Sindicatum renewable energy

A leading renewable energy developer in Asia

Improving Policy and Institutional Frameworks

1st Dec 2016

A leading renewable energy developer in Asia

Founded in 2005, Headquartered in Singapore

To date: raised >USD 400m in equity for clean energy projects

>120 employees in 8 countries;

ENERGY SOURCES

WASTE TO ENERGY (WTE)

BAGASSE COGENERATION

SOLAR

WIND

CURRENT ASSETS & PIPELINE

1,000+ MW

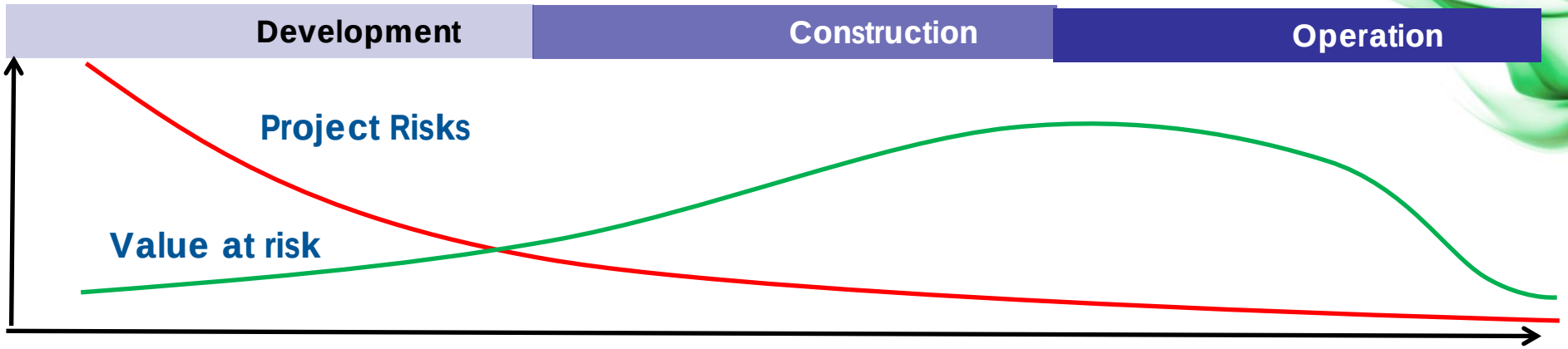
435 MW
17 owned projects operating or under construction/advanced development

714 MW
27 Projects in Pipeline

Key energy issues facing Governments

- Access to quality energy services
- Security of supply
- Impact on the economy
- Infrastructure – transport and distribution
- Impact on the environment locally
- Impact on the environment globally
- Cost to end users
- Location of power plants
- Sustainability in the long term

Risk and Reward



	Development	Construction	Operation
RISK FACTORS	• Negative feasibility or environmental impact assessment • Delayed/denied permits • Land rights • Regulatory uncertainty	▪ Construction delays ▪ Cost overruns ▪ Construction errors ▪ Supplier delays ▪ Uncertainty of financing ▪ Delay in grid connection ▪ Tariff changes	▪ O&M cost increase ▪ Equipment deterioration ▪ Governance problems ▪ Force majeure ▪ Payment risk ▪ Change in electricity prices ▪ Change in financing costs
EXPECTED RETURNS	18-25% held to end of asset life	12-15% if held to end of asset life	8-12%

Reward - returns

- May be governed policy and regulatory regime
  - e.g. electricity tariffs, tax breaks and other incentives
- Costs
  - Cost of technology, EPC and land
  - Incentives or disincentives, e.g import duties, tax breaks
  - O&M
- Capital structure
- Project Returns
  - Revenue – tariff related for example feed-in tariffs
  - Social Impact

Risks – Identification, allocation and mitigation

Risk	Risk to be controlled	Mitigation option	Allocation (risk-taker)
Project Sponsor	-Ability to develop project, negotiate third party contracts, obtain licenses etc -- Actions detrimental to business	- Add additional expertise - Structure financing against milestones - Sponsor equity, performance fess - Oversight (board members), protocols reporting/auditing, covenants	Investor to Sponsor
Supply	- Availability of resources - Resource cost - Financial strength of supplier	- Long term fuel supply agreements - Diversification - Guarantees	Investor to Supplier
Construction	- Cost overrun - Equipment delivery delays - Completion delays	- Fixed timescale agreements - Performance incentives - Completion guarantees	Investor to Equipment Supplier/Contractor
Operation	- Plant performance - Maintenance risk - Operating cost risk	-Long term O&M (incl. incentives) - experienced operator - business interruption insurance	Investor to O&M supplier/Operator/Insurer
Off-take	- Payment delays or defaults - demand for product/service	- Long term off take (PPA)/regulatory - guarantee if possible	Investor to Offtaker
Financing	-Interest rate, currency, inflation	- Hedging	Investor
Environmental	Emissions, pollutants, contaminants, disaster	- Environmental audit - Community relations & insurance	Investor to Sponsor/Insurer

Can’t mitigate policy and regulatory risk but Governments can

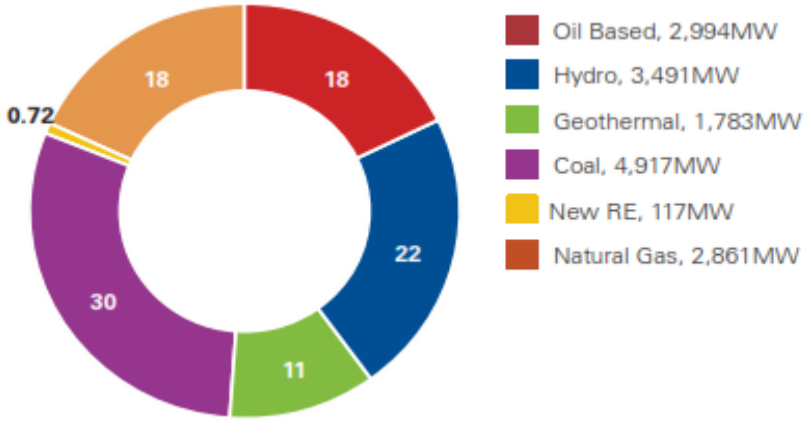
- For many utility scale fully commercial renewables, a developer wants:
  - A level playing field on which to compete against other generation options;
  - Proactive institutions that support the goals of the Government Policy;
  - Long term and consistence policy which is very rare in Asia.
- For newer less commercial type projects/technologies which have high climate mitigation or where the above does not apply there needs to be sufficient returns or risk mitigation
  - Assist in project facilitation particularly in the development stage;
  - Increasing revenues or lowering costs through incentives, new mechanisms under Paris Agreement, etc.;
  - Financial risk mitigation instruments e.g. guarantees;

Policy and Implementation Challenges

ADMINISTRATIVE BARRIERS	❖ Inconsistent policy framework at state and national level ❖ Delays in implementation of policy ❖ Lack of transparency and cumbersome bureaucratic procedures
RENEWABLE ENERGY SUPPORT	❖ Feed-in-tariffs FiT) in countries often politically uncertain and inconsistent ❖ Conflicting national and local policies ❖ Various financial and non-financial incentives, but administration impedes
POLICIES BIASED TO EXISTING SYSTEMS	❖ Other sector policies or lack of regulation can hamper RE development ❖ Incumbent systems give advantage to the bigger power players, which might have more expertise and financial muscle to execute their projects
TECHNICAL/FINANCIAL BARRIERS	❖ FiT design means projects are likely to be funded entirely with equity ❖ Insufficient transmission capacities, poor infrastructure for variable supply ❖ State electricity companies often in poor financial health – pay late

Example 1: Solar FiT in the Philippines - The Good…….

- Country environment (2008 onwards)
  - Already had some power sector deregulation opening up the retail sector and having a Wholesale Electricity Spot Market where price of energy is market determined;
  - High electricity prices in many areas and insecure supply in some case;
  - Half the country's electricity generated from fuels imported (coal, oil, etc)
  - Growing demand for power across the country
  - Good renewable resources in solar, wind, geothermal, waste/biomass etc.,
- Solar Policy highlights
  - Renewable Energy Act of 2008;
  - Increase renewables to 15,304MW by 2030;
  - Renewable Energy Feed in Tariffs
  - Lead to overreaching targets for solar in 2016



DOE Philippines, 2011

Example 1: Solar FiT in Philippines - The Bad……

- Solar FiT policy and implementation
  - FiT for solar and others renewables issued in 2010
  - ERC established FiT rates for each renewable type in 2012 with a target of 50MW for solar and P9.68/kWh
  - Solar project allocation revised to 500MW in 2014
  - Lower FiT rate of P8.69/kWh but only to 15 March 2016
- Constraints
  - Conversion of land from designated agricultural to industrial for solar takes a long time;
  - Permitting process slow and untransparent;
  - Grid constraints not clear
  - Commissioning for grid connection some times difficult ;
  - FiT only confirmed after construction

Example 1: Solar FiT in Philippines – The Ugly

- **The 500MW target was met by 15th Mar 2016 :**
  - **Target overreached**
  - **A new industry took off in Philippines with local and international players**
  - **Capacity built including EPC and technical expertise**
  - **Financing secured around USD 1.3 billion for projects**
  - **Costs for development of projects has fallen with experience as well as continuing decrease in technology costs**
- **BUT**
  - **Oversubscribed with possibly 800-900MW being built all expecting the FiT**
  - **Confusion about which projects were included and which weren't**
  - **Many projects equity or balance sheet financed due to FiT risk**
  - **Non-fit rate makes many of these projects uneconomical;**
  - **What's next……..a lot of uncertainty**

Example 1: Waste to Energy in Thailand - The Good…….

- Country environment (2008 onwards)
  - Most waste either to sanitary landfills or to dumps;
  - Poor track record of technology transfer for waste to energy;
  - Increasing waste levels with incomes and population;
  - Adder rates introduced for Renewable Energy in 2007
  - Offtakers (EGAT and PEA) with a good track record
  - Power Development Plan (PDP), Alternative Energy Development Plan (AEDP) incorporate important role for renewables
  - VSPP (Very Small Power Producer) regulations put in place for 1-10MW projects
- Waste to Energy Policy highlights
  - 2007 Adder rate of THB 0.083 for landfill gas, digestors and thermal for 7 yrs
  - Additional THB 0.033 for projects in the South of Thailand
  - 2008 Adder rate increased for thermal projects to THB 0.117;

Example 2: Waste to Energy, Thailand - The Bad……

- Adder policy and implementation
  - A number of projects started development including CDM
  - Only 48MW of waste to energy by 2014 (16MW from Sindicatum)
  - Many projects failed or did not get financed
- Constraints
  - Adder cost effective for LFG with CDM (electricity plus carbon revenues)
  - Adder not really cost effective for thermal solutions
  - Ability to raise debt financing difficult due to inexperience and bad track record
  - Low technical capacity in Thailand
  - Technologies proposed were not always appropriate
  - Waste supply not secure

Example 2: Waste to Energy in Thailand – The Ugly

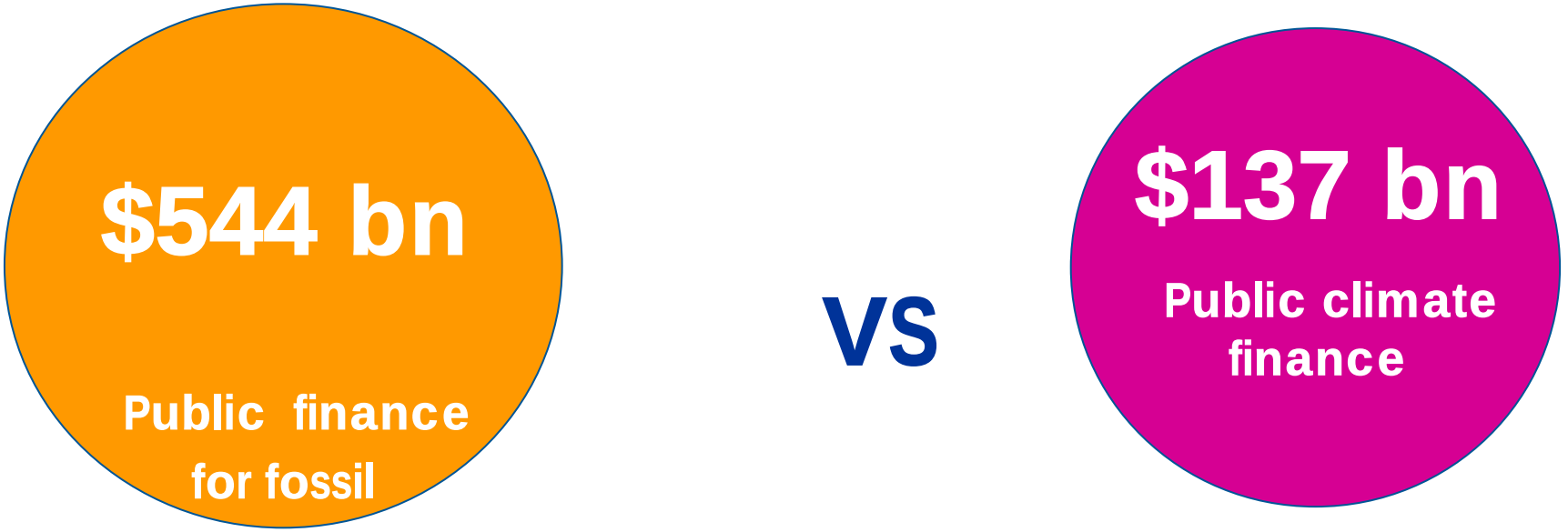
Samrat Prakan (Bangkok Post, 2014)

- **BUT**
  - Waste and waste to energy policy still in flux with new Government
  - All new projects stopped delayed 2014-2016
  - New FiT Rate agreed for Waste to Energy (THB 3.76 for 20 yrs)
  - PPP process developed and waste to energy prioritised

What we learnt?

- A lot of learning by doing from both Governments and Developers resulted in modest results
- During the period 2008-2016, there was enough capital to build many more projects but not enough financeable projects, and local capacity takes time but needs real projects
- Government Policy often takes so long to formulate, implement and get right that it discourages many international operators – for scale up it needs to be right
- Policies have been stop/start and never consistent, the Paris Agreement is 10 yrs and offers a unique opportunity to do this
- Carbon markets stimulated a lot of interest but soon died away once Kyoto was not extended and market collapsed. New mechanisms need to learn lessons in their design
- Public finance has an important role in encouraging the private sector but levels cannot be sustained for scale up
- Need to draw on the capital markets and larger institutional investors
- Public finance has and still does finance more fossil-fuel related activities than climate mitigation – particularly from subsidies hidden or otherwise

Fossil fuel subsidies are still out of control



Source: numbers adapted from IEA (2014)

Thank you

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