



# THE LANTAU GROUP

strategy & economic consulting

## Is the “International Power Producer” a relic of the past?

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## In the beginning, need met opportunity

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- Back in the late 1980s and into 1990s, demand growth in developing countries started to outstrip the supply of capital, expertise and capacity to build generation to meet the demand
- At the same time, massive liquidity and tight domestic returns induced by PURPA in the US and deregulation in Europe drove investors to seek higher returns in new markets abroad
- This was aided by key lending policy changes of the World Bank and Asia Development Bank that specifically required commitment to power sector structural reform

### What did IPPs Bring to the table?

- Finance – both equity and debt
- Skills:
  - Expertise in procuring equipment
  - Expertise in managing power station construction
  - Expertise in managing power station operations
- Fuel or fuel procurement expertise

### What did developing countries need?

- Finance – both equity and debt
- Skills:
  - Expertise in procuring equipment
  - Expertise in managing power station construction
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Need met opportunity and the IPP market was born

# These new opportunities had significant risks and projects structures developed to manage the risks

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## Market Features

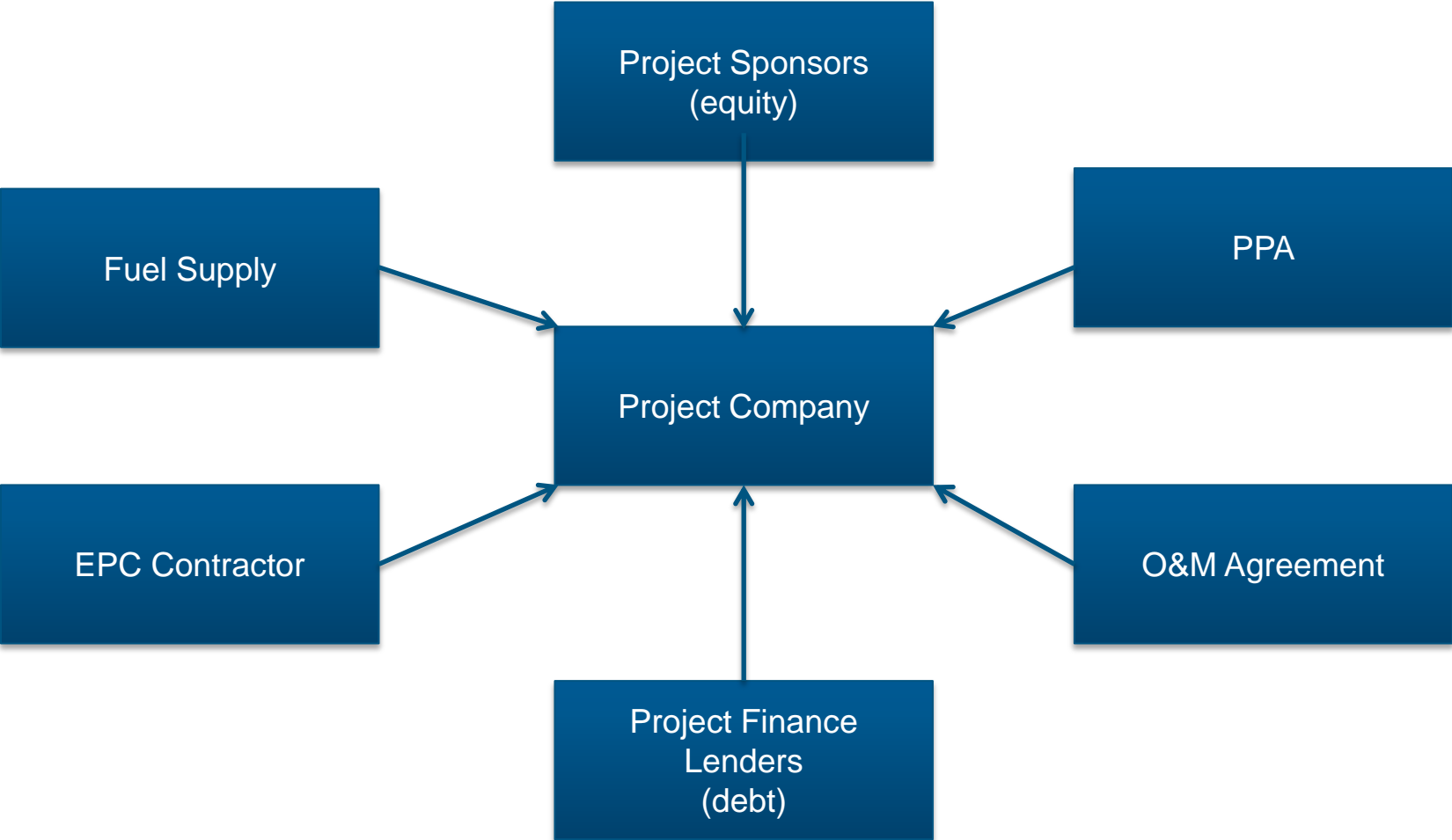
- Single off-taker and no other sources of revenue
- High capital cost project but unable to move it once built;
- Long economic life of project;
- Significant risks during construction; fewer technical risks after commissioning;
- Electricity is a political commodity and can become a political minefield; and
- Fuel that may have uncertain delivery and price
- Undercapitalised local markets

## IPP Features

- PPA's were necessary because there was no other way to sell electricity into the market;
- Government guarantees were necessary because of the risk that, once built, the incumbent utility would not pay, or the Government or regulator would change the tariff and make the project uneconomic, because of political pressure to keep tariffs low;
- The PPA usually passed fuel risk to the off-taker either as a tolling contract (energy conversion agreement) or through complex pass-through pricing provisions;
- International lenders were necessary because the local markets in many developing countries had almost no local banks and certainly none with the capability to finance something as large as a power station; and
- International legal advisors were necessary to document the transaction to the satisfaction of international equity and debt

# And the structure of the “classic IPP” was born

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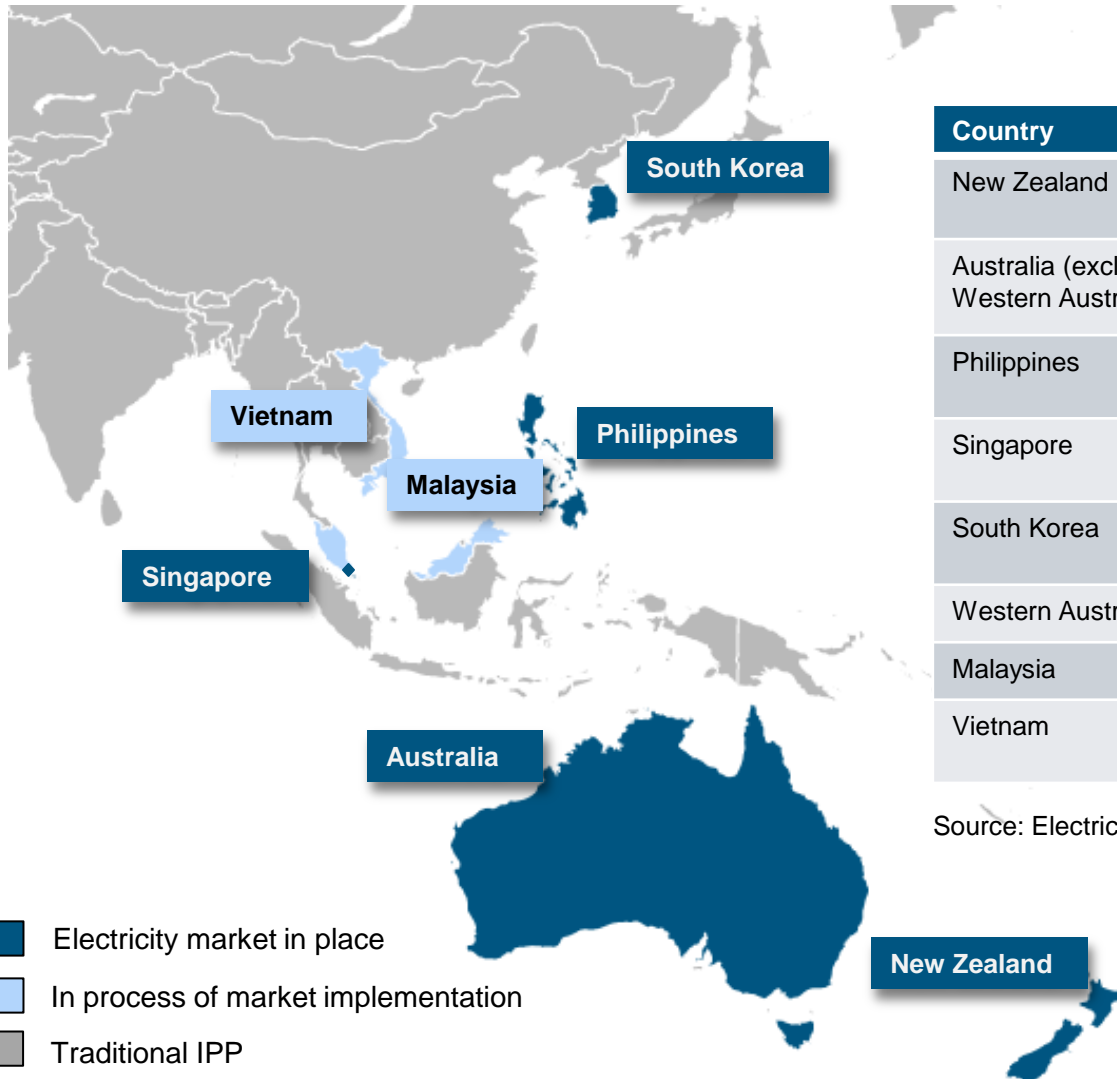
# So, the question for this presentation is: Does this classic “IPP structure” have relevance today?

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Many changes have occurred since the first wave of IPP's entered the electricity supply industry

- Markets have been introduced in many places
- Growth rates are now lower
- Banking reform, savings and increased liquidity has meant that local banks are now much more capable of financing power projects
- Skills transfer has occurred, with many individuals having worked on original IPP's now having a good knowledge of how they work
- Where there are still skills gaps, an army of technical, commercial and economic consultants (often having trained overseas with IPP's) now exists to help fill specific gaps

# Various countries in Asia-Pacific have either adopted a market, in the process of implementing a market or operates under the traditional IPP structure



Country	Electricity Market	Market Start
New Zealand	New Zealand Electricity Market (NZEM)	October 1996
Australia (excluding Western Australia)	National Electricity Market (NEM)	13 December 1998
Philippines	Wholesale Electricity Market (WESM)	26 June 2006 (Luzon); October 2010 (Visayas)
Singapore	National Electricity Market of Singapore (NEMS)	1 January 2003
South Korea	Korea Power Exchange (KPX)	April 2001
Western Australia	No market	
Malaysia	No market	
Vietnam	No market	Expected 2014 (Pilot Operation)

Source: Electricity Regulatory Authority of Vietnam

- Electricity market in place
- In process of market implementation
- Traditional IPP

## Markets make it easier for new entrants to enter the generation sector

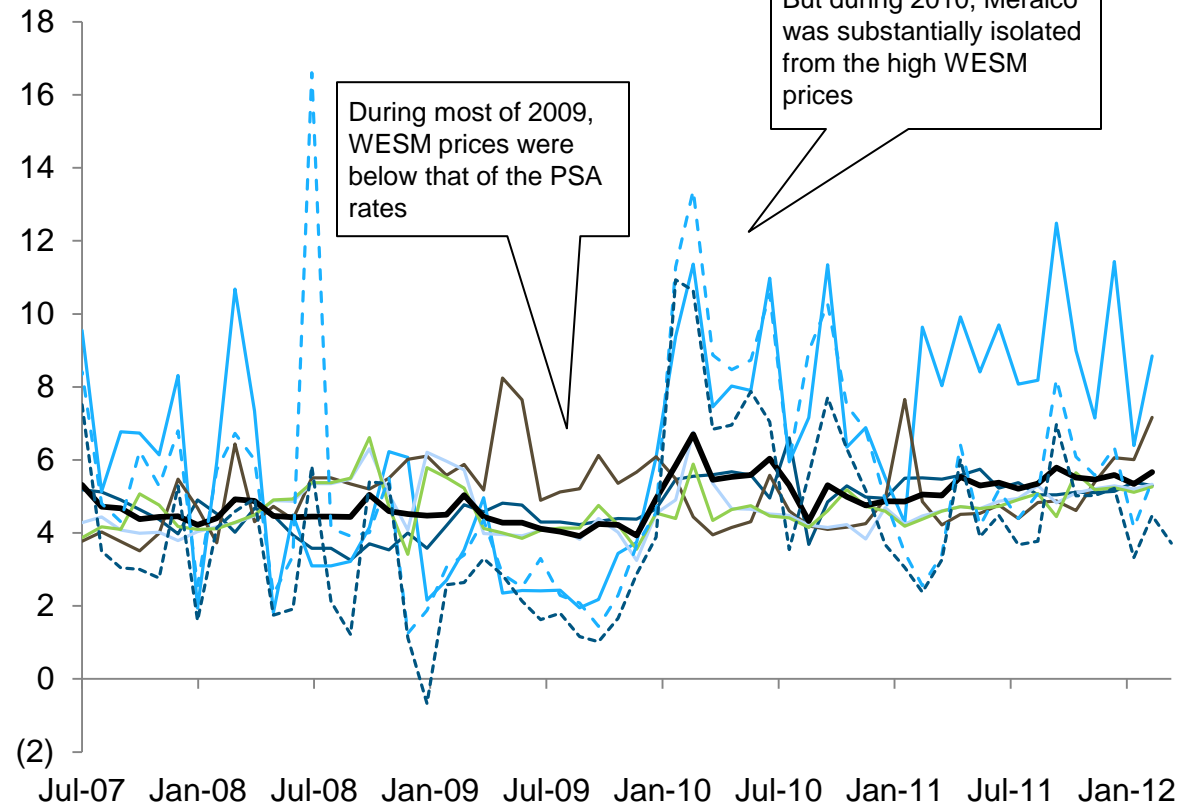
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- Markets provide an alternative revenue stream for the output of the plant, meaning that if contracts enter difficulties, at least the power station can always dispatch and get paid
- Markets unbundle costs and encourage cost reflective pricing which advantages any new entrant with lower cost technology
- Markets typically improve provision of data and understanding of where power is needed and what the fundamental demand is and the price that the market should be prepared to pay for it

# Markets bring both risks and opportunities and require a different skill set to traditional IPP's

## Average monthly cost of Meralco's purchased power\* (2007-12 YTD)

PhP/kWh



Meralco hedges the volatility of WESM with long-term TSCs/PPAs with NPC/IPP's

	Jul-07 – Apr-12 (PhP/kWh)	
	Average	Std. dev.
— NPC (Meralco TSCs)	4.78	0.70
— WESM (Meralco)**	6.36	2.91
— QPPL	5.11	1.00
— Sta Rita		
— San Lorenzo		
— Meralco total	4.68	0.69
— WESM (avg spot)	4.68	0.60
— WESM (Luzon ex-ante LWAP)	4.11	2.29

WESM has the lowest average price over this period, but it far more volatile than the contracted supplies

Note: \* Philpodeco, MMPC and Bacavalley which contribute less than 0.2% of total and SEM-Calaca which commenced in Jan-12 are not shown;

\*\* Includes adjustments for Line Rentals, Net Settlement Surplus, Market Fees and other billing adjustments

Source: Meralco; PEMC; TLG analysis



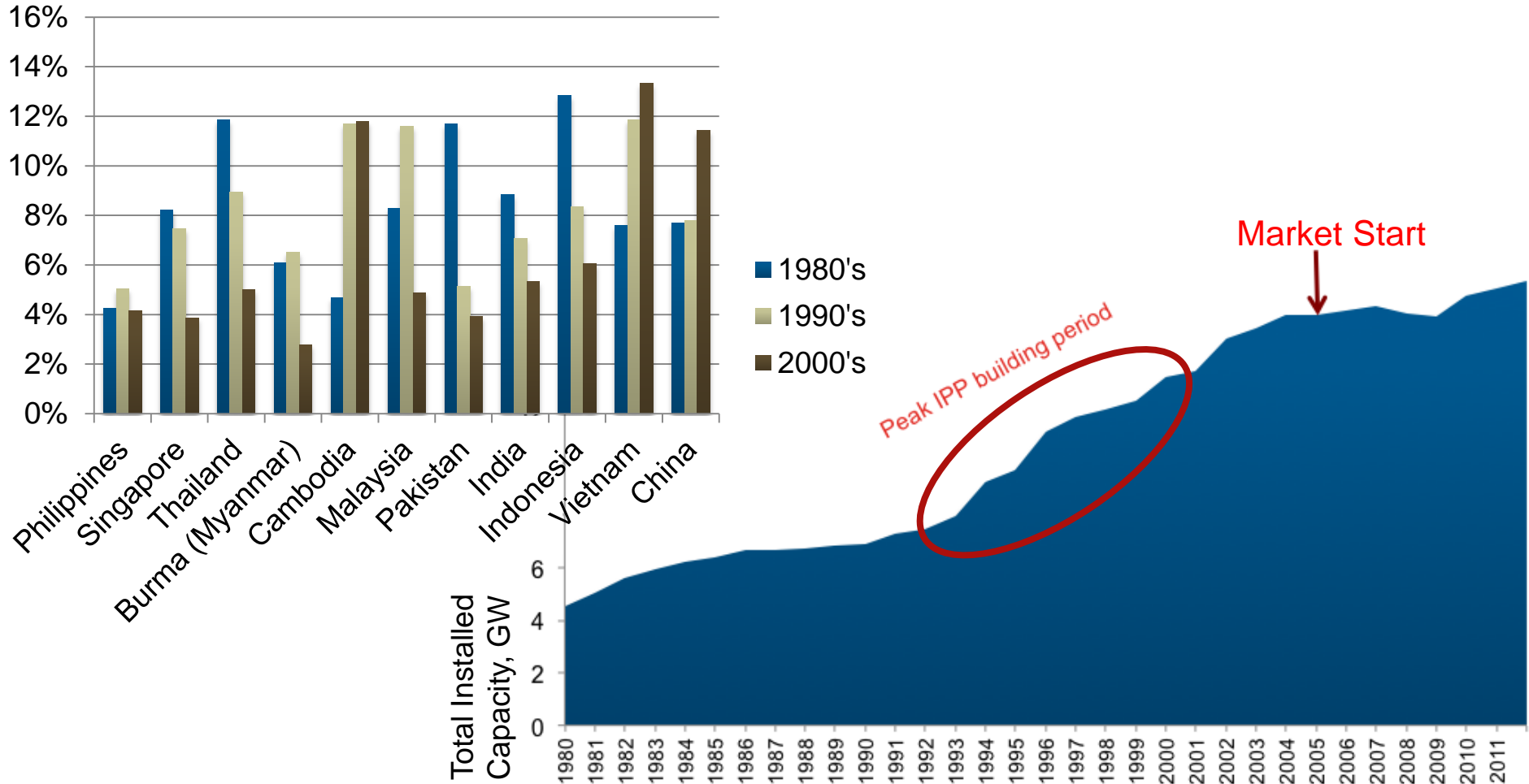
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# Electricity demand growth in the 80's, 90's and Naughties



Example of Philippines shows how the curve is changing

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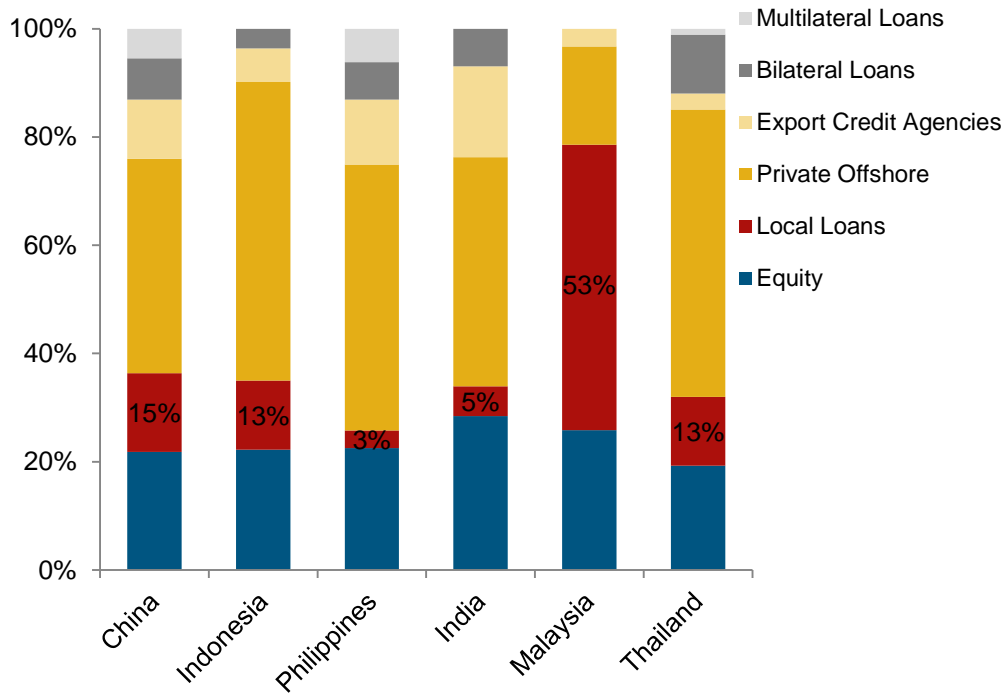
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# Indonesia and Vietnam still rely heavily on foreign financing while local bank lending are much more prominent elsewhere

2005 Proportion of local financing in Asia IPP



Source: World Bank

Recent IPP financing sources

	Capacity	Financial Close	Amount raised	Lenders
<b>Indonesia</b>				
Wayang Windu	400	2006	U\$298m	Standard Chartered
Tanjung Jati-B Phase II	2*600	2008	U\$2.2bn	JBIC, Tokyo-Mitsubishi UFJ, Sumitomo Mitsui Banking Corp and BNP Paribas
Central Java Power Plant (CJPP)	2*1000	2012	U\$4 bn	JBIC and a club of Japanese banks
<b>Vietnam</b>				
Mong Duong 2	2*620	2011	U\$1.5 bn	BNP-Paribas, Credit Agricole, HSBC, ING, Mizuho, Natixis, SMBC, Societe Generale, Standard Chartered, Unicredit, CIC Bank and DZ Bank
Vung Ang 1	2*600	2012	U\$1.5 bn	HSBC, China Development Bank, BTMU, Credit Swiss, JBIC, SMBC
<b>Thailand</b>				
Nong Saeng		2011	U\$1.2bn	ADB, JBIC, Mizuho and local banks Kasikorn Bank and Siam Commercial Bank

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Clearly many of the reasons that drove the original wave of IPP's no longer exists, but some reasons remain

The Philippines is an example of a poster-child for IPPs that is now less dependent on them

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- The Philippines entered the IPP market in 1988 following presidential decree authorizing private investment in generation
- Major investments occurred following a major electricity crisis in 1991-93
  - The first wave involved a series of “crisis” plants with short (5-12 year) contracts, which usually fired on oil or diesel, to stem the blackouts
  - Second wave second was baseload coal plants with longer (20-25 year) contracts
  - Finally, a series of natural gas-fired and hydro plants that reached operations between 1998 and 2001.
- The Philippines IPPs included a variety of fuel sources, investor composition, contract type and duration, extension of sovereign credit support, and method of solicitation.
- Project selection reflected three variables: fuel choice, regulatory regime and choice of offtaker.

## Since then, the Philippines has introduced a market and privatisation

- The IPP's were included in the Privatisation and the contracted capacity (and transfer where included) are in the process of being sold to private sector "IPP Administrators"
- These IPPAs bid the plants into the market and have the rights to any electricity generated
- However PSALM (the Power Sector Assets and Liabilities Management company) continues to pay the original PPA costs to the original IPP
- The IPPA process has enabled PSALM to "mark to market" the value of the various PPAs that it inherited, giving a unique insight into the value of an IPP part way through the life of the contract
- For example, in 2009 a PSALM report to the regulator included losses of 26 Billion Pesos (around half a billion USD) in Luzon alone as a result of these contracts

IPP	IPPA Contracts Awarded to	Value (US\$)
Sual	San Miguel	1.07bn
San Roque		450m
Ilijan		870m
Pagbilao	Aboitiz	691m
Bakun and Benguet	Amlan	175m



# The ERC has declared that requirements for Open Access Retail Competition (OARC) have been fulfilled but implementation has yet to occur

Objective	Outputs	Status		Comment
<b>Restructuring NPC</b>	• Creation of asset management corporation	PSALM	Jul-01	
	• Concession of the transmission network	NGCP	Jan-09	
	• Formation of autonomous group market operator (AGMO)	PEMC	Nov-03	
	• Appointment of Independent MO	On hold		
<b>Privatisation</b>	• Sale of generation assets	PSALM plants	85%*	Most private sector competitive market structure in Asia
	• Privatisation of Transco	NPC-IPP	77%	
		Transco	Complete	
<b>Cost-reflective electricity pricing</b>	• Rates are structured and unbundled	Complete		
	• Removal of cross-subsidies	Inter-grid	Sep-02	
		Intra-grid	Oct-05	
<b>Competition</b>	• WESM established	Luzon	Jun-06	
		Visayas	Dec-10	
	• Reserves market	Undergoing final study (Dec-11)		
• Open Access and Retail Competition	Originally expected 26 Dec 2011** Deferred to Oct-12			

Note: \* Across Luzon and Visayas

\*\* ERC Case No. 2011 – 009 RM

Source: DOE (18th EPIRA Implementation Status Report, Nov-10 to Apr-11); Press articles

However, not everyone has moved with the times. The regulatory framework in the Philippines is still reminiscent of one more suitable to IPPs and PPAs

### Recently ERC-approved Power Supply Agreements

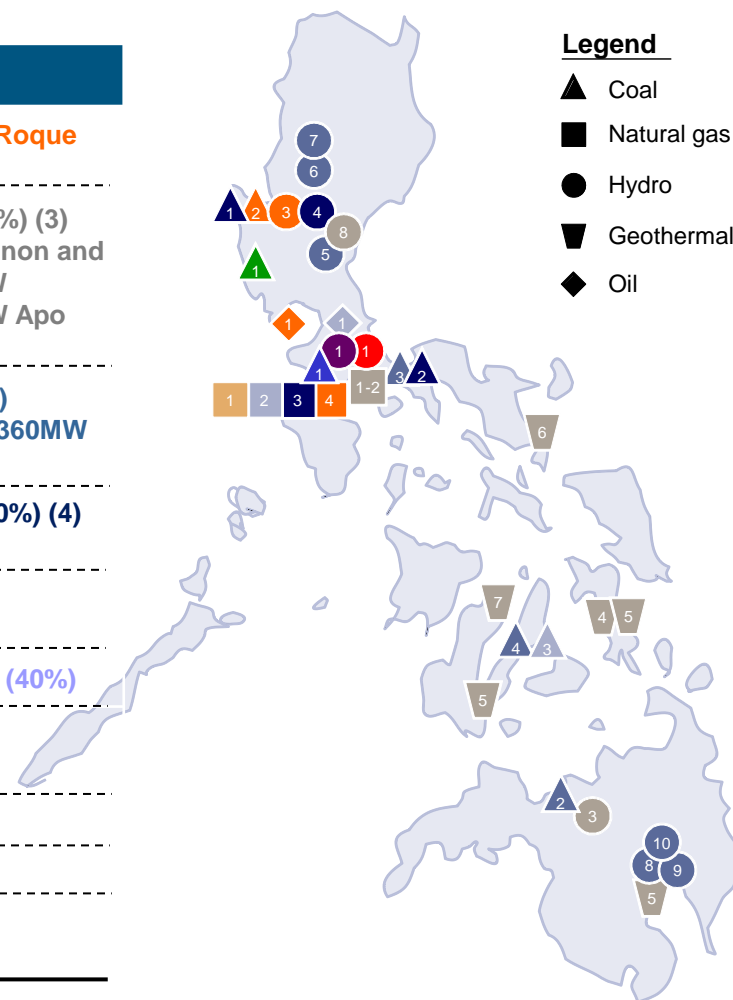
Approval date	Parties	Period (years)	Contracted capacity / energy	Provisional base rate (PhP/kWh)	Approved base rate (PhP/kWh)	Difference in base rate
Jul-11	Isabela I EC & Lucky PPH Int'l	15	2.5 - 7.5 MW	5.0000	4.0199	(19.6)%
Jan-11	FBPC & APRI	3	37 GWh (1st year)	3.9778	3.7772	(5.0)%
Jan-11	ORMECO & Power One	15	30 GWh p.a.	7.4600	7.4434	(0.2)%
Jan-11	San Fernando ELAPCO & APRI	3	226 - 271 GWh p.a.	TOU* (LRAC = 6.9443)	3.7772	(45.6)%**
Dec-10	Negros Occidental EC & FFHC	10	"As available"	4.1920	2.8978	(30.9)%
Dec-10	VRESCO & FFHC	10	3.0 - 3.5 MW	4.1920	2.8978	(30.9)%
Feb-10	Ileco I & PNOC-EDC	5	101 - 126 GWh p.a.	4.8800	4.8800	-
Feb-10	VECO & CEDC	25	105 MW at 90% LF	5.3160	5.2310	(1.6)%
Nov-09	VRESCO & SCBI	30	19 - 35 GWh p.a.	4.7500	2.8628	(39.7)%

Note: \* Rates structured on Time Of Use (TOU) scheme and no average given; \*\* Rate difference relative to APRI proposed LRAC

Source: ERC

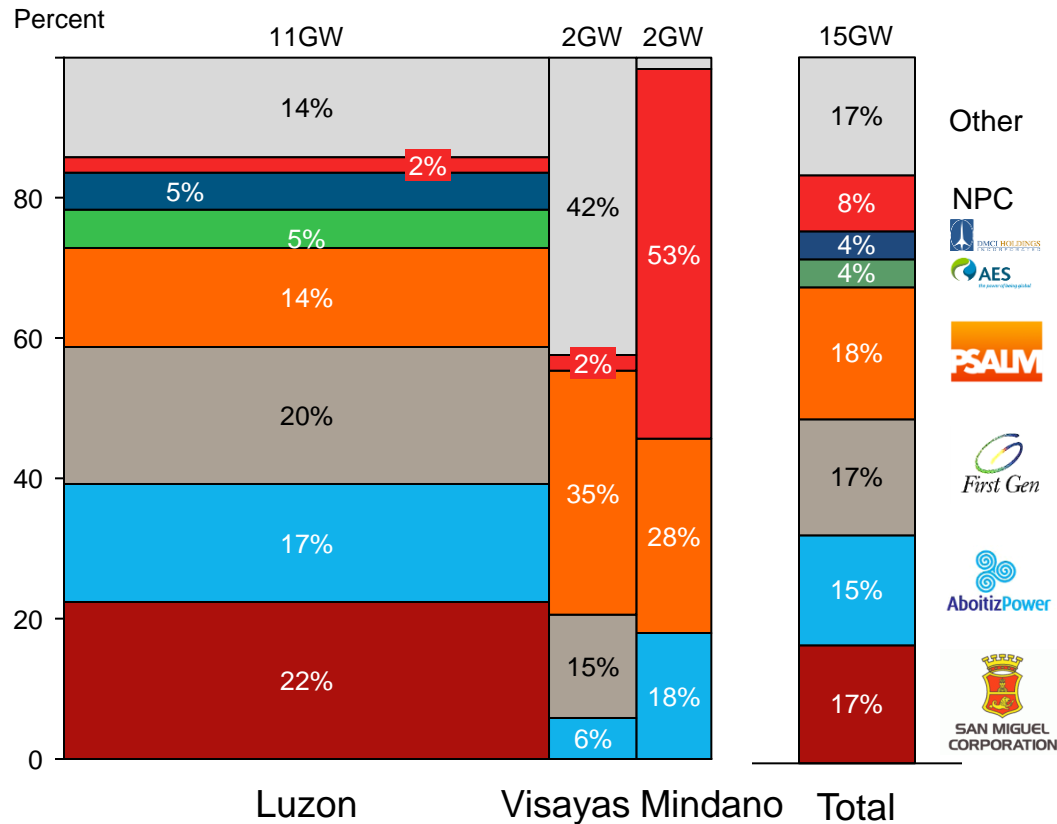
# Asset ownership is now much more diverse

Owners	Power Generation Assets
<b>San Miguel</b>	(1) 620 MW Limay (2) 1,000 MW Sual IPPA (3) 345 MW San Roque IPPA (4) 1,200 Ilijan IPPA
<b>First Gen</b>	(1) 1,000 MW Santa Rita (60%) (2) 500 MW San Lorenzo (60%) (3) 1.6 MW Agusan (4) 588 MW LGPF (60%) (5) 305 MW Palinpinon and Tongonan (60%) (6) 150 MW Bacon-Manito (60%) (7) 49 MW NNGPF (60%) (8) 112MW Pantabangan Masiway (9) 108 MW Apo (60%)
<b>AboitizPower</b>	(1) 748MW Tiwi-Makban (2) 232MW Mindanao coal (34%) (3) 700MW Pagbilao IPPA (4) 246MW Mindanao coal (34%) (5) 360MW Magat (50%) (6) 175MW Ambuklao-Binga (50%)
<b>Marubeni</b>	(1) 1,218MW Sual (2) 735MW Pagbilao (3) 1,251MW Ilijan (20%) (4) 345MW San Roque (92.5%)
<b>Mitsubishi One Energy</b>	(1) 1,251MW Ilijan (21%)
<b>KEPCO</b>	(1) 650MW Malaya (2) 1,251MW Ilijan (51%) (3) 185MW Naga (40%)
<b>Sumitomo Corporation</b>	(1) 728MW CBK (50%)
<b>J Power</b>	(1) 728MW CBK (50%)
<b>AES</b>	(1) 600 MW Masinloc (92%)
<b>DMCI Holdings</b>	(1) 600MW Calaca



# And varies by region

## Installed capacity shares by owner (2012)



Three private companies hold the majority of capacity in Luzon, but more of the assets in Visayas and Mindano remain under NPC/PSALM control

## But the question is – will this structure bring forth new capacity without the supporting structures of the traditional IPP?

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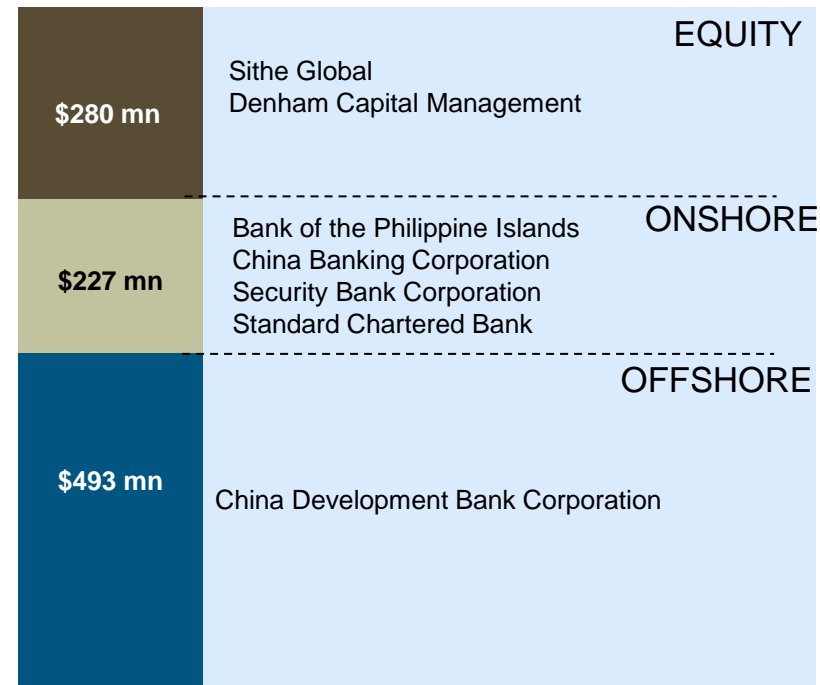
- The answer to this question is not simple
- Certainly – new power has come onto the system since the start of the market
  - For example: GN Power Marivales; KEPCO Naga, Mindanao Coal Fired Power Plant 200MW
- However much of this capacity is enhancements or expansions of existing plant
  - Re-ratings of various coal fired plant in Luzon; Northwind Project Phase II (+8.25MW) and Nasulo Geothermal Project (+20MW) ; Cagayan de Oro DPP2 (+27.40MW)
- Or projects contracted with Meralco
  - Montalban Methan Power Corp (MMPC)'s 11MW and Bacavalley's 4MW biomass plants
- Or projects whose funding came supported with multinational or EXIM finance
  - GN Power (Sinosure), KEPCO Naga (ADB)

Will significant new capacity be capable of funding if underpinned only with contracts with EC's and with the ongoing risk of open access?

# GN Power is probably the closest to date

- GN Power is a greenfield 2 x 300 MW coal power plant - 28% equity financed by US sponsors and 68% debt financed by Chinese and Philippine entities
- Coal is sourced under long-term offtake agreements with Indonesian suppliers
- Construction commenced in December 2009 and is currently commissioning
- Financial closing was achieved in 2010 to raise U\$1 billion in funding
  - Equity was funded by Sithe Global and Denham Capital Management (“Denham”) while the Engineering, Procurement and Construction (EPC) counterparty was CNEEC (China)
  - US\$227 million secured term loan facility was funded by a consortium of commercial lenders led by Banco de Oro (BDO) Unibank – the Bank of the Philippine Islands, China Banking Corporation, Security Bank Corporation, and Standard Chartered Bank
  - US\$493 million secured term load facility is funded by China Development Bank Corporation, it was the first participation by a Chinese financial institution in a non-recourse offshore project financing
- Political and commercial risk insurance is provided by China Export & Credit Insurance Corporation (“Sinosure”)

## Decomposition of financing sources



# The locals banks indicate a willingness to finance

- Copied from a recent forum in Cebu where both the National Bank of the Philippines and the Bank of the Philippine Islands both showcased their Project Finance products and examples of current power projects

## Financing for IPPs



- **Project Financing**

- Characterized by “Ring-Fencing” mechanism
- Customary Security Package involves
  - Mortgage of all Project Assets
  - Assignment of Material Project Permits and Contracts
  - Pledge of Project Company Shares
  - Creation of Waterfall Accounts

## Project Finance Structure

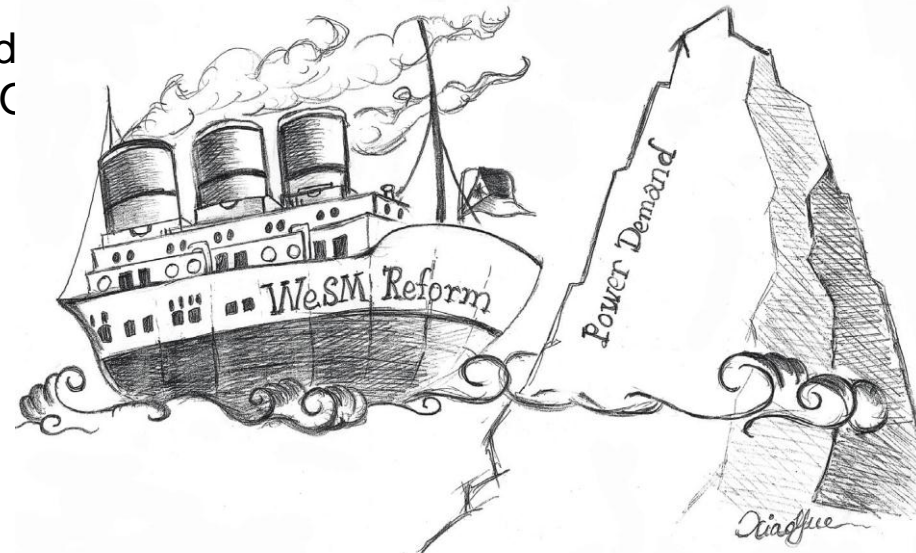


- **Market Risk**

- Location: Grid-Connected vs. SPUG
- Power Demand & Supply Outlook
- Customers: Spot Market (WESM) vs. Bilateral Contracts (BCQ)
  - BCQs to hedge against /take advantage of price volatility
  - Financial condition of power offtaker (DU/ECs)
- Government Regulation and Incentives

## However significant risks remain

- A recent tender for a new 300MW baseload coal fired plant in Mindanao failed to achieve a compliant bid. ( the main issues with this process, the lack of:
  - a market in Mindanao
  - regulatory certainty
  - credit-worth counterparties
- Certainly contributed to the problems faced by this project
- On the other hand, Aboitiz has already commence construction on a 300MW coal fired plant in Davao – close to the intended project and larger than its Davao needs. Without regulatory certainty or finance (as yet) this project may well fill a gap in the market and contribute to a uniquely “Philippine solution”
- Such an outcome would have been unusual in a “traditional IPP context”
- Local players, however, with stronger links to local banks and a greater faith in their Government and regulation may be prepared to take risks that foreigners are not
- In such a market, “traditional IPPs” will be outcompeted on speed to market





## The IPP still brings value, but not necessarily everywhere

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- While overseas capital may no longer be needed in Malaysia, Philippines, Thailand or China it is still important in places like Vietnam and Indonesia and will probably be important for Cambodia, Laos and Myanmar as they continue to develop
- In developing countries with less developed industries, the skills in construction, fuel procurement and power station operation that foreigners can bring continues to be important
  - Myanmar, perhaps, will be the next example of this
- Where traditional IPPs still have value, traditional mechanisms such as PPA contracts and Government guarantees still exist

# Government guarantee for IPP projects still exist in Indonesia and Vietnam albeit with narrowing scope

## Indonesia

	Early 1990s	Mid 2000	2011	2012
Project	1st Gen IPP	Cirebon	Central Java	Rajabasa and Muara Laboh
Type of Guarantee	Support Letter	Confirmation Note	Guarantee Agreement	Business Viability Guarantee
Addressee	Ministry of Finance	Ministry of Finance	Co-guarantee between IIGF and GOI with "Amount Sharing" concept	Ministry of Finance
Coverage	Blanket	Blanket	Payment Guarantee, performance guarantee, termination guarantee	Obligations of PLN under PPA, termination guarantee
Not Covered			Seller EOD, tax for special facilities and indemnity	Non Fast track II project, performance guarantee

## Vietnam

	Early 2000	2011
Project	Phu My 2.2 and 3	Mong Duong
Coverage	Performance guarantee; payment guarantee, project termination guarantee, and 100% of foreign exchange convertibility of revenues	Performance guarantee; payment guarantee, project termination guarantee, and 30% of foreign exchange convertibility of revenues
Not Covered		Only up to 30% of foreign exchange convertibility of revenue; Transport of coal supply

## China

	Mid 1990s	Current
Project	Laibin B	Non-existent
Coverage	State Planning Commission guaranteed on provincial performance guarantee), the Ministry of Electrical Power guaranteed on tariff stability and the State Administration for Foreign Exchange guarantee on currency transfer and convertibility	

## And the definition of who is the “international” may need to change

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- The first wave of IPP's were American and UK firms, these have given way to Asian companies buying out those original stations
  - Mirant sold out to Team Energy in Philippines
  - PowerGen sold out to CLP
- Those companies have spent some time at the forefront of project development in Asia
  - Marubeni was part of the consortium buying Seraya in Singapore;
  - CLP spent some years actively developing overseas power projects in Thailand, Taiwan and Vietnam as part of its OneEnergy joint venture with Mitsubishi
- But perhaps the next wave is coming from the home grown power companies
  - Various Chinese companies are already active overseas (Huaneng)
  - But how long before we see Aboitiz and San Miguel taking the lessons of the Philippines into the rest of Asia?

IPP's themselves may not be relics, but the classic structures and definitions are evolving to match the new players in the game

## In conclusion, the classic IPP structure does have relevance today..... But not everywhere

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- In the least developed geographical markets, where capital is scarce, skills are low, buyers may default or mechanisms are needed to procure fuel, then there is still a role for the “tried and true” commercial framework developed over the years
- However, as with the dinosaurs, lizards are now only a subset of the animals on the planet
- To find opportunities, IPP developers need to, and are, evolving with the times
  - In merchant environments like Philippines, Singapore, Australia, Korea
  - In “developed” Single Buyer markets where finance has become more readily available like Thailand
- And in some markets, like Mindanao, some superhuman efforts may be required and we may wish the classic structure was still available!

The IPP structure manages a particular type of risks and as the risks change, so does the structure