



Preparing Renewable Projects for Financing

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strategy & economic consulting

Content

Sources of capital

Finance is tight

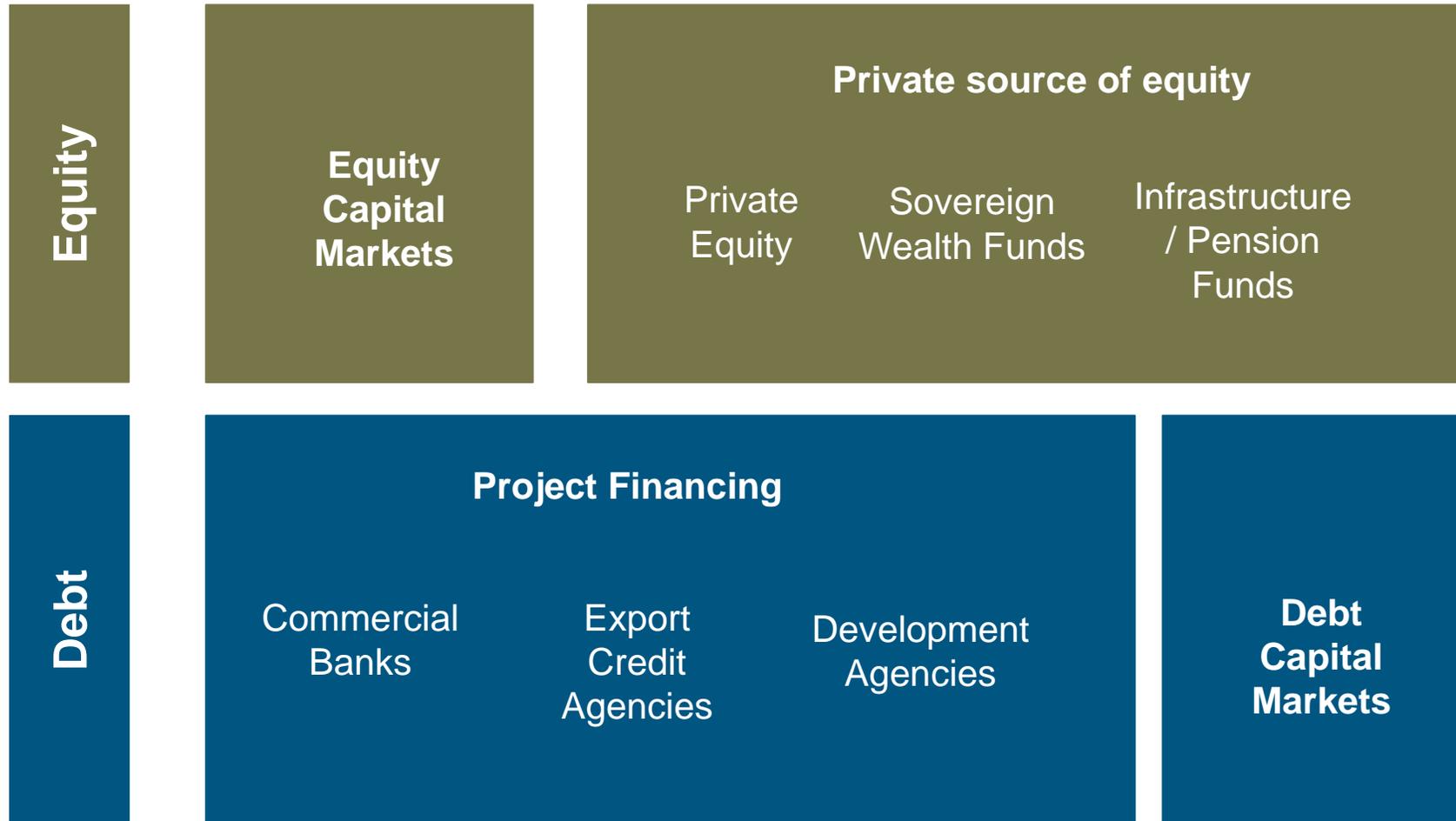
Why due diligence matters

Philippines risks and issues

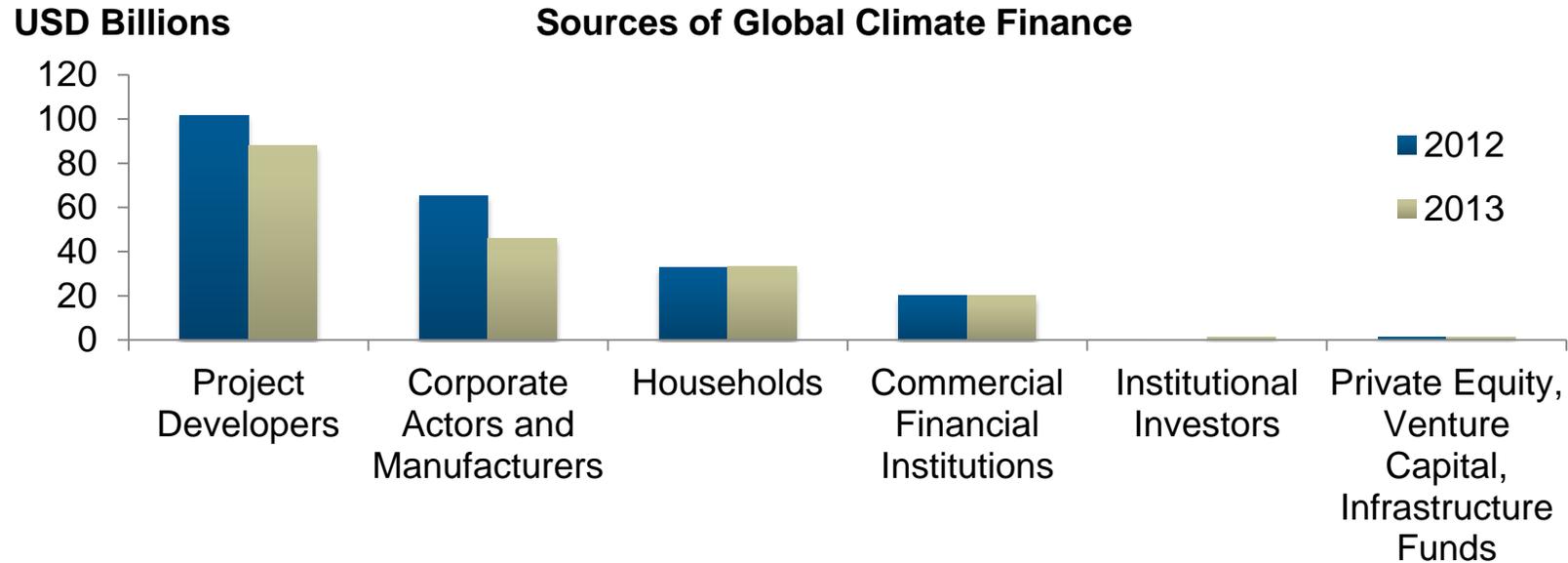
This is where people think private finance comes from



The reality is a much wider range of places and instruments



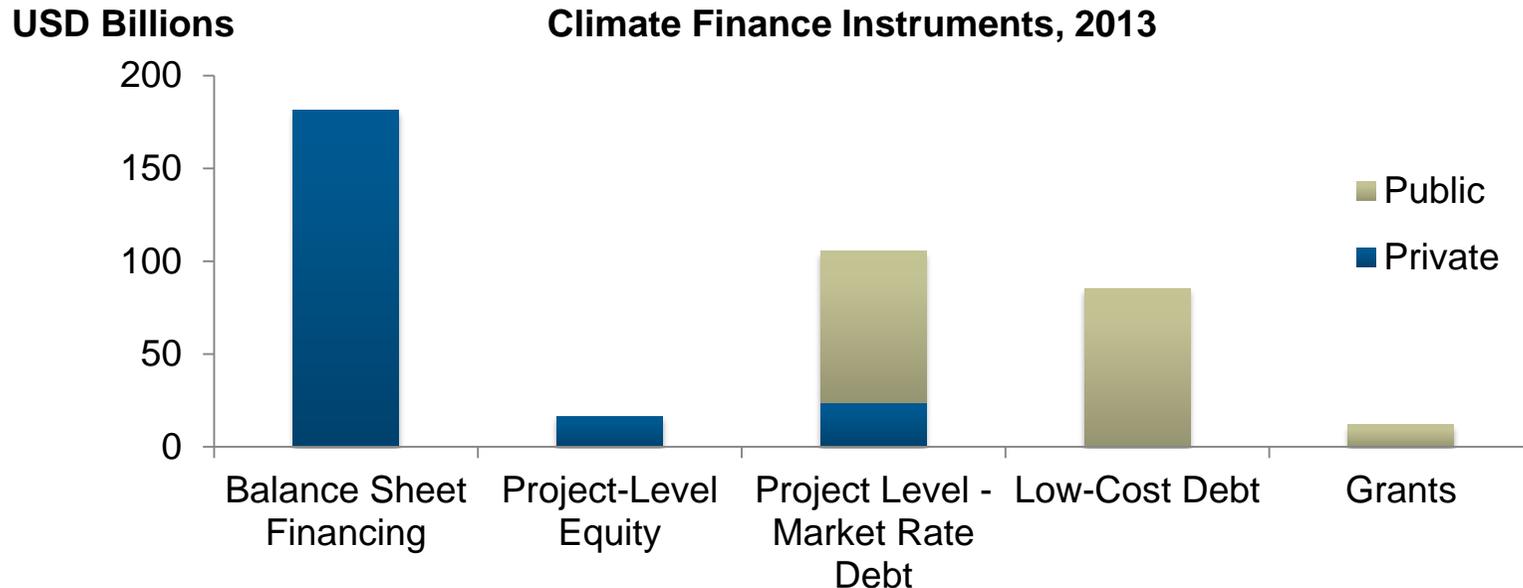
But the relative size of different pots is surprising



Over 70% of the climate finance goes to renewable electricity investments

Was this the answer you were expecting?

When it comes to climate finance instruments, the balance sheet rules



- Private investment remains larger than public investments and total investment is falling – although some of this is due to decreasing equipment costs
- Almost three quarters of investments were financed from their own country of origin – local sources of funding are key. For private investment alone, this is closer to 90%.

Control is the key to funding

- From the previous slides we can see that the major sources of funding come from the place that the funder can control:
 - Project developers controlling their own funds
 - Households controlling their own budgets
 - Corporations and manufacturers controlling their own balance sheets
- If you have the money, and you have the opportunity, you can invest
- And control is something you may lose when you seek external funding:
 - Lenders want stable cashflows and high levels of contracting – lower risk but also lower return especially in a merchant environment
 - ECA financing may tie you to a particular type of equipment
 - Equity partners may want a seat on the board

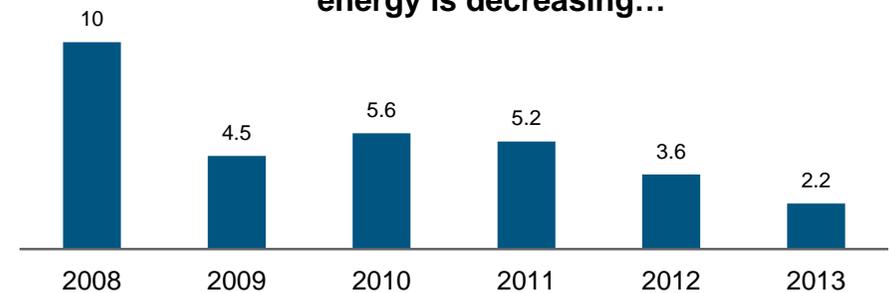
But many projects need to look to external sources

Financial Partners can bring equity

Private Equity	Sovereign wealth funds	Infrastructure / Pension funds
<ul style="list-style-type: none">• Focus on growth opportunities• Back experienced management teams	<ul style="list-style-type: none">• Long-term investment horizon• Seeking credible partners and platforms	<ul style="list-style-type: none">• Seeking robust cash flows• Passive role

- Even though a greater share of funding is going to renewables, but there has been a steady decline in the absolute amount
- Problems include lack of exit options and a trend towards lower returns

Global Venture Capital and Private Equity funding to renewable energy is decreasing...



Conventional bonds have been used as sources of debt for some companies

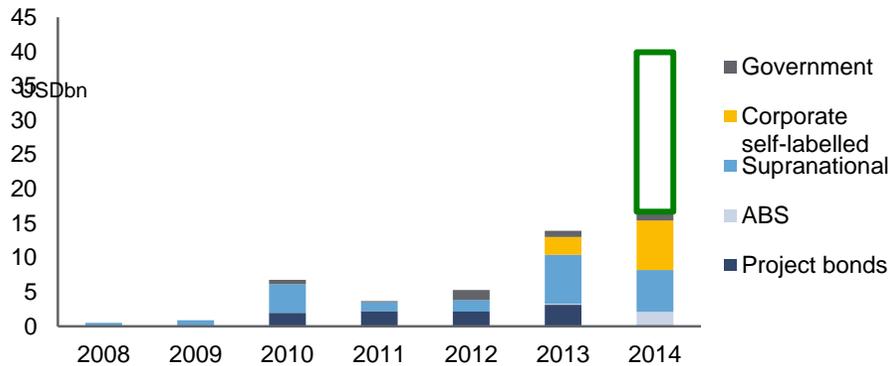
Key considerations include:

- Credit rating of companies
- Coupon charged
- Choice of currency
- Term of the bond

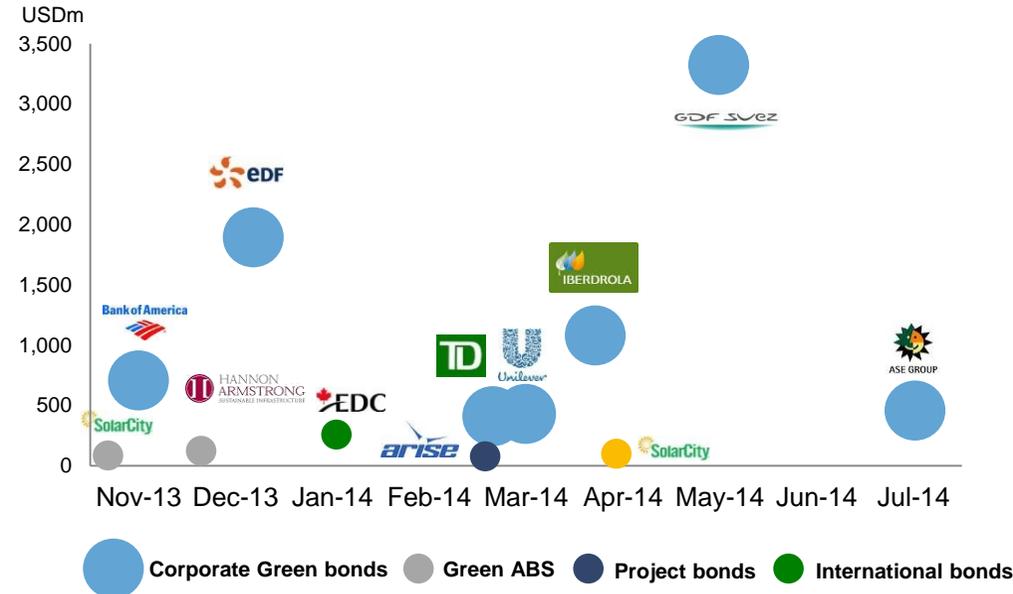
Company	Maturity date	Amount issued (USDm)	Pricing date	Coupon	Current /Indicative YTM
 北京控股有限公司 BEIJING ENTERPRISE HOLDINGS LIMITED	19 May 2021	486	15 May 2014	5.55%	5.55%
 pgn	16 May 2024	1,350	13 May 2014	5.13%	5.25%
 国家电网公司 STATE GRID CORPORATION OF CHINA	13 Mar 2019	1,629	12 Mar 2014	5.69%	5.69%
 CHINA POWER INVESTMENT CORPORATION	13 Feb 2017	655	13 Feb 2014	6.56%	6.56%
 TENAGA NASIONAL	30 Jul 2024	1,110	24 Jan 2014	5.10%	5.17%
Beijing Jingneng	16 Jul 2015	246	15 Jan 2014	6.24%	6.30%
MALAKOFF	17 Dec 2015	1,520	12 Dec 2013	4.30%	4.34%
	27 Dec 2016	155	10 Dec 2013	1.23%	1.23%
 एनटीपीसी NTPC	16 Dec 2023	282	3 Dec 2013	8.41%	8.41%
 PLN	10 Dec 2018	37	22 Nov 2013	9.00%	9.31%
 एनएचपीसी NHPC	11 Nov 2023	164	18 Oct 2013	8.18%	8.18%
 posco ENERGY	29 Aug 2043	448	29 Aug 2013	4.66%	4.74%

“Green Bonds” are a relatively new phenomenon and mainly outside Asia at present, but with huge growth potential

Historical green bond issuance



Selected green bond issuance



- Originally pioneered by World bank and IFC with the development of Green Bond Principals
- Driven by growth in self issuance and supranational bonds
- Expanding investor base
- Issues include definition of green bond and standardization

For operating assets, “Yield Co”s are a way to deliver a premium to developers

Company	Amount (USDm)	Venue	Performance since listing*
 ABENGOA	829	NASDAQ	3.1%
 NEXTera energy PARTNERS	442	NASDAQ	17.8%
 NRG YIELD SM	468	NASDAQ	94.4%
 Pattern	352	NASDAQ	40.7%
 HANNON ARMSTRONG SUSTAINABLE INFRASTRUCTURE	167	NYSE	25.5%
 TerraForm	533	NASDAQ	(0.7%)
 TransAlta renewables™	200	Toronto SE	10.2%
 THE RENEWABLES INFRASTRUCTURE GROUP	460	LSE	6.3%
 GREENCOAT UK WIND	395	LSE	15.9%
Bluefield Solar Income Fund	196	LSE	8.2%

- Developers flip projects into a yield co after construction
- Vehicle for holding a portfolio of operating assets – lower risk; lower return
- Institutional investors looking for access to the market
- Some interest in Australia but not the rest of Asia yet – possibly due to the less predictable regulatory and commercial environment

Corporate borrowing has been common in the Philippines to date... but this may be changing

- Local banks have existing relationships with sponsors
- In the past, the larger enterprises financed on a corporate basis – “relationship banking for business”
- This was especially true with most development being the domain of the large conglomerates
- Now there are more players, including pure-play renewables developers which
 - may lack the large balance sheets to be getting easy corporate loans
 - must go for non/limited-recourse PF
- Many conglomerates are facing the hard constraint of Single Borrower Limits -- i.e., the central bank-mandated maximum exposure limit that a commercial bank can have to a single corporate name
 - this is a bigger issue in the Philippines than other countries because of the central bank conservatism and the concentration of big local developers.

Both large and small developers are turning back to project finance

Project Finance has always been the major source of funding for conventional IPP projects

Commercial Banks

- Major source of project financing
- Focus remains on club syndicates vs underwrites
- Provided by international and/or local banks

Local and international banks

Export Credit Agencies

- Continued funding provided by ECAs
- Can provide favourable terms vs alternatives
- Appetite driven by equipment provision and/or equity participation

NEXI, JBIC, KEXIM, Sinosure, CEXIM

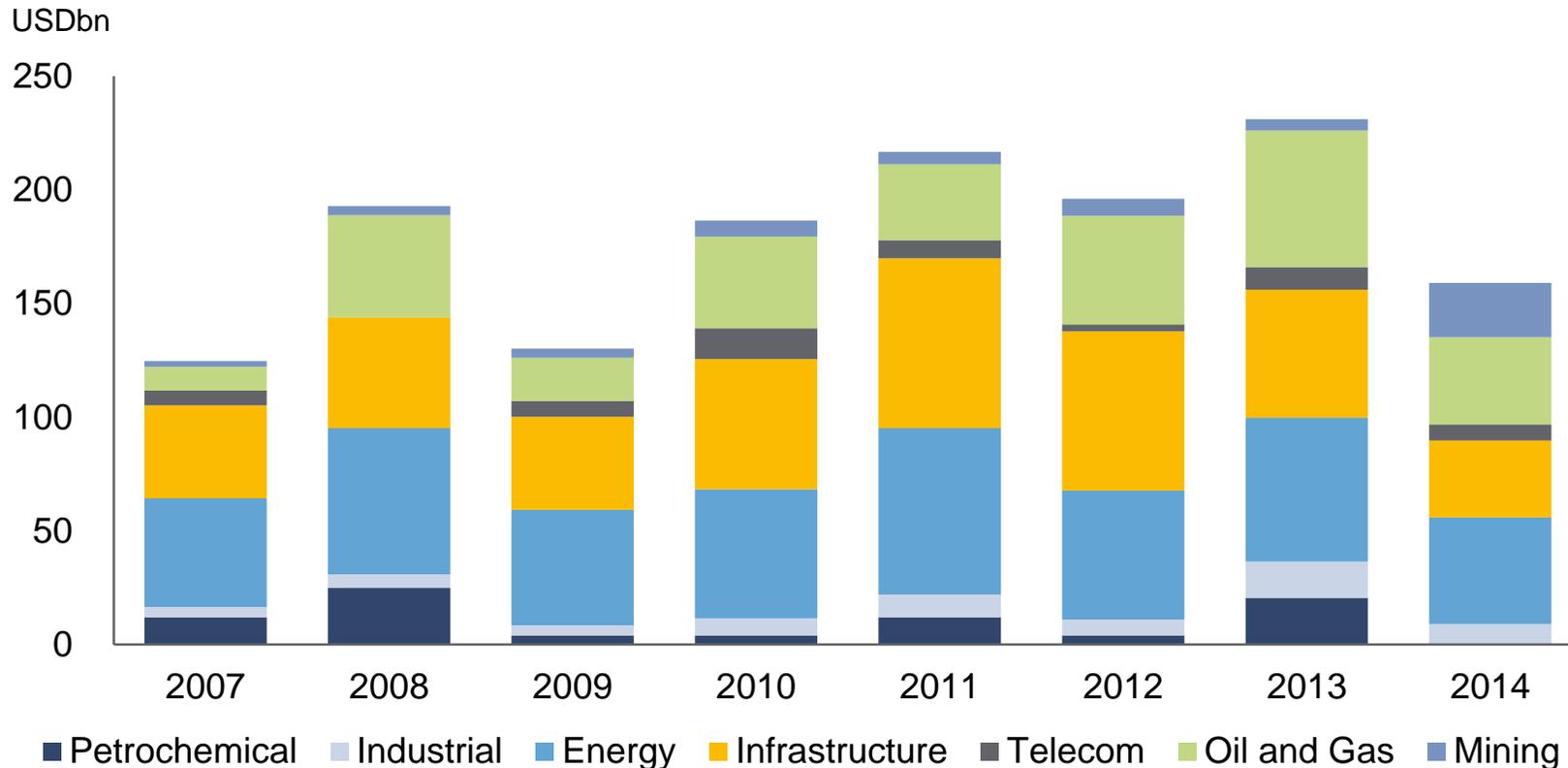
Development Agencies

- Organizations established to promote economic development
- Emerging markets focused
- Strong economic as well as social development are the key parameters

World Bank/IFC, ADB, EBRD

But the Project Finance available to the energy sector is the lowest since 2006

Project finance volume across sectors



The good news is that renewable projects are taking a greater share of this volume

What exactly is “project finance”?

- Loans are made to a special purpose "project company" and serviced out of the revenues of the project
- Loans are secured by the ring-fenced generation plant with limited (or nil) recourse to sponsors and limited recourse to other project participants – sponsors can ultimately “walk away”
- Complex financial model to analyse income stream over project lifetime
- Extensive due diligence of technical and economic risks

Project finance requires significant dedication of resource

Are renewable projects different from conventional IPPs when it comes to project finance?

Yes... and no

- The scale of renewable projects is often much smaller than a typical coal-fired power plant
 - The good news: economies of scale in renewables are much lower (except for large hydro) so small projects are just as economic and construction times may be much faster
 - The bad news: the cost of the development and due diligence may not scale with the project! Nor indeed may the time needed for approvals and grid augmentations
- Some risks that loom large in thermal projects are not present in many renewables
 - International fuel prices are not going to change the cost of the sun, or the wind, or the rain
 - But that does not mean you can ignore fuel prices because fuel prices drive the other plants in the market who may be setting the marginal price
 - Falling crude prices, for example, will affect the income of any non-dispatchable plant earning market revenues in a market where gas, LNG or oil is the marginal plant (and in the medium term, even coal)
 - Even in a non market environment, falling thermal prices may make renewables less economic (using solar to displace diesel in off-grid networks, for example)

Even for a small renewable project analysis should cover the whole market to identify risks

Other risks that thermal projects can bear may kill a renewable project: Delays

- Delays in a renewable project may be a much higher proportion of the total project time
- Delays add to development costs and thus, as a proportion of total cost, they can often escalate quickly
 - a coal project taking 5 years to develop suffers a 20% delay if one year is added due to regulatory approvals or slow grid development
 - a renewable project taking 6 months to build suffers a 200% delay for the same time
- Slows down the development pipeline, prevents total number of MW being built
- Capital waits for no one – delays mean capital redeploys elsewhere
 - quote by a renewable developer to me this week:

“Why wait around in the Philippines [for the delays caused by NPC, NGCP and ERC] when my Korean project can go ahead straight away and give me the same return”?

The Philippines is competing with other markets for investments

International project finance lenders apply a “cookie cutter” approach

Lenders due diligence is always extensive and cannot be short-cut

Lenders focus on four key issues:

- Project completion
 - Without a completed project, there is no cashflow able to repay financing
- Project operation
 - Optimal operation to generate cashflow to pay debt service
- Project acceptability
 - Lenders see themselves in the “front-line” and accountable for social and environmental impacts
- Project success
 - Lenders want project to succeed, calling in security or guarantees is a failed outcome

Lenders will develop a cash-flow model of the project to assess these criteria

So why would you want to go through this?

- Project Finance minimises exposure of sponsor balance sheet to the risks of the project
- Helps sponsor credit rating (if debt not consolidated)
- Maximises equity return through leverage (potentially 75% - 90% senior debt)

.....BUT !

- Project debt more expensive than on-balance sheet debt
- There is less freedom for sponsors
- Complex and often slow to put in place

Much more complicated but many sponsors consider it worth the effort

The fundamentals matter: the discipline imposed by project finance can help...

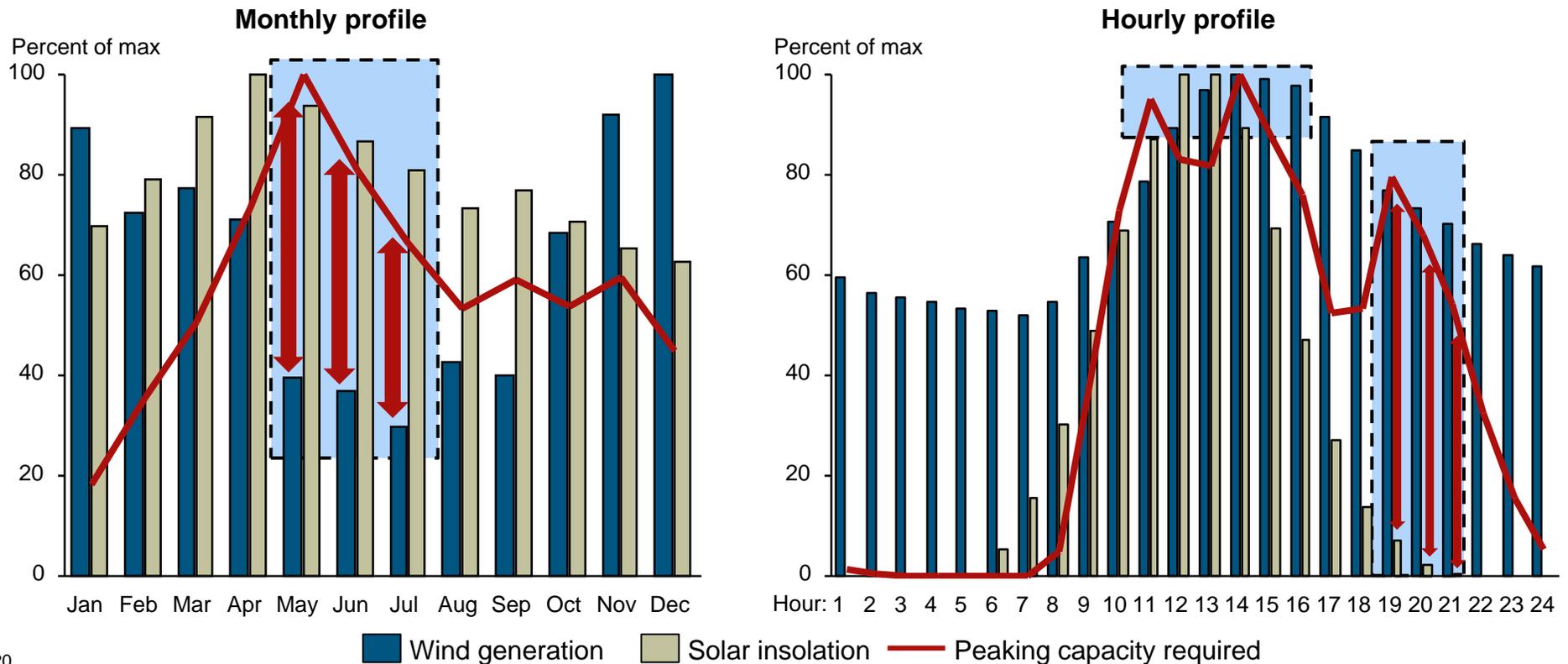
- Bankers will focus on the risks in the project
- The obvious revenue risks that the sponsor may already understand
 - Will the project qualify for a Feed In Tariff (FIT)?
 - If not, will the power sales agreement gain regulatory approvals?
 - If none of these apply, how much could it earn in the spot market?
- And the less obvious risks the sponsor may not want to think about
 - Is the feed in tariff economic and what will it do to the electricity industry?
 - If the costs imposed by renewables create a consumer backlash – how will my project be affected?

If your renewable project is economic in its own right, it will withstand much greater external pressure than one that relies solely on subsidies or favourable policy

... but always be aware when it does not

- Bankers often use simple tools to understand projects
- For example, using simple averages or levelised costs of electricity overvalues non-dispatchable resources like renewables that may not be fully available when they are needed

Comparison of wind and solar generation profiles vs. peaking capacity requirements



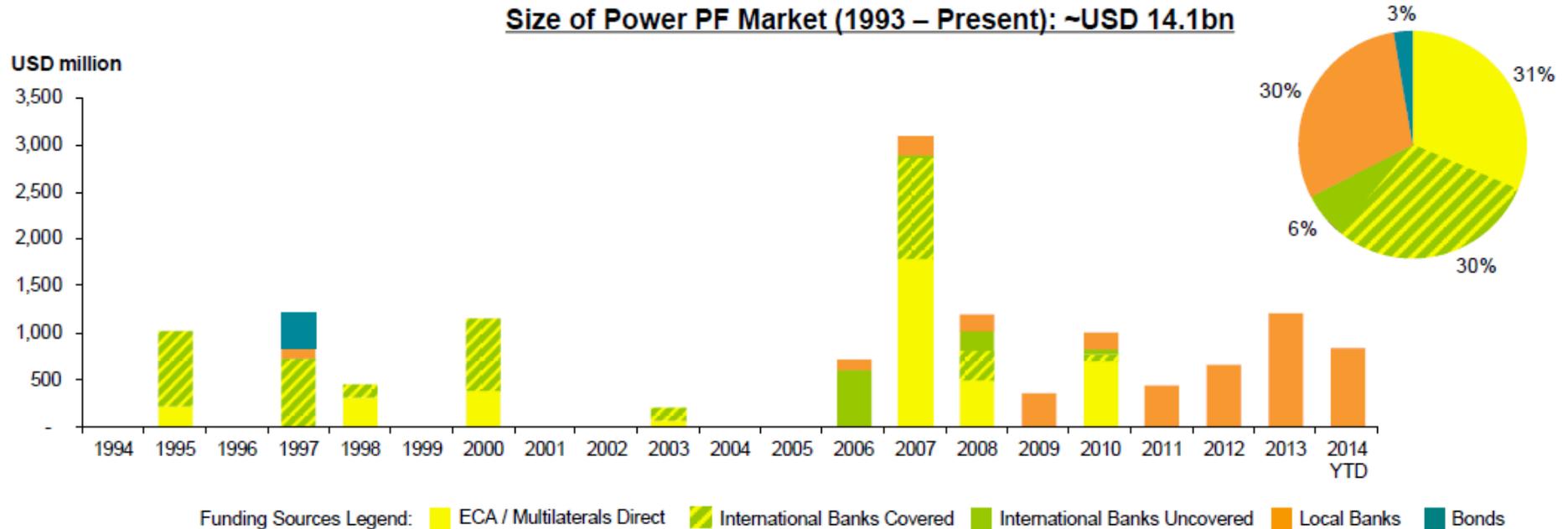
Sponsor quality remains critical, even for non-recourse project finance

Despite the limited resource, lenders have expectations of sponsor groups. The lead sponsor should the sponsors have some or all of:

- experience of leading previous successful projects
- financial strength to provide some level of back-up
- ideally an existing relationship with leading lenders
- a demonstrable commitment to the country, sector and project

Although sponsors can “walk away”, this should be the last, not the first resort

The project finance market in the Philippines is changing



- The role of “international” banks and multilaterals has been replaced to a much greater degree by local banks
- Whereas previously there were fewer large deals, now there are many more, but often smaller projects each year

To date, local banks project finance rigour has been somewhat less than international banks

- As seen from the previous chart, project financing by local banks is a relatively new phenomenon and local banks have more experience of corporate lending to well known sponsors
- We are seeing a gradual shift – at first project finance in Philippines has been done in a similar way to corporate lending
- However, project finance puts much more project risk onto lenders and the greater the number of projects each lender is exposed to, the greater the focus on the risks involved
- At the same time the Philippines market itself is becoming riskier

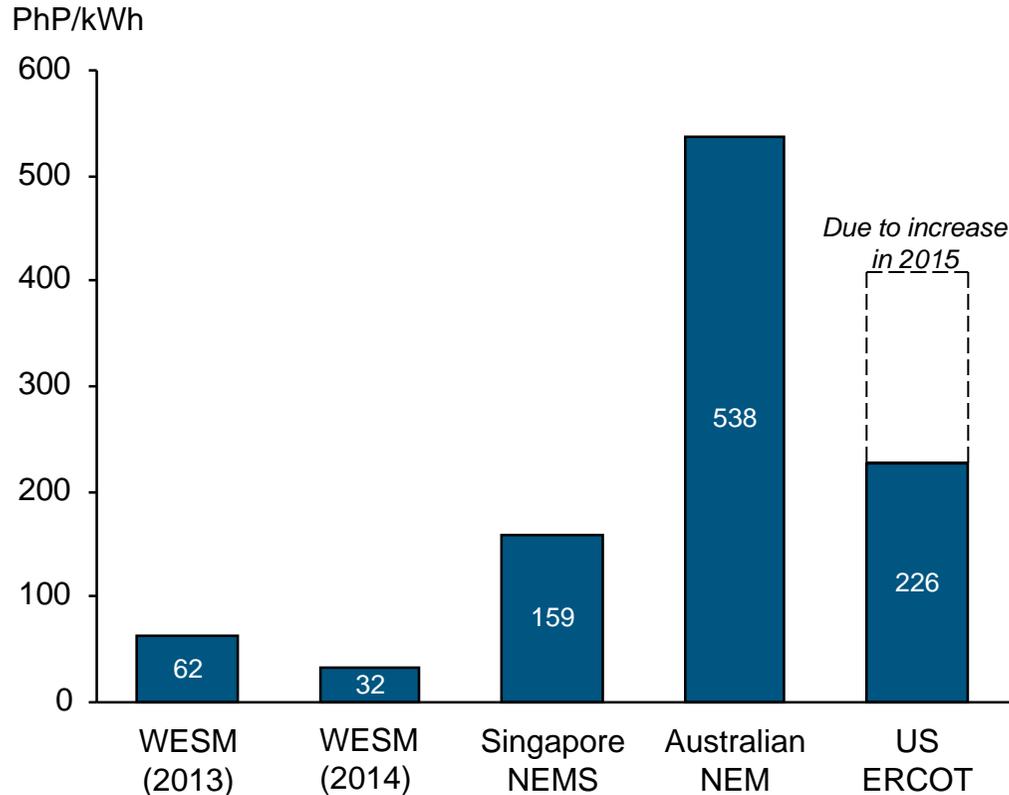
How will this impact renewable financing?

Unlike other markets most renewable projects in Philippines have the risk profile of “merchant projects”

- A merchant investment is one that relies solely on spot market revenues
- Any renewable project seeking the Feed In Tariff (FIT) has the risk profile of being a merchant project because there is no guarantee of receiving the FIT until AFTER commissioning (while project finance is typically secured prior to construction)
- It is very hard to project finance merchant electricity projects
 - Example: Yallourn in Victoria in 1995
 - Achieved project finance for approximately 60% of the project cost requirements for a project with 3 years of contract cover and merchant risk thereafter
 - Acquisition not new-build so no construction risk and little operational risk
 - No fuel cost risks as mine was part of the project
 - One of the first, and still one of only a handful globally, primarily merchant projects achieving project finance
- Since the global financial crisis, project finance criteria are even tighter

Merchant risk profile for generation in Philippines is poor relative to other markets and deteriorating

Comparison of the Market Price Caps

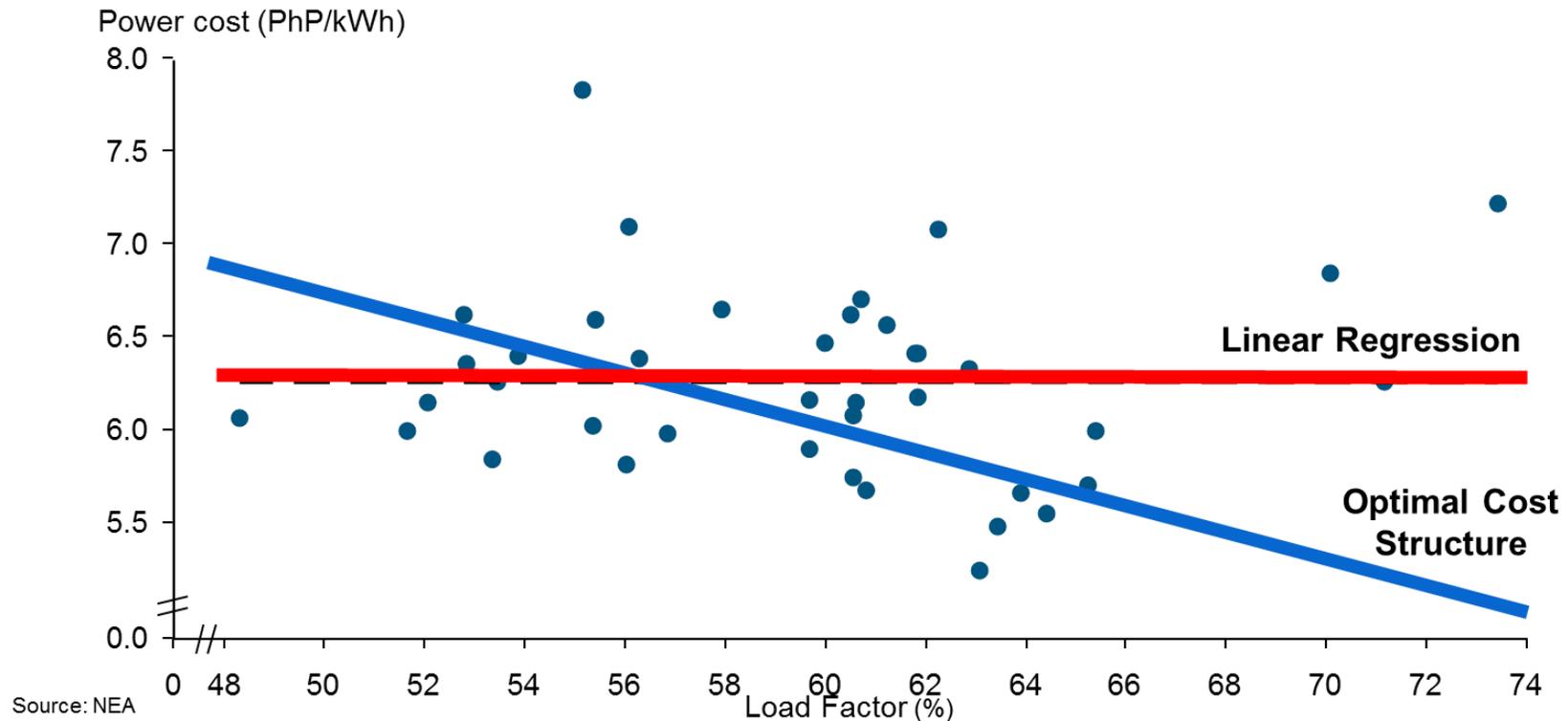


With a higher price cap:

- Renewable options that are available at times of peak demand – and are hence most valuable to the system – would benefit
- More attention would be paid to effective contracting strategies opening up greater opportunities to directly contract with EC's for well located and strategic renewable projects
- Flexible and responsive capacity (such as that provided by LNG) would become more commercially attractive, something that is necessary to back up the intermittency of many renewable options

The market woes and regulatory short-comings may yet hinder efficient development of renewables in the Philippines

Perverse regulatory incentives lead to inefficient contracting – something that undermines the creditworthiness of contracts in the longer term



Smaller EC's and Private DU's are a good source of contracts for renewables where displacing diesel is economic. Displacing coal, on the other hand, risks a future backlash that may undermine the value of the contract

FIT-All collections involve credit risk

- FIT payments to RE Developers are not guaranteed by Government or TransCo
- Payments from the FIT-All Fund are an aggregation of the monies collected from consumers via the FIT-All charge and cost recovery from WESM sales or host DUs
- Different events could trigger a shortfall in FIT-All funds and risk of default on payments
 - Delay of approving FIT-All has left a backlog of costs
 - Delays in approving under-/over-recovery may never catch up
 - Decline in collection efficiencies
 - Lower cost recovery rates (low WESM prices)
 - Lower national sales or monthly variability of monthly sales
- The allotted working capital provides only a slim margin and the timing for petitions of potential FIT-All adjustment is only quarterly

There are a variety of near-term and long-term risks to price outlook that need constant monitoring

Market risks: near-term

Downside risks

- Entry of additional coal-fired capacity
- Additional installation of RE capacity
- Entry of LNG (particularly if dispatched without regard to market value of gas)
- Slower demand growth and/or La Nina climatic effects

Upside potential

- Delay to committed coal-fired capacity
- Higher demand growth and/or El Nino climatic effects

Market risks: long-term

Downside risks

- Lower fuel prices
- Increased availability and/or lower cost of financing for coal plants

Upside potential

- Higher fuel prices
- Limited availability of new sites for coal plants
- Decreased availability and/or lower cost of financing for coal plants

Regulatory risks

Downside risks

- Continued low offer price cap
- Lower secondary price cap
- Further examples of market intervention and/or increased administration of prices

Upside potential

- Removal of secondary price cap

In summary, there is money available for the good projects

- Good projects will always attract finance
 - Good project fundamentals – meeting a need at an economic cost
- Philippine projects have the advantage of having a “fall-back” (or two) if the FIT fails
 - But until renewable projects are competitive with conventional thermal plant, this entails further risk
 - With falling renewable technology costs, the economic breakeven could be within 5 or 10 years (depending on the technology – geothermal and hydro are already at parity)
- Well developed projects, with good due diligence and a strong focus on risk management will find financing easier than those who skimp
- And moreover, managing risks lowers the cost of the debt!
 - Quote from a banker last week on a real project “That [failure in due diligence] will mean an extra few basis points on the cost of the debt”

Focus on getting the right project and doing it right and the capital will follow

The end

With thanks to:

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