Scaling Solar:
A World Bank Group solution to accelerate private investment in utility-scale solar PV
Solar PV – a Great Solution for Emerging Markets

• Prices of crystalline silicon PV cells have dropped below $0.35/W* (from 76.67 $/W in 1977)

• Many developing countries benefit from excellent irradiation levels

• Short construction periods of 3-9 months vs. 2-10 years for thermal, hydro & geothermal

• There is a need for diversification of electricity generation source in many countries to avoid fuel price/ hydrology volatility

*As per BNEF market outlook of November, 2017
A Challenge for Developing Countries to Benefit

- Limited institutional capacity
- Lack of market scale
- Lack of competition
- High transaction costs
- High perceived risks and cost of capital
The Solution: Scaling Solar

Scaling Solar is a “one stop shop” program for 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 templated approach to create viable markets for solar power in each client country.
## What Scaling Solar Delivers

### A “One-Stop-Shop” Approach

- Whole WBG in one packaged solution:
  - Advice
  - Tendering expertise
  - Documentation
  - Competitive financing and insurance
  - Risk management and credit enhancement
- Designed with both government and developers in mind
- WBG expertise and lessons learned worldwide embedded

### A Focus on Standardization

- Fully developed documentation quickly tailored to local needs drives speed
- Consistency across countries creates a single, ‘virtual’, large scale market to attract the largest and best global bidders

### De-risking to lower tariffs and ensure success

- Coordinated delivery to address both public and private sector constraints
- Projects substantially developed to lower risk for developers and government
- WB debt, insurance and guarantee products to lower investor risk and required returns
The Process: Potential for Generation in 2 Years

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
# The Benefits of Scaling Solar

<table>
<thead>
<tr>
<th>Governments and Utilities</th>
<th>Project Developers and Investors</th>
<th>International Donors &amp; Development Partners*</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Speed</td>
<td>• Market creation</td>
<td>• Reach</td>
</tr>
<tr>
<td>• Customized process</td>
<td>• Reduced development time</td>
<td>• Leverage</td>
</tr>
<tr>
<td>• Certainty</td>
<td>• Level playing field</td>
<td>• Transparency</td>
</tr>
<tr>
<td>• Competitive fixed-rate tariffs</td>
<td>• Regional scale</td>
<td>• Impact</td>
</tr>
</tbody>
</table>

*Opportunities for donors include: funding transaction advisory (steps 1-3) or provision of capital grants to all bidders to lower tariffs and improve affordability
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 6USct/kWh achieved
- Status: First project under construction

Senegal
- Project size: 100 MWac under procurement
- Bids: 28 applicants at qualification, 12 prequalified
- Tariff: 4.7USct/kWh
- Status: Awaiting financial close

Ethiopia
- Project size: Round 1 of 250MWac under procurement
- Status: Pre-qualified bidders selected

Madagascar
- Project size: 25 MWac under procurement
- Status: Pre-qualified bidders selected

Round 2
- Project size: 300 MW under procurement
- Bids: 21 applicants at qualification, 12 prequalified
- Status: In preparation for request for proposal

5 active mandates in 4 African countries
Scaling Solar Tender Results in Zambia

9 months: Project preparation, tender delivery and award

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

- Neoen | First Solar: \(6.015\text{USc/kWh}^*\) | \(6.135\text{USc/kWh}\)
- ENEL Green Power: \(7.799\text{USc/kWh}\) | \(7.839\text{USc/kWh}^*\)
- Access | EREN Zambia 1: \(8.288\text{USc/kWh}\) | \(8.951\text{USc/kWh}\)
- MULILO Zambia PV1 Consortium: \(8.400\text{USc/kWh}\) | \(8.400\text{USc/kWh}\)
- EDF Energies Nouvelles: \(10.040\text{USc/kWh}\) | \(9.985\text{USc/kWh}\)
- SEP | AVIC Intl: \(10.600\text{USc/kWh}\) | \(10.600\text{USc/kWh}\)

6.0USc/kWh non-indexed is equivalent to an average in current dollars over contract life of \(4.8\text{USc/kWh}\)

*Winning bids
Scaling Solar Tender Results in Senegal

60% tariff reduction achieved in Senegal.¹

Top 6 bids for the Kahone | Touba Site

- ENGIE | MERIDIAM: 3.802€c/kWh* | 3.983€c/kWh*
- Nareva Holding | Abu Dhabi Future Energy Company PJSC “Masdar“: 3.890€c/kWh | 3.990€c/kWh
- Access Infra Africa | Total Eren S.A. 4.390€c/kWh | 4.390€c/kWh
- Actis Energy 4 | Mulilo Group Holdings Proprietary Limited: 4.504€c/Kwh | 4.889€c/kWh
- Scatec Solar: 4.600€c/kWh | 4.630€c/kWh
- Acciona Energia S.A.: 5.793€c/kWh | 5.164€c/kWh

3.8€c/kWh (4.7USc/kWh) indexed at 1.2% is equivalent to an average in current dollars over contract life of 4.3USc/kWh

¹Based on previous solar PPAs | *Winning bids
Participating Developers Included:
Scaling Solar vs. Regional Benchmarks

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

- Average PPA price per kWh in current USD cents
- Time elapsed between start of procurement and financial close (in years)

- Projects past financial close
- Ongoing projects as of May, 2018
- Expected time to financial close

Note: Anonymous projects x, y and z are in different countries throughout sub-Saharan Africa
Next steps for interested governments

- Receipt of an Expression of Interest from Government
- Discussions to confirm and agree:
  - Suitability of Scaling Solar in country context
  - Sufficiency of stakeholder support (MoE, MoF, Utility, Regulator)
  - Identification of a government champion to drive the project
  - A timeline from mandate to selection of a Preferred Bidder
- Signing of a mandate with the World Bank Group to:
  - Conduct technical studies
  - Run a competitive tendering process complete with standardized documents and stapled financing
- Make initial payment for advisory services as per the engagement letter
- WBG team to run due diligence process and, after consultation and agreement from Government, tendering process

6-12 months: Expected timeline from mandate to selection of preferred bidder