Supporting Private Financing for Energy Efficiency and Renewable Projects

Nicolas Souche, Principal Investment Officer
June 26th 2015
INTRODUCTION TO IFC
### Introduction to IFC

**IFC: A member of the World Bank Group with a private sector focus**

<table>
<thead>
<tr>
<th>Role</th>
<th>To promote institutional, legal and regulatory reform</th>
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<th>To promote private sector development</th>
<th>To reduce political investment risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clients</td>
<td>Governments of middle-income and creditworthy low-income countries</td>
<td>Governments of poorest countries</td>
<td>Private companies in member countries</td>
<td>Foreign investors in member countries</td>
</tr>
</tbody>
</table>
| Products | • Technical Assistance  
• Loans  
• Policy Advice | • Technical Assistance  
• Interest Free Loans  
• Policy Advice | • Early stage Equity  
• Equity / Loans  
• Risk Management  
• Advice | • Political Risk Insurance |

- Unparalleled access to governments, parliaments, consultants and other stakeholders;
- A broad range of products available to our clients (Partial Risk Guarantees, political risk coverage);
- Cooperation between public and private counterparties which is crucial to moving transactions forward.
## Introduction to IFC

*IFC’s three core business lines: investment, advice and asset management*

### INVESTMENT
- Loans
- Equity
- Trade finance
- Syndications
- Securitized finance
- Risk management
- Blended finance

$51.7 bn portfolio (FY14)

### ADVICE
- Firm-level advice
- PPP transaction advice
- In partnership w/World Bank, advice on broader market development and enabling environment for private sector

720 projects valued at $1.1 bn (FY14)

### IFC ASSET MANAGEMENT COMPANY
- Wholly owned subsidiary of IFC
- Private equity fund manager
- Invests third-party capital alongside IFC

$6.4 bn under mgmt (FY14)
IFC Infrastructure Business in Sub-Saharan Africa

*IFC intervenes along the entire project cycle and has a range of tools at its disposal*

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### Regulatory reform
- Working with the World Bank and others to introduce sector reform and achieve sector sustainability
- Strengthening utilities’ performance through private management contracts

### Concession structuring
- Setting the conditions to attract private investment
- Advising governments on PPPs
- Negotiating key contracts

### Project Development
- The $150m IFC InfraVentures fund helps cover essential early-stage costs of frontier market projects we may later finance

### Investment
- Financing projects through debt, equity and mobilization of resources from other sources,
- Obtaining concessional financing from multi-donor sources, including soft loans, guarantees, equity and grants

### Monitoring
- Assessing projects’ consistency with IFC’s Performance Standards on environmental and social issues,
- Tracking projects’ results and sharing the lessons for wider replication and impact

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✓ IFC can effectively support projects through its multiple capabilities
IFC INFRASTRUCTURE BUSINESS IN SUB-SAHARAN AFRICA
Africa is expected to continue its growth path...  

African growth was resilient during the 2008/9 crisis; 6% growth in 2013 excl. South Africa

Growth has largely been driven by investments rather than consumption, as capital inflows have surged

⇒ Increasing labor force and middle-income household growth will have a huge impact on the demand for access to and better quality of infrastructure services - electricity, water, roads, airports, ports, etc.

⇒ Nonetheless, many investors still perceive high levels of political and macroeconomic risk.
ICF Infrastructure Business in Sub-Saharan Africa

Our Africa Core Infrastructure business spans a range of sectors and countries

A $1.2 billion committed portfolio in infrastructure

Committed portfolio breakdown by sub-sector as of June 2014

- **Total of $1.2 billion**
  - Power: 73%
  - Transport: 24%
  - Utilities: 3%

...And staff deployed across the continent

- **Washington D.C.** (14 staff)
- **Dakar** (16 staff)
- **Accra** (2 staff)
- **Lagos** (1 staff)
- **Nairobi** (9 staff)
- **Johannesburg** (10 staff)

- The “Africa Infrastructure” team focuses on core infrastructure: power, transport and utilities.

- Over 50 professionals dedicated to core infrastructure, of which >70% are based in Africa*.
- A diverse skill set of project finance professionals with significant commercial banking and project development experience in various regions of the world.

* At October 31, 2014
IFC Infrastructure Business in Sub-Saharan Africa

*IFC’s business continues to play a trailblazing role in this growth*

IFC – Global Multilateral of the Year (2014)

Azito Power – Middle East & Africa Power Deal of the Year (2012)
Abengoa Khi Solar One – Africa Solar Deal of the Year (2012)
Dakar Toll Road – Africa Transport Deal of the Year (2010)
Lesotho Hospital Social Infrastructure Deal of the Year (2009)
TAV Tunisia – Africa Transport Deal of the Year (2008)
Bujagali Hydropower – Africa Power Deal of the Year (2007)

Green Infra – Asia Pacific Renewables Deal of the Year (2012)
Zorlu Enerji – Middle East Renweables Deal of the Year (2011)
San Jacinto – Latin American Geothermal Deal of the Year (2010)
China Wind Power – Asia Pacific Deal of the Year (2010)
Rotor Electrik – EMEA Onshore Power Deal of the Year (2009)
Laraib Energy – Asia Power Deal of the Year (2009)
Tata Mundra – Asia Pacific Deal of the Year (2008)

(IFC has brought a number of “firsts” to financial close:

- First two IPPs in Senegal, first IPP in Togo, in Cote d’Ivoire and in Cameroon; first large private hydropower plant (Uganda)
- South Africa’s first two concentrated solar power IPPs
- Sub-Saharan Africa’s first private distribution company (Uganda) & first private integrated utility (Cameroon)

⇒ IFC has played a part in catalyzing private sector investment in Sub-Saharan Africa.)
IFC IN RENEWABLE & CLEANTECH ENERGY
IFC in Renewable Energy

*IFC has a robust and rapidly growing Renewable Energy business*

**IFC Renewable Energy Commitments**

Note: FY15* assumes H1 investments are doubled by end of FY15.
IFC in Renewable Energy

*IFC has played a key role in financing multiple pioneer RE investments globally*

**Africa**

- Four RE financings committed under **South Africa’s Renewable Energy IPP Procurement Program**:
  - Abengoa KaXu
  - Abengoa Khi
  - Abengoa Xina
  - Amakhala Wind

**Rest of the World**

- **First merchant / quasi-merchant hydros in India** (Allain Duhangan), Chile (La Higuera, and Hidromaule)
- **First grid tied solar PV** installation in India
- **First smart grid investment** (India)
  - Series of early stage equity solar investments in India and Thailand
- **First wind farm project financings in Mexico** (Eurus and La Mata-La Ventosa), Bulgaria (AES Kavarna), Romania (Cernavoda)
  - Pre-IPO equity investment in partially privatized vertically integrated geothermal company, with subsequent corporate loans in the Philippines (PNOC-EDC)
- **Landmark geothermal project financings** in Nicaragua (San Jacinto) and Guatemala (Orzunil)
- **First international commercial bank project financing for wind** in Turkey (Zorlu) and China (CWP)

1*st* project of its kind
### IFC in Renewable Energy

*IFC has a long track record across multiple RE technologies*

<table>
<thead>
<tr>
<th>Technology</th>
<th>IFC Experience</th>
<th>IFC Approach</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydro</td>
<td>▪ &gt;50 investments, 4,800+ MW of capacity</td>
<td>▪ Long maturities to match asset life</td>
</tr>
<tr>
<td></td>
<td>▪ Investments in landmark projects in Chile, Guatemala, Nepal, India, Philippines, Uganda, Turkey, Georgia, Pakistan, etc.</td>
<td>▪ Comfort with full or partial merchant risk</td>
</tr>
<tr>
<td></td>
<td></td>
<td>▪ Assisting with E&amp;S risk management / issues</td>
</tr>
<tr>
<td></td>
<td></td>
<td>▪ Taking construction risk</td>
</tr>
<tr>
<td></td>
<td></td>
<td>▪ Innovative bundling of small hydros</td>
</tr>
</tbody>
</table>

| Geothermal   | ▪ Investments in Guatemala, Nicaragua, and Philippines                         | ▪ Understand sector-specific challenges of resource risk and long project cycle |
|              | ▪ Corporate finance. Project finance of integrated (Steam+plant) and plant-only projects | ▪ Innovative structuring allowing for stage disbursement to full resource completion |
|              | ▪ Experience with both equity and debt financing                        | ▪ Exploring ways to finance resource development                             |
|              |                                                                                 | ▪ In-house technical expertise => greater comfort with resource-related risk   |
## IFC in Renewable Energy

*IFC has a long track record across multiple RE technologies*

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| **Solar**  | >53 investments, 810+ MW of capacity  
> Key transactions in Thailand, Philippines, India, China, Mexico, South Africa, Chile  
> Projects in new markets/regulatory regimes  
> Experience with both equity and debt financing | Utility-scale plants  
> Best-in-class start up developers  
> Developing relationships with suppliers  
> Can mobilize concessional financing where appropriate  
> We understand new regulatory support mechanisms and regulatory support risk | |
| **Wind**   | >38 investments, 2,600+ MW of capacity  
> Key transactions in Brazil, Mexico, Bulgaria, Turkey, Romania, Croatia, China, Sri Lanka, and India  
> Projects in new markets/regulatory regimes  
> Experience with both equity and debt financing | Products that optimize leverage, e.g. deferrable subordinated debt that take more wind risk layered on top of senior debt  
> Can mobilize concessional financing where appropriate  
> We understand new regulatory support mechanisms  
> We can assess and structure for regulatory support risk |
IFC in Renewable Energy

Market potential for power deals: Countries to watch, exciting opportunities ahead

- **Guinea**: hydro for West Africa
- **Cameroun**: massive hydro resources
- **Nigeria**: huge evident market potential
- **CdI**: new hydro play / successful track record
- **Ghana**: short term challenges, medium term high potential (local gas)
- **Burkina Faso**: 4 planned solar IPPs
- **Kenya**: 5000+MW capacity planned; financing challenges
- **Uganda**: hydro / RE potential and good track record
- **Rwanda**: one of the best environments for doing business
- **Tanzania**: new gas finds, large needs
- **Mozambique**: hydro + gas + RSA link = high potential
- **South Africa**: by far the most advanced for conventional and renewable power - different scale from rest of the region

**Symbols**:
- Large market size / potential and good IPP track record
- Large potential, limited track record
- Good track record, limited market size
IFC in Renewable Energy

Select IFC commitments in renewable energy in Sub-Saharan Africa*

- **Scatec Solar**
  - Mali
  - Scatec Ségou
    - Equity: $1.4 million
  - Investor
    - 2014

- **West & Central Africa**
  - Mali
  - Scatec Ségou
    - Equity: $1.4 million
  - Investor
    - 2011

- **South Africa**
  - South Africa
    - Abengoa KaXu
      - Investor
        - 2012

  - Abengoa Khi
    - Equity: $2 million
    - A Loan: $76 million
    - C Loan: $12 million
    - Parallel loans:$220 million
    - Blended Finance:$15 million
    - Mandated Lead Arranger
      - 2012

  - Amakhala Wind
    - A Loan: $64 million
    - C Loan: $7 million
    - Lender
      - 2013

- **Kenya**
  - Kenya
    - Kipeto Energy
      - Equity: $2 million
    - Investor
      - 2013

  - Lamu Wind
    - Equity: $3 million
    - Investor
      - 2013

- **Cameroon**
  - Cameroon
    - Nachtigal
      - Equity: $8 million
    - Investor
      - 2013

- **Tanzania**
  - Tanzania
    - Singida
      - Equity: $4 million
      - Investor
        - 2012

* select IFC commitments in the period FY10-FY15
# IFC in Renewable Energy

*Example #1: Bujagali, Uganda – Africa’s first large private hydropower project*

| **Construction of 250 MW hydro plant on the River Nile, Uganda, with a project cost of US$900 million.** |
| **Developed, owned and operated by Bujagali Energy Ltd. (Sithe Global Power, NY and IPS Kenya)** |
| **Sells energy to Uganda National Transmission Company (UETCL) under a 30-year PPA backed by a Government Guarantee.** |
| **Timeline: Long term sector & project development engagement since late 1990s; 2 years between Sponsor selection and Financial Close; plant was commissioned in July 2012.** |

## IFC’s Role

- Key arranging and structuring role among large co-lender group during the financing of the project (AfDB, EIB, FMO, Proparco, AFD, DEG, KfW and syndicate of commercial banks for a total of c. US$700 million)
- Large financier: IFC provided a US$100 million senior (‘A’) loan and US$30 million subordinate ‘C’ Loan, with 16 and 20 years tenor respectively
- Project benefits from an IDA Partial Risk Guarantee for the benefit of the commercial banks syndicate
- IFC continues to support the Ugandan power sector with investments in the distribution sector (Umeme).

## Transaction Highlights

- “Sub-Saharan Power Deal of the Year” award 2007 by Project Finance Magazine
- Africa’s first private large hydropower project
- Uganda’s first IPP; has increased the country’s permanently installed capacity by +50%
IFC in Renewable Energy

Example #2: Azito & CIPREL IPPs in Cote d’Ivoire – transforming a power sector

The largest operating gas power plants in Africa (543 MW + 439 MW) or ~66% of Côte d’Ivoire’s generation capacity.

Expansion of both plants and conversion to combined-cycle technology, allowing together for an additional 1,800 GWh/year of power.

IFC played Sole Lead Arranger roles on both projects, mobilizing around US$1 billion from a large pool of financiers.

Swift execution: 2 years from IFC’s involvement to Financial Close.

IFC’s Engagement in Cote d’Ivoire Power Sector

- Immediate engagement after end of political crisis (May 2011)
- In-depth work on and key role in restoring the financial sustainability of the sector
- Designing a recovery plan and building consensus with the Government
- Catalyzing and executing 2 major power plant expansions within 2 years

Results

- $250 million IFC investment + $450 m mobilized and 360 MW of capacity added (green power, lowest cost).
- Market recognition: In 2013 Azito was awarded “Power Deal of the Year” by the Infrastructure Journal and “African Power Deal of the Year” by Project Finance International.
IFC in Renewable Energy

Example #3: Nachtigal, Cameroon – IFC’s largest InfraVentures investment

- A 420 MW run-of-river hydropower project (guaranteed capacity of 270 MW) to be developed downstream of Lom Pangar (regulating dam) and approximately 70 km north of Yaoundé.
- A least cost option and a critical source of additional supply for Cameroon.
- Under joint development by EdF, the Government of Cameroon, Rio Tinto Alcan and IFC.
- Expected timeline from IFC engagement to Financial Close: 2 years.

IFC’s Expertise

- Structuring: IFC is heavily involved in structuring a balanced, sustainable and bankable project;
- Sector: IFC has in-depth relationships with government & sector stakeholders given its prior key investments in the Cameroon power sector (Kribi & Dibamba IPPs, Sonel distribution company);
- Environmental & Social considerations: intrinsically critical to all large hydropower projects.

Transaction Highlights

- Transformative for Cameroon through:
  - Its size (Nachtigal accounts for roughly a third of the country’s current total installed capacity)
  - Its expected low cost of generation;
  - The replicability of its structure - Nachtigal will be the 1st hydropower project to benefit from the Lom Pangar regulating dam.
SCALING SOLAR
Scaling Solar

*The solar opportunity in Sub-Saharan Africa…*

*The economics of utility-scale solar photovoltaic (PV) power have reached a tipping point…*

— and Sub-Saharan Africa benefits from some of the best irradiation levels on the planet

**Price of crystalline silicon PV cells, $/W**

- Solar power at <¢10/kWh is now possible in emerging markets such as South Africa & Chile.
- PV at ¢15-20/kWh should now be achievable in much of Sub-Saharan Africa, if there is sufficient scale.
- This is competitive with alternative utility-scale generation in many African markets where average generation costs are ¢20-25/kWh (or more).
Scaling Solar

...has reached a tipping point

**Solar power can be built in 3-6 months vs. 3-10 years for thermal, hydropower & geothermal**

<table>
<thead>
<tr>
<th>Technology</th>
<th>Typical Construction Periods (in months)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solar</td>
<td>6-3</td>
</tr>
<tr>
<td>Wind</td>
<td>9</td>
</tr>
<tr>
<td>Thermal &lt;100MW</td>
<td>24-30</td>
</tr>
<tr>
<td>Large thermal</td>
<td>30</td>
</tr>
<tr>
<td>Small hydropower</td>
<td>36</td>
</tr>
<tr>
<td>Large hydropower</td>
<td>60</td>
</tr>
<tr>
<td>Geothermal</td>
<td>84-120</td>
</tr>
</tbody>
</table>

- **High**
- **Low**

Many counties across the continent need to diversify away from a dependency on HFO and fossil fuels

Evolution of oil, gas and coal prices since 2004

- Fossil fuels are both expensive and create fuel price risk whereas the sun is a public, free resource
- Solar power is intermittent, but complimentary to hydropower-reliant power systems in Africa → solar can help to retain dam levels for use in peak hours/seasons

Solar could address urgent needs for power in many markets

⇒ The combination of (a) the ‘tipping point’ reached now in terms of economics (at or below “grid parity”) and (b) the inherent value-add of a quick-to-build, renewable (zero marginal cost) source of energy makes solar PV an attractive and potentially important part of the generating mix for powering Africa.
Scaling Solar

Scale, standardization & competition are needed

Case Study: Dramatic tariff reductions have been achieved in South Africa

- Large allocation
- Strong competition
- Inclusive Framework
- Strong competition
- Tariff decrease
- Proven bankable
- Program expansion
- High investor interest

Capacity allocated per round (MW)

- +1,500 MW of solar PV power

Tariffs per round (ZAR/kWh)

- Tariff drop of -68% for PV projects over the 3 rounds

Number of received bids and success rate (includes wind)

- Surge in investor interest: +80% of bidders in R3 compared to R1
Scaling Solar

The Challenge

- **Lack of market scale**: each African power market has its own unique challenges which create barriers to scale and efficiency, and significantly delay development timelines.

- **Lack of competition**: many power projects in Africa are not competitively tendered; those that are often fail to attract investors with experience and low cost of capital.

- **High transaction costs**: individually negotiated contracts and financing weigh down smaller solar projects with excessive transaction costs that feed through to higher tariffs.

- **High costs of capital**: long development cycles and high payment risks from utility power purchasers result in high equity and debt costs.

- **Limited institutional capacity**: African governments are stretched with limited capacity to manage, structure and negotiate private power concessions.
Scaling Solar

The WBG Solution: Scaling Solar, a “one-stop-shop” offering

Scaling Solar is a “one-stop-shop” for Governments to rapidly mobilize competitive privately funded grid connected solar projects within 2 years of engaging our team.

- Scaling Solar brings together several World Bank Group services under a single engagement:
  - Advice to assess the right size and location for solar PV power plants in your grid
  - A competitive tendering process that has been pre-approved by tier one private sector developers ensuring strong competition
  - Standardized, balanced project documents that remove negotiation delays and ensure speed and bankability
  - Pre-approved competitive financing and insurance offered to all bidders, delivering competitive bidding and ensuring rapid financial close post tender
  - Risk management and credit enhancement products to lower financing costs and deliver power at lower tariffs.

⇒ Scaling Solar’s comprehensive package will deliver speed and certainty and address barriers at every stage of the development life cycle to deliver solar power at record speed and at the lowest possible prices.

⇒ As it is implemented across multiple countries, Scaling Solar will also deliver market scale, allowing smaller Sub Saharan countries to enjoy the purchasing power of bigger and more developed economies.
Scaling Solar

*How does it work? The 5 Steps of Scaling Solar*

- Several WBG instruments brought together under a single product offering.
- Client governments would engage in a single mandate to access the “one-stop-shop”.

1. **Gov signs a mandate with WBG**
2. **WBG offers advice to prepare tender and ensures speed and quality**
3. **WBG runs competitive tender with tier 1 developers**
4. **WBG finances winners based on pre-agreed terms**
5. **Winning bids construct and operate plants within 6-12 months**

- Gov & WBG agree on the MW’s to be tendered
- Gov & WBG agree on Steps/Timing
- Gov & WBG agree on Fee
- Advice on location & size of PV plants in your grid
- Advice on local/legal regulatory environment
- Standardized balanced but bankable project documents (PPA, Interconnection…), that ensure speed
- Simple, standardized but competitive tender process
- Qualified and pre-approved tier 1 private sector developers ensuring strong competition
- Min aggregate project/bid size 25MW
- Pre-approved competitive financing offered to all bidders
- Blended concessional finance where appropriate
- Tenors up to 20 years
- Pre-approved credit enhancement products available if required
- 6 months after being selected, winning bids should reach financial close and start construction
- Within 6-12 months projects should be operational

*2 year delivery from Mandate to operations*
THANKS FOR YOUR ATTENTION!