Good morning ladies and gentlemen and thank your for the introduction...

The title of my presentation today is:

“Asia and the unconventional gas boom, realities, challenges and opportunities for Indonesia”

We will take a look at how success in unconventional gas in North America may influence Asian market dynamics and Indonesian in particular.
To convey my message and provide a reference source for you, I have the following presentation structure:

- A brief overview of the magnitude and implications of success in unconventional resources in the US.
- A helicopter view of magnitude and implications of success of CSG in Australia.
- An analysis of the Key Success Factors for unconventional markets in the US and Australia to provide a template for evaluating new business opportunities.
- A high level review of the unconventional gas resource and market opportunity in Asia.
- A deeper dive into the opportunity and challenges for CBM in Indonesia and potentially Shale gas and oil in the future.
Unconventional resources include oil and gas that is not conventionally structurally or stratigraphically trapped in porous and permeable reservoir rocks and produced by pressure differential or pumping.

Shale gas and oil is liberated directly from conventional oil and gas source rocks which are usually found at depth in hydrocarbon basins.

CBM is gas that is adsorbed onto the surface of coal and held there by the pressure of water in the coals. If the water pressure is reduced by pumping the water out the gas is then liberated by desorption. CBM is generally found at less than 1,000 m depth, shallower than most conventional gas reservoirs.

The other major unconventional resource is tight gas, again often found deep in basin centers.

New technology has been the key to realizing the potential of these resources.
This chart shows that US conventional gas production peaked in 1971 after the easy low cost gas had been found and markets penetrated.

A period of decline followed, largely due to investment unfriendly gas pricing policies.

As markets were deregulated, and prices rose, investment responded and finally investment went into new plays and technologies and a new production peak is currently being experienced driven by a surge in shale gas production and gas from shale oil production.
Unconventional gas production has been so successful it is, and is forecast to continue to materially impact national and international gas markets.

Tight gas continues to be the major unconventional gas source however shale gas is catching up rapidly. On the RHS chart the IEA predict a major role for shale gas going forward which will more than offset the decline in conventional gas production.

Whether this can continue in a $2.0 / MMbtu gas price environment is however a significant uncertainty in my view.

CBM was the beneficiary of early tax incentives but has long competed on its own merits. However, CBM production has declined in recent years (LHS Chart) as the higher cost of CBM production has made it uncompetitive in a low gas price environment and capital has been redirected towards shale gas instead.
The volume of unconventional gas supply coming on to the US markets is fundamentally restructuring the entire market.

On the LHS we see the production increase outstripping demand and reducing Canadian gas and LNG imports.

On the RHS we see the resultant dramatic reduction in LNG imports over the last three years that has resulted in stranded LNG import infrastructure and changing LNG trade flows in international markets.

US regulatory authorities have recently approved the first LNG export scheme in the GOM and the EIA predicts the US will become a net gas exporter in 2016.

There are indeed predictions of 40 MTPA of LNG exports by 2025 taking advantage of abundant low cost US gas supplies and higher priced international LNG markets in Asia in particular.

The impact of US unconventional gas success on global gas markets cannot be underestimated.
While the recent impact of over supply of gas on US gas prices is now well known, and the pain for producers still being felt, less well known is the impact of regulation on gas market development over the last half century.

This chart shows US gas production vs. gas prices and key regulatory episodes.

I want to spend a little time on this as the importance of market based pricing for optimum market development for conventional or unconventional gas cannot be underestimated.

The following periods are worthy of note:

**1960 – 1974**: Field and regional gas price controls capped gas prices below their true value and cheap prices drove up demand to peak levels.


**1978 – 1985**: Increased ceiling priced drove down demand and prices start to fall as market becomes over supplied.

**1985 – 1993**: Prices stabilize and demand grows as the market transitions towards full price deregulation.

**1993 – 2008**: Market forces drive prices and volumes and technology plays a role in demand (CCGT’s) and supply (marginal fields, horizontal drilling, fracking etc.)

**2008 – 2012**: Demand falters with economic down turn and as material volumes of unconventional gas flood the market prices collapse.

There are some salutary lessons here for Indonesia that we will revisit later. To reiterate: **market based pricing for optimum market development for conventional or unconventional gas cannot be underestimated.**
US drilling rig activity trends have been driven strongly by oil and gas pricing differentials and the application of horizontal drilling technology especially applicable to unlocking oil and gas from shale gas and tight gas reservoirs and to a lesser extent CBM.

On the LHS we see that horizontal drilling now accounts for 70% of the US rig counts although overall rig count is below the high gas and oil price driven levels of 2008.

On the RHS we see the collapse of gas drilling activity with the 2008 / 09 gas price collapse then a recovery as shale gas started to take off. We also see the ongoing increase in liquids drilling compared to gas as the energy price equivalence between gas and oil continues to diverge.

Gas rig activity is now less than oil rig activity, not surprising when oil prices are some 10 times greater than gas prices on an energy equivalent basis.

Rational allocation of resources (capital and technology) - that is how efficient markets work.
The last slide show the increasing application of horizontal drilling technology and this slide shows the impact of that technology.

The initial productivity of the average US gas well has increased more than three fold since 2006. This is one of the key drivers of gas drilling economics.
Technology and low gas prices has shifted unconventional investment towards oil shales such as the Bakken and Eagle Ford and success here has turned around a 25 year decline in US oil production.

Unconventional oil production is now approaching one million barrels per day and this is starting to impact global oil market flows.

It has certainly impacted WTI-Brent differentials as US oil trade flows have reversed from South => North to North => South and infrastructure bottlenecks have degraded WTI as a global oil price benchmark.
We have looked at the impact of unconventionals on US gas and liquids production and this chart shows the impact on US dry gas reserves and resources.

Despite now producing some 28 TCF of dry gas per year, reserves are now increasing and total reserves and resources have risen 60% over the last three or so years.

The bottom line conclusion from my perspective:

“A dramatic turnaround in oil and gas reserve and production declines achieved where capital and technology responded to market based pricing and light handed regulation”
Pulling all of this together and looking to the future, the EIA predicts gas, to become the dominant domestic energy source and a material turn around in domestic liquids production, both driven by supply from unconventional resources.

The impact therefore of unconventionals in the world's largest energy market cannot be underestimated.

It's hard to imagine the technology spillover will not impact energy short Asia.
In this next section we briefly review the impact of unconventional gas, in the form of CBM, or CSG as it is known locally, on the Australian gas market.
Australia is the world’s fourth largest coal producer and the world’s largest coal exporter with coal coming from basins in Queensland, NSW and Victoria.

Western Australia is also a major gas producer and LNG supplier to Asia.

Australian 2P gas reserves total some 117 TJ’s (just over 100 TCF) and with the success of CSG, this is now responsible for some 33% of this 2P reserves base and 41% of the total reserve and resource base.

Multiple new CSG supplied LNG export projects are now under development to deliver these CSG reserves to Asian markets.
From 2005 to 2011, 2P CSG reserves grew from some 4 TJ’s to 35 TJ’s as technology unlocked the resource potential and the potential of attractive export markets drove investment.
While Australian CSG reserves growth has been spectacular, so has production growth with CSG production now being responsible for 14% of total Australian production and some 33% of Eastern Australia production.

This exceeds the 9% peak contribution of CBM to US production back in 2008.

I have deliberately skipped the technical and operational aspects of Australian CSG as there are plenty of more qualified people to do that. I merely want to show the speed and magnitude of the reserve and production impact of CSG in Australia.

While CSG companies are now focused on converting reserves into production to supply LNG export facilities, Australian equity markets are now focusing on shale gas as the next great resource boom.
Let's now step back and look at the Key Success Factors for unconventional resources in the US and Australia and use these to derive templates for evaluating the potential for unconventionals in Asian markets.
This chart looks at the US and Australia against 8 KSF’s for unconventional resources.

For the US we are considering CBM and Shale while in Australia we looking only at CSG to date.

The table is self explanatory and its clear the elements for success were all present.

Key point for me are:

- Land owner alignment in the US through mineral rights ownership
- Service Sector Capability
- Infrastructure existence and access
- Investment facilitating and enabling fiscal and regulator regime
- Deregulated and market driven gas pricing
- Growing market with limited competition from conventional gas.
Now let's move on to take a high level look at the unconventional resource and market opportunity in Asia recognizing however that to date the resource side is largely speculative in most areas.
Asia Pacific and Asia in particular is a net energy importer and this drives premium energy prices.

The net energy deficiency is expected to grow and this market opportunity is there to be taken by unconventional resources if technology along with the 8 KSF’s can be combined to deliver.
Global gas demand growth to 2030 is largely driven by Asia and this demand growth will be supplied largely by LNG.

LNG prices in Asia are the highest in the world and this, along with concerns over energy security, is an excellent market incentive for investment in unconventional gas resources.
Drilling down deeper and closer to home, we see that Southeast Asia, long a gas exporter, via LNG, to the rest of Asia is set to become a net gas importer sometime before the end of this decade.

This presents a market window for new gas supply with candidates being imported LNG, CBM or shale gas.
There are lots of studies around on the CBM potential of countries in Asia Pacific however there is to my knowledge, no consistent and objective assessment that can be stacked up on an “apples to apples” basis.

So, to demonstrate where the CBM potential may be, I have simplistically plotted coal production and coal reserves for various countries on this graphic.

High coal reserves and production should be some form of high level pointer to CBM potential.

The success of CBM in the US and Australia has already been discussed.

Commercial production in China and India has commenced but in insignificant volumes to date.

The potential in Indonesia is shown be significant on this assessment as indeed the well know 453 TCF resource assessment by ARI confirms.

We will talk more on Indonesian CBM later.
This graphic is one assessment of global CBM resource potential in which China, Indonesia and Australia stand out.
The shale gas potential of Asia is even less understood than CBM and individually assessments vary within a very large range reflecting data deficiencies and geological uncertainties.

The EIA, in conjunction with ARI has conducted the most rigorous and consistent assessment of global shale gas potential however the scope did not even cover Southeast Asia.

India, China and Australia were however included.
China and Australia stand out in the EIA global assessment.

The equity markets have certainly got on board as there is a mini shale gas equity boom underway in Australia, akin the CSG boom of some 3 years ago.

While Indonesia was not covered in the EIA study, many geologists recognize the potential for shale gas and oil, especially in the organic rich lacustrine shale of Western Indonesia’s back arc basins.

In fact, IHS CERA recently identified Indonesian Shale Gas as a 5,000 TCF opportunity, more than half of which was in the back arc basins.

The government responded in January with Regulation 5 of 2012 on:

“PROCEDURES OF DETERMINATION AND OFFERING WORKING AREA OF NON-CONVENTIONAL OIL AND NATURAL GAS”

This has been enthusiastically received, by the Industry, and local participants in particular, with a wave of Joint Study applications.
Finally, and pulling all this together the IEA shows unconventional resources dominating the remaining gas resource mix in Asia Pacific and this along with market opportunities set the stage for the potential to be unleashed if other Key Success Factors can also be aligned.
Let's now move in and look at the Opportunities and Challenges presented in Indonesia.

We will start by talking a look at energy markets and then look at how the CBM industry is progressing since the first PSC was signed by Ephindo and Medco back in 2008.
We are all aware that Indonesia became a net oil importer back in 2003 although net energy exports remain strongly positive driven by coal exports and now declining gas exports.

Indonesia’s historic energy export status has shifted from oil driven, to gas driven and now coal driven.

Will unconventional resources exports be the next wave?
Indonesia’s gas production is still rising although the rate of increase has moderated substantially since the growth of LNG export expansion came to an end in the early 1990’s.

Pipeline exports boosted export growth in the 1990’s and more recently the Tangguh LNG plant in Papua came on stream as Indonesia’ third LNG export facility.

The most striking long term trend is now the rise of domestic gas consumption.

This is driven by the pricing benefits of natural gas and government policy to replace expensive petroleum product imports (which are subsidized) with domestically produced gas.
Unlike oil reserves, proven gas reserves have continued to grow in Indonesia as exploration has more than replaced production.

A leveling off in proven reserves is however evident in recent years and a decline in potential reserves is also evident, driven by declining exploration investment and smaller exploration find sizes.
Indonesia remains undersupplied with gas as pipeline and LNG exports emanate mostly from fields distant to the Java gas demand centers.

This diagram shows that even with the development of LNG regasification terminals in Java and Sumatra, domestic market supply constraints are expected to remain.

This demand forecast is also typical of many developed in Indonesia, where demand growth is fundamentally supply constrained and not reflective of the unconstrained gas demand potential.

Unconstrained gas demand is probably at least 20% higher than the constrained demand pictured here.
A long history of low domestic gas prices, certainly lower than export prices as this graphic shows, is one of the reasons behind the current domestic supply constraints.

Lack of Infrastructure and customer credit quality were other significant factors impeding supply.

Effectively, upstream suppliers were for many years being asked to subsidize largely state owned domestic consumers and support PGN’s fat profit margins. This was never sustainable in my view and led to the current shortfalls.

This situation, driven by necessity, is now changing but the philosophy of pricing domestic prices below international prices is unfortunately deeply ingrained.

The history of the US domestic gas market development reviewed earlier demonstrates that only fully deregulated market based pricing leads to a sustainable industry where consumers are the ultimate beneficiary of supply competition.
My comments on PGN’s fat profit margins were not a throw away comment or pent up frustration at watching the upstream take the risks and the state distribution company take the rewards.

Here is a listing in the April 2012 edition of Forbes Indonesia magazine of the 26 largest SOE’s by revenue and other parameters such as profit margins.

At the top of the list when ordered by profit margins is PGN with a 34.4% margin.

While these margins are now under severe pressure, they are still way above international benchmarks.

Their taking too much of the margin is one reason why they have struggled to secure supply in my view.
Upstream gas prices, as measured by new domestic gas contract signings have been trending strongly upward for a number of years, as oil prices (and upstream costs) have also trended upward and supply constraints increased.

Years of low long flat nominal pricing has been replaced by higher starter prices with some form of indexation now the norm. Oil linked prices paid by some customers deliver prices in excess of US$10.0 / MMbtu at current oil prices. This is a good deal for both producers and customers.

In 2011 the average headline price for new gas contracts was US$6.3 / MMbtu. This however compares with an average Minas Indonesian Crude Price (ICP) of US$113.63/ bbl. or US$18.90 / MMbtu.
The chart clearly shows the compelling gas value proposition for energy customers whose alternative is market priced fuels or for some, subsidized petroleum products.

Also shown is the expected prices of re-gassified LNG delivered from the Bontang LNG plant to customers in West Java. While this represents an approximate doubling in average 2011 gas prices, the result is still very cost effective gas and environmentally friendly energy for consumers in Java.
Poor credit quality of Indonesian gas customers, especially state owned, used to be a significant impediment for suppliers financing development of capital intensive domestic gas supply.

Indonesia’s sovereign foreign currency credit rating has improved dramatically since the depth of the Asian economic crisis and this has reduced one of the historic obstacles to upstream gas commercialization.

PLN’s reliance on subsidies does however remain a cause for investor concern as is the new BI regulatory requirement to use Indonesian Banks to receive proceeds from oil and gas sales by production sharing contractors.
New CBM licensing regulations and fiscal incentives have resulted in the signing on 50 CBM PSC’s since 2008.

The majority have been awarded through the joint study and direct offer mechanism that also proven to be a successful mechanism for conventional PSC’s.

We can certainly expect more CBM PSC’s to be awarded in 2012 and perhaps by the end of the year, the first shale gas or oil PSC under Government Regulation 5 of 2012.
While local entrepreneurs such as Ephindo and Medco pioneered CBM in Indonesia, the recent arrival of the super majors is testimony to CBM’s gas resource and economic potential.
Pertamina leveraged its large conventional PSC land holding to move into the CBM business largely financed by first mover local and foreign companies.

Entrepreneurial local companies are the next most significant although their business models are different.

Some such as Ephindo have focused on operating capability, technical skills and financial capacity while others have followed innovative access and broker models.

A period of consolidation can now also be expected.
Through the 50 CBM PSC’s signed to date, Investors have committed to spend a minimum of US$317 million over the initial 3 years of each PSC and paid an additional US$61 m in Signature bonuses.

The committed minimum work programs total 408 wells comprising 294 core holes and 114 pilot wells.

This is a huge call on, and opportunity for, the CBM service sector that is only slowly rising to the challenge.
The industry in general is well behind on its drilling commitments and government expectations for production.

By the end of 2012 some 308 wells should have been drilled however to date only 46 wells have been drilled.

We will look at the reasons why in a minute, however what is clear is the wells that have been drilled have been done by those that have the technical, operating and financial capacity to do so and are long term investors rather than traders.
The failure of the industry in general to meet its drilling obligation schedule can be summed up under the following 6 points.

I would also add that the drilling service sector has been slow to respond to a huge opportunity although they too have been the victim of restrictive procurement processes.

Clearly many PSC were granted to companies without the financial capacity to execute commitments and these companies relied on flipping the acreage to financially capable investors. It’s ironic that the new regulations on the taxation of farmouts will only exacerbate this funding problem for small local companies.

Funding for CBM exploration is certainly not helped by the taxing of INVESTMENT in the form of VAT and other duties. In some cases companies have PSC’s where the government has the obligation to “assume and discharge” these “other taxes” and this is not being honored. Taxes should be reserved for profits not on investment.

The above issues relate only to drilling progress to date and a whole new set of problems await the gas commercialization stage unless clear and consistent fit for purpose CBM regulations are promulgated and implemented. The good news is I believe there is general agreement on the above issues, the next challenge, and always the hard step, is getting action to address the issues.
Earlier we looked closely at the Key Success Factors for unconventional resource development in the US and Australia and developed a success template.

Let's now take a step back and see how Indonesia measures up against these 8 KSF’s.

Obviously we are only looking at CBM to date. However the same factors will largely apply to shale gas as well.

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<table>
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<tr>
<th>Positives</th>
<th>Negatives</th>
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<tr>
<td>High resource potential</td>
<td>Many unknowns</td>
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<tr>
<td>Coal thickness, depth quality and distribution well understood.</td>
<td>Limited and variable permeability</td>
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<td>Thick laterally continuous seams</td>
<td>Early stage pilot testing only</td>
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<tr>
<td>Initial core analysis results very promising</td>
<td>Water volume and quality?</td>
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<tr>
<td>Water quality looks very manageable in places</td>
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<tr>
<td>Most potential outside densely populated Java</td>
<td>Overlap issues with mining and forestry</td>
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<tr>
<td>Often remote areas</td>
<td>Access issues with large CBM footprint</td>
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<tr>
<td>Oil and gas plus coal operations enabling access</td>
<td>Land ownership often unclear in regions</td>
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<tr>
<td>Adaptable skills from oil &amp; gas and mining sector</td>
<td>Land acquisition cost</td>
</tr>
<tr>
<td>Significant oil and gas and mining service sector</td>
<td>No landowner royalties like US</td>
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<tr>
<td>Under utilized LNG export infrastructure in East Kalimantan</td>
<td>High capacity utilization in oil &amp; gas and mining sector</td>
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<td>Pipeline network in S Sumatra</td>
<td>Few specialist CBM services in country</td>
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<tr>
<td>Rapidly rising domestic gas demand and rising prices.</td>
<td>High cost of equipment mobilization</td>
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<td></td>
<td>Barito lacks infrastructure and market</td>
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<tr>
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<td>Domestic demand is distant to supply and many infrastructure constraints</td>
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<td>No clear open access</td>
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It's clear that while the potential for success is evident there is a lot more government can do to accelerate realization of that potential.
Winning companies in the now crowded Indonesian unconventional resource space and CBM in particular will have many of the following characteristics.

- They will likely be early movers in securing material operated positions in quality resources in close proximity to infrastructure and markets.
- They will be well funded through the exploration and appraisal stages until such time as they have added value to secure an equity funding partner or debt funding for development.
- They will have local operating experience and capability with CBM specific skills to fast track themselves up the CBM learning curve climbed by others in in the US or Australia.
- They will have leverageable local relationships to efficiently navigate the plethora of local regulatory, access and community issues.
- They will have a safe and efficient low cost operating model to deliver the cost structure necessary to drive full cycle value from CBM E, D and P.
- They will have creative and aligned business relationships with the service sector to access technology and build a sustainable low cost business model.

This is the strategy that Ephindo is deploying and that Risco is backing.
Ladies and Gentlemen, Thank you for your time.

I would like to also acknowledge the support of the Ephindo and Risco team in preparing this presentation.
### Overview
- A private Indonesian sponsored Singapore based energy investment company.
- Bridge between private equity & operating oil & gas co.
- Established July 2010 by experienced upstream oil and gas transaction specialists.
- Wholly owned by a prominent Indonesian family, which has a strong energy investment record.
- Risco has to date invested in five oil and gas operations in Indonesia, the Philippines and the USA and it now has 11 individual oil and gas contract areas:
  - Major stake in Ezhindo, Indonesia leading first mover CBM company with 6 PSC’s and at first gas from pilot wells in two PSC’s.
  - Over 7,000 boepd of production in Indonesia and Philippines
  - Operated oil and gas production and development onshore South Texas.
- A plethora of upstream production acquisition opportunities being matured
- Leveraged up equity with US$40 million in RBL facility
- On track to IPO Risco Energy in 2013

### Portfolio

| Conventional | 
| --- | --- | --- | --- |
| Upstream | Oil and Gas | Unconventional Gas | Coal Bed Methane |
| USA | Indonesia | Indonesia | Philippines | Indonesia |
| ![Diagram](Diagram.png) | ![Diagram](Diagram.png) | ![Diagram](Diagram.png) | ![Diagram](Diagram.png) |

NWP Field: 150 boepd 2,250 bwpd 3,000 boepd 1,000 bwpd

Risco Energy Pte Ltd

More information on Risco Energy can be found at [www.riscoenergy.com](http://www.riscoenergy.com)
The Ephindo Portfolio

Ephindo Overview

- Local partner of choice with privileged position, strong relationships, financial strength and technical capability
- CBM blocks are located in the South Sumatra and Kutai Basins where historic E&P and coal mining activity and data significantly de-risks CBM exploration phase
- Cored wells drilled in 3 blocks and pilot operations underway in 2 blocks
- Focused on developing a production base that has a low operating cost, is flexible and scalable
- All CBM blocks are proximally located with respect to infrastructure and markets shortening commercialization lead times and enhancing netbacks
- Ephindo offers pre-eminent land position encircling gas-short Bontang LNG plant
- Existing partnership with credible international and domestic energy companies including Total, PERTAMINA, Medco and Dart Energy
- Secured approval to sell gas from Sangatta pilot production to PLN power plant at attractive gas price

More information at www.ephindo.com
End of Presentation

http://www.riscoenergy.com