

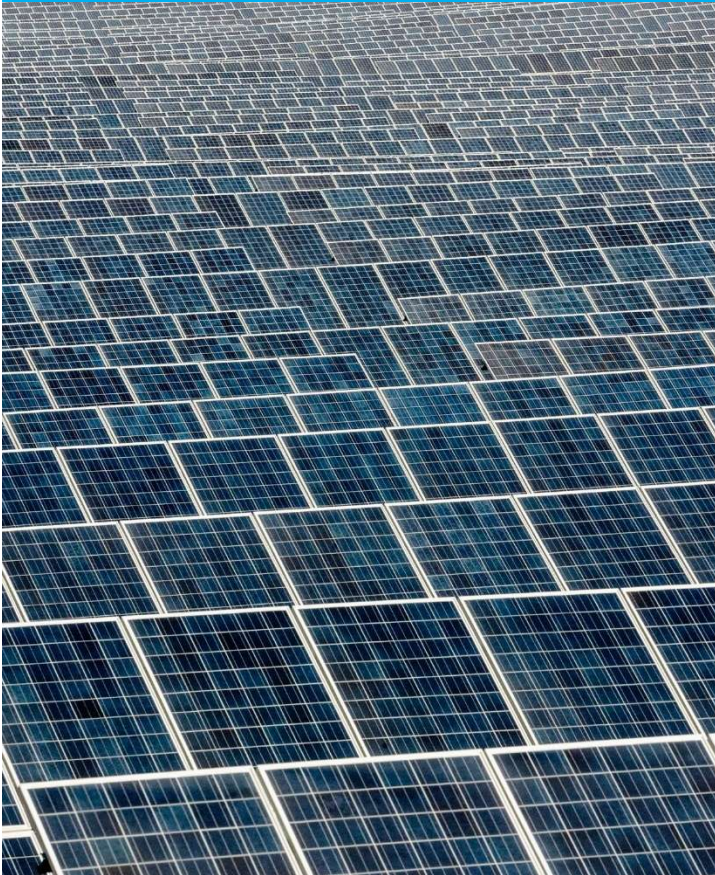
Scaling Solar



AN INNOVATION OF
WORLD BANK GROUP

Scaling Solar:

A World Bank Group solution to
accelerate private investment
in utility-scale solar PV







Benefits of Solar in Emerging Markets

- Prices of crystalline silicon PV cells have dropped below **0.4\$/W** (from 76.67 \$/W in 1977)
- Many emerging markets benefit from some of the **best irradiation levels** on the planet
- Short construction periods of **3-6 months** vs. 3-10 years for thermal, hydro & geothermal
- Need for **diversification** in many countries

The Challenge

- Limited institutional capacity
- Lack of market scale
- High transaction costs
- High perceived risks and cost of capital
- Lack of competition and high tariffs

South Africa Case Study

- Large, repeat allocation (4 rounds with a total of 1,900MW solar PV power) →  Capacity build-up
- Strong competition →  Tariff decrease
(-76% for PV projects over the 4 rounds)
- Inclusive framework →  Proven bankable
- Program expansion →  High investor interest, increasing selectivity in bidders

The Solution: Scaling Solar

Scaling Solar is a “one stop shop” program supporting governments to *rapidly* mobilize *privately funded* grid connected *solar projects* at *competitive tariffs*. The program brings together a suite of *World Bank Group services* under a *single engagement* based on a *standardized* approach to *create viable markets* for solar power in each client country.

The Process



1. Project Preparation

- Technical and economic analysis
- Site investigation
- Legal & regulatory analysis

2. Bid Preparation

- Template tender and project documents
- Attachment of financing, insurance, and credit enhancement

3. Tender Process & Award

- Request for qualification
- Bidder consultation
- Request for proposals
- Proposal review and award
- Signing of project documents

4. Financial Close

- Finalization of contracts
- Final project approvals
- Finalization of loan agreements, insurance, and risk management

5. Construction & Operation

- Construction
- Commissioning
- Operations

Scaling Solar Mandates

Zambia

Round 1

- Project size: 2 projects for a total of 75.7 MWac
- Bids: 48 applicants at qualification, 11 prequalified
- Tariff: Record-low tariff of 6ct/kWh achieved
- Status: Pending Financial Close

Senegal

- Project size: 70 MWac under procurement
- Bids: 28 applicants at qualification, 12 prequalified
- Status: Request for Proposals ongoing

Ethiopia

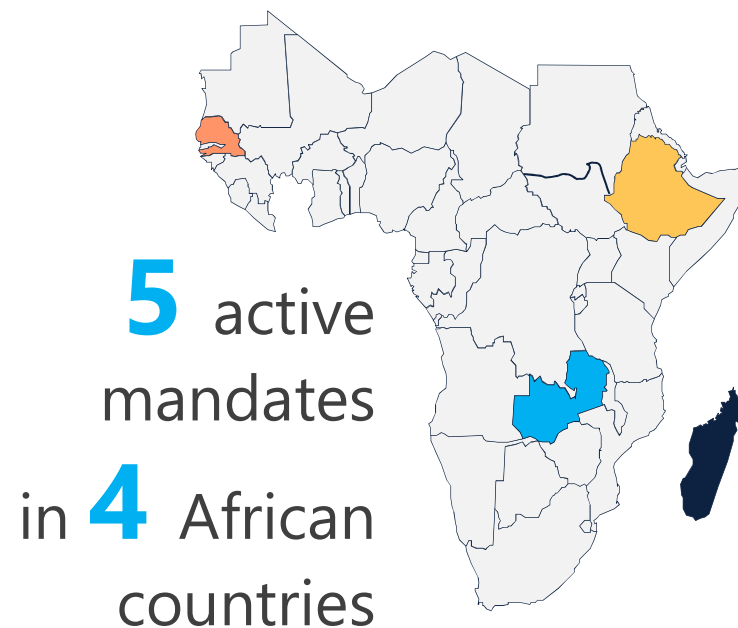
- Project size: Round 1 of 250MWac under procurement
- Status: In Pre-Qualification stage

Madagascar

- Project size: 25 MWac under procurement
- In Pre-qualification stage

Round 2

- Project size: 300 MW under procurement
- Bids: 21 applicants at qualification, 12 prequalified
- Status: In preparation for request for proposal



Participating Developers Included:



Scaling Solar Tender Results in Zambia

9 months: Project preparation and tender preparation and execution

Top 6 bids for the West Lunga Site | Mosi-oa Tunya Site

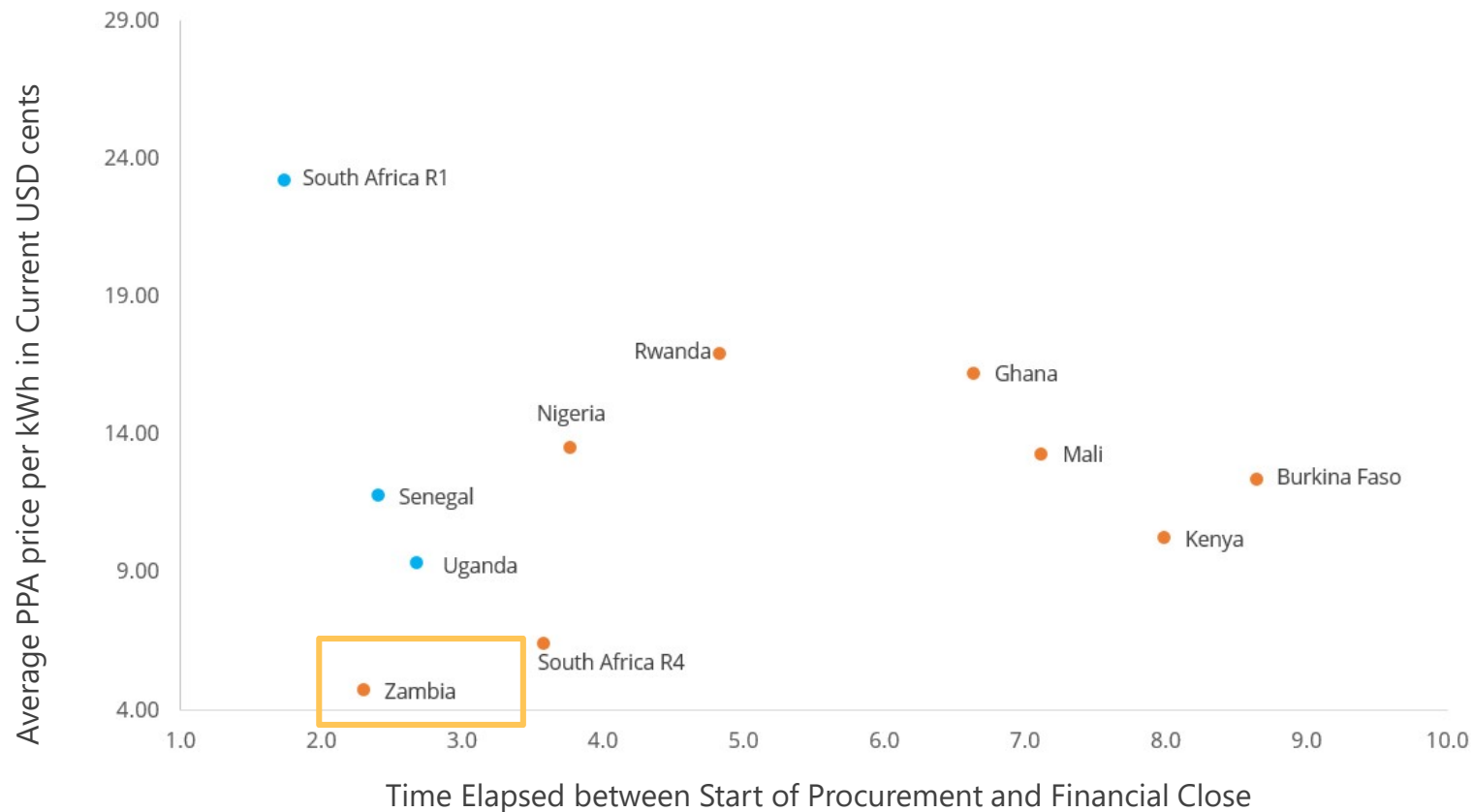
- Neoen / First Solar: **6.0150c/kWh*** | 6.1350c/kWh
- ENEL Green Power: 7.7989c/kWh | **7.8390c/kWh***
- Access / EREN Zambia 1: 8.2879c/kWh | 8.9509c/kWh
- MULILO Zambia PV1 Consortium: 8.4000c/kWh | 8.4000c/kWh
- EDF Energies Nouvelles: 10.0400c/kWh | 9.9850c/kWh
- SEP / AVIC Intl: 10.6000c/kWh | 10.6000c/kWh

6.0c/kWh non-indexed is equivalent to an average in current dollars over contract life of **4.7c/kWh**

*Winning bids

Scaling Solar vs. Regional Benchmarks

Sub-Saharan Solar PV: Comparison of Tariff and Time to Market



● Projects past financial close ● Ongoing projects as of November 16, 2017

Lessons Learned / Challenges Faced

- Institutional capacity
- FOREX / arbitration / offshore accounts / tax incentives
- Land acquisition
- Technical and E&S surprises
- Level of effort required

The Benefits of Scaling Solar

Governments and Utilities

- Speed
- Customized process
- Certainty
- Competitive fixed-rate tariffs

Project Developers and Investors

- Market creation
- Reduced development time
- Level playing field
- Regional scale

International Donors & Development Partners*

- Reach
- Leverage
- Transparency
- Impact

*Opportunities for donors include: funding transaction advisory (steps 1-3) or provision of capital grants to all bidders to lower tariffs and improve affordability



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