins. Precise locations will remain confidential until the studies are complete and applications are approved. Lion has identified significant areas within its application areas where these unconventional targets have potential to be in 'sweet spots' in terms of suitable depth of burial and rock characteristics.

## **Unconventional Targets in Lions's Area of Focus**

Properties		North Sumatra	Central Sumatra				
	Lower Baong	Belumai Formation	Bampo Shale	Telisa Formation	Brown Shale/Kelesa		
Rock Description	Marine shale with carbonate Marine calcareous shale, lenses deposited during global highstand event		Restricted marine black claystone, siltstone and thinely bedded sandstone	Marine brown to brownish gray shale and in fine to medium grained sandstone and siltstone.	Lacustrine black organic rich a lgal mudstone with carbonate rich lenses		
Age	Middle Miocene	Early Miocene	Late Oligocene	Middle Miocene	Oligocene		
Environment of Deposition	Outer shelf/Deepwater	Shelfal Marine	Restricted marine	Shelfal to deep marine	Lacustrine		
Thickness	100-600m	25-600m	20-200m	100-600m	20-600m		
Organic Content/TOC (Traffic light)	0	0	0				
Kerogen Type	Type II/III	Type II/III	Type II/III	Type II/III	Type I		
Recorded TOC	0.5-2.3%	0.5-3.4	Generally 0.5-1.0	0.5-3%	2-23% mean of 3.7%		
Maturity (Traffic light)	0			0	0		
Maturity window	Mid Oil to Gas window	late Oil to Gas window	Gas window	Early Oil	Peak Oil to Gas window		
Depth range in Lion areas of interest	500-4000m	600-4500m	600-4500	100-2000m	600-3000m		
Mineralogy Comments	Carbonate rich lenses	Calcaroues shale and tight sandstone	High maturity may contribute to fracture stimulation.	Some carbonate lenses	Relatively high clay content with some carbonate lenses and laminated sandstone (silica)		
Mineralogy/brittleness (Traffic light)	0	0	0	0	0		
Pressure	Generally moderately to occassional highly overpressured	Normal to moderately overpressured	Normal to moderately overpressured	Normal to moderately overpressured	Normal to moderately overpressured		
Potential Analogues	tential Analogues  US  Late Jurassic Haynesville- Bossier, Upper Cretaceous Hilliard/Baxter Formation, Lewis Shale, Uteland Butte  US Uteland Butte, Upper Cretaceous Eagleford		US Late Jurassic Haynesville- Bossier, Upper Cretaceous Hilliard/Baxter Formation, Lewis Shale, Uteland Butte	US Late Jurassic Haynesville- Bossier, Upper Cretaceous Hilliard/Baxter Formation, Cretaceous Lewis Shale	US Uteland Butte, Bakken		

Unconventional Shale Gus/Oil	Potential Assurament for Key Parameters (Traffic Light)
	Positive
Ŏ	Reasonably positive
Ō	Uncertain
Ō	Negative factors
	Negative

Source: LION/PERTAMINA

The applications are currently with the Indonesian Government and have not yet been granted. However, Lion anticipates the award of 3 JSAs in 2014 and subsequent conversion into PSCs. This process will crystallise the unconventional opportunity for the company.

Lion may emerge with less than 100% of each JSA after negotiating terms with overlapping PSC holders so as to achieve alignment of interests. Lion will attempt to work with holders of conventional PSC's over which it is granted unconventional rights so as to align the interests of all parties and allow for more efficient and effective exploration.

Summary of JSAs and target sizes

Area	Total Area	Potential Unconventional	•	Estimate of Area where Potential Productive Shales are interpreted to have I attained suitable maturity for Shale Gas or Shale Oil				
	km²	Target		Min area (P10) km²	Max area (P90) km²			
Nth Sumatra JSA 1	4,871	<u>Lwr Baong</u> Bampo	Gas/Cond Gas Cond	240 130	1,250 1,250			
Cen Sumatra JSA 2	4,985	Brown shale gas play	Gas/Cond Oil	75 165	220 1,000			
Cen Sumatra JSA 3	2,487	Kelesa Shale	Gas/Oil	130	1700			
Nth Sumatra JSA 4	5,000	Lwr Baong, Belemai, Bampo	Gas/Oil	220	515			

Source: LION

Lower Baong and Bambo shales will be the main targets in the North Sumatra Basin. While the Lower Baong is the main source rock in the basin, it also has areas of carbonate and silica enrichment coinciding with good organic content which are anticipated to enhance brittleness and the ability to be fracture simulated.

Limited sampling from the Bampo shales which are known source rocks for some of the largest gas fields in the North Sumatra Basin typically show lower-end total organic carbon and porosity, possibly as a result of high maturity of samples. Characteristics of both target shales are within the limits of prospectivity for commercial results.

Tight gas potential is also recognised by Lion in the Belumai Formation sandstone and carbonates within the North Sumatra Basin.

The Central Sumatra Basin's Brown Shale is recognised as a world class, oil prone source rock. Lion targets areas of thick shale development at the correct maturity level to deliver prospective unconventional targets. Thin sandstone units known to occur within the Brown Shale may also contribute hydrocarbon flows on fracture stimulation.

## **Indonesian Market & Fiscal Terms**

Booming energy market with rising gas price

There is no doubt that Indonesia's demand for energy will continue to rise sharply. The country's population of 250 million is expanding by about 3.7 million per year. With GDP expanding by around 6% pa, the general level of wealth is also rising and with that its consumption of finite, non-renewable fossil fuels.

Indonesia, once a member of OPEC, is now a net importer of oil and will soon become an importer of natural gas as LNG. Gas exploration has been stimulated by recent gas contracts, reflecting a price upwards of US\$8/mmBtu payable to contractors.

Sumatra has a well developed transport system, taking gas to local markets as well as more distant markets in Java and Singapore. A new pipeline is under construction by Pertamina in North Sumatra that will provide additional sales capacity.

Indonesian fiscal terms for conventional PSCs range from 15% to 30% contractor take after taxes for oil and from 30% to 40% contractor take for gas. The industry expects significant improvement of terms for unconventional PSCs with a contractor take for gas assumed to be similar to current CBM terms of 45%.

## **Valuations**

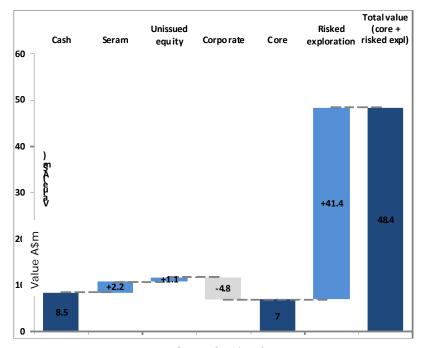
#### Target risked value of 48 cps

Strachan assesses five leads identified on SBA by Lion, assessing the more likely Simpang Deep target and applying a probability of success at the P50 level of 22%. Other leads are addresses individually and where dual zones of interest are identified, only the lowest risk target is included in risked valuation to deliver separate risked values for each target.

\$m.	\$/shr		
7.5	\$	0.08	
2.2	\$	0.02	
1.1	\$	0.01	
-4.8	-\$	0.05	
6.0	\$	0.06	
41.4	\$	0.42	
47.4	\$	0.48	
	7.5 2.2 1.1 -4.8 6.0 41.4	7.5 \$ 2.2 \$ 1.1 \$ -4.8 -\$ 6.0 \$ 41.4 \$	

Source: Strachan Corporate

Similarly, unconventional prospects cannot yet be identified, even though multi-Tcf in-situ targets are postulated.



Source: Strachan Corporate

#### Substantial value for success

Strachan assumes a combined target of 400 Bcf with 20 mmbbls of liquids for the unconventional programme and the company is assumed to retain 40% at an early stage of assessment. Risked value is set at \$3.4 million or 3 cps, but value for success would be over \$320 million to the company.

#### **Risked exploration value matrix**

Prospect	Equity	Target				LIO Value on		PoS	Drill	Risked			
			Size	ı	nsitu '	Valu	ıe		Discovery		cost		
	%	Gas	Oil	(	Gas	C	Dil			per	%	\$m	Value
		Bcf	mmbbl	\$.	/Mcf	\$/	/bb1	5	\$m	shr			\$/shr
Lofin	2.5%	33	5.0	\$	0.85	\$	14	\$	2	0.02	65%	0.8	0.01
Simpang Deep	35%	285	15.9	\$	1.02	\$	9	\$	152	1.53	28%	9.8	0.33
Djerneh	35%	144	3.1	\$	1.02	\$	9	\$	61	0.62	21%	9.8	0.03
Paya Bili	35%	0	4.1	\$	1.02	\$	9	\$	13	0.13	21%	2.0	0.01
Amanah	35%	0	8.0	\$	1.02	\$	9	\$	25	0.25	18%	2.0	0.02
Sungai Iyu	35%	0	6.0	\$	1.02	\$	9	\$	19	0.19	17%	4.9	-0.02
Unco Targets *	40%	400	40	\$	0.85	\$	12	\$	328	3.31	8%	22.8	0.03
* Estimated retained	d post farm	-out											0.42

Source: Strachan Corporate

PoS probability of success

Equity Lion's interest in prospect

Size P50 estimated prospect size

Insitu Value Estimated NPV of oil and gas in the ground

Drill cost Investment required to establish P50 target size

#### **Experienced team**

## **Board & Management**

## Mr Russell Brimage Executive Chairman

Russell has over 40 years' experience in the upstream oil and gas industry, in public listed energy companies and the service industry, both onshore and offshore.

He was Managing Director of Oilserv Australia, an oilfield service company which he founded in 1982. He was an early mover in identifying shale opportunities in the US with a farm-in to approximately 60,000 acres in the Niobrara shale play in the states of Colorado and Wyoming in August 2009.

#### Mr Kim Morrison Executive Director

Kim has an Honours degree in Geology and Geophysics and a Diploma in Applied Finance and Investment from The Securities Institute of Australia. He worked in senior technical and managerial positions for several companies and has a strong background working in Indonesia with Marathon Oil, Fletcher Challenge and Shell.

## Mr Thomas Soulsby Non-executive Director

Thomas has 22 years' experience of the resources sector spanning investment banking, corporate business development and management/leadership roles. He is an accountant, having worked at KPMG and Western Mining and also worked as an energy and resources equity research analyst before taking a posted to Jakarta and ultimately Singapore as director of corporate finance and merchant banking for ANZ Bank.

## Mr Christopher Newton Non-executive Director

Christopher is a Geologist with 35 years experience in the oil and gas business who also holds a Grad Dip in Applied Finance and Investment from the Securities Institute of Australia.

He has spent more than 25 years in South East Asia in various industry capacities including Managing Director of Fletcher Challenge in Brunei, Managing Director of Shell Deepwater Borneo, President of Santos – Indonesia and CEO of Jakarta-listed oil and gas company, EMP. Along with Mr Soulsby, he was a co-founder director of Risco Energy Pte Ltd in July 2010.

#### Mr Roger Kenneth Whyte Principal Advisor

Roger Whyte is a Geologist with over 30 years of experience in the oil industry in senior managerial and technical roles.

He ran offshore seismic operations with Shell and held positions with Union Texas Corporation in Singapore, London and Jakarta, where he rose to the position of Chief Geophysicist with responsibility for offshore seismic acquisition, processing and interpretation in the Tomori Block, Indonesia.

## Mr Sammy Hamzah Principal Advisor

Mr Hamzah has over 20 years of general management experience and formed Tower in 2012 to pursue early entry into unconventional exploration (non CBM) opportunities in Indonesia. He is the founding shareholder and Chief Executive Officer of Ephindo Energy Private Limited, Indonesia's leading first mover CBM explorer and was Unocal Indonesia Company's (now Chevron Indonesia Company) Senior Vice President in Indonesia.

He is Vice Chairman of the Indonesian Petroleum Association and Chairman of the Permanent Committee of Coordination of Energy Association at KADIN (Indonesian Chambers of Commerce) and is a founder of the CBM Advisory Board and a non-

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