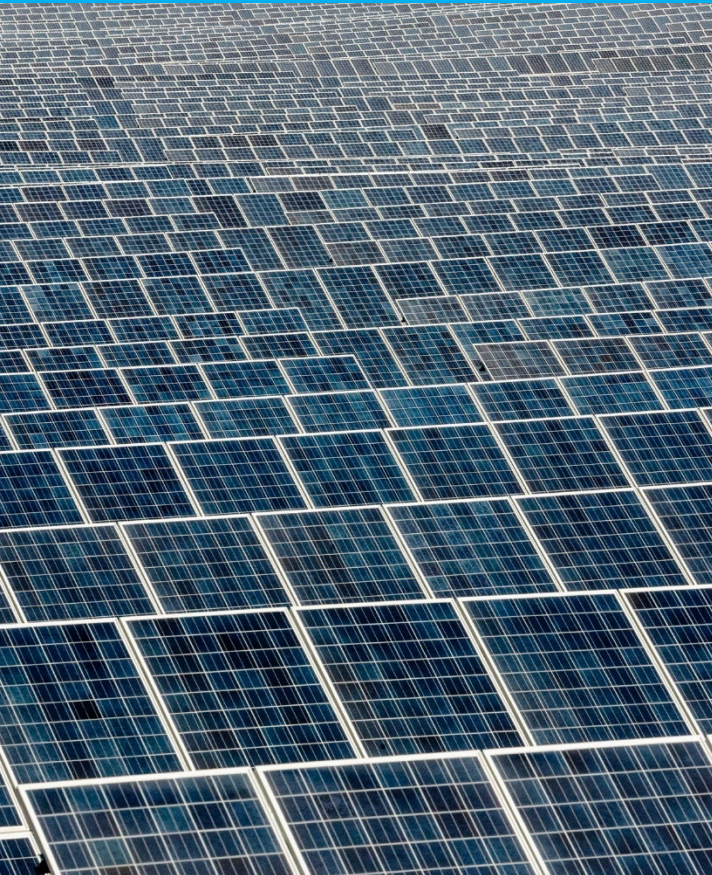


Scaling Solar



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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



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

Scaling Solar Mandates

8 active mandates in **6** countries:

Zambia

- Project size: 2 projects for a total of 75.7 MW
- Tariff: Record-low 6USct/kWh
- Status: First project completed

Round 2 (300MW) under procurement

Senegal

- Project size: 60 MW under procurement
- Tariff: Record-low 4.7 USct/kWh
- Status: Financial Close reached in July, 2019

Madagascar

- Project size: 25 MW
- Status: Pre-qualified bidders selected

Ethiopia

Round 1

- Project size: 2 projects for a total of up to 250MW
- Status: Request for Proposals closed

Round 2

- Project size: 4 projects, total of up to 750MW
- Status: Request for Pre-Qualification closed

Uzbekistan

- Project size: 100 MW
- Status: Request for Proposals issued

Togo

- Project size: up to 90 MW
- Status: Mandate signed

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: **6.015USc/kWh*** | 6.135USc/kWh
- ENEL Green Power: 7.799USc/kWh | **7.839USc/kWh***
- Access | EREN Zambia 1: 8.288USc/kWh | 8.951USc/kWh
- MULILO Zambia PV1 Consortium: 8.400USc/kWh | 8.400USc/kWh
- EDF Energies Nouvelles: 10.040USc/kWh | 9.985USc/kWh
- SEP | AVIC Intl: 10.600USc/kWh | 10.600USc/kWh

6.0USc/kWh non-indexed is equivalent to an average in current dollars over contract life of **4.8USc/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.

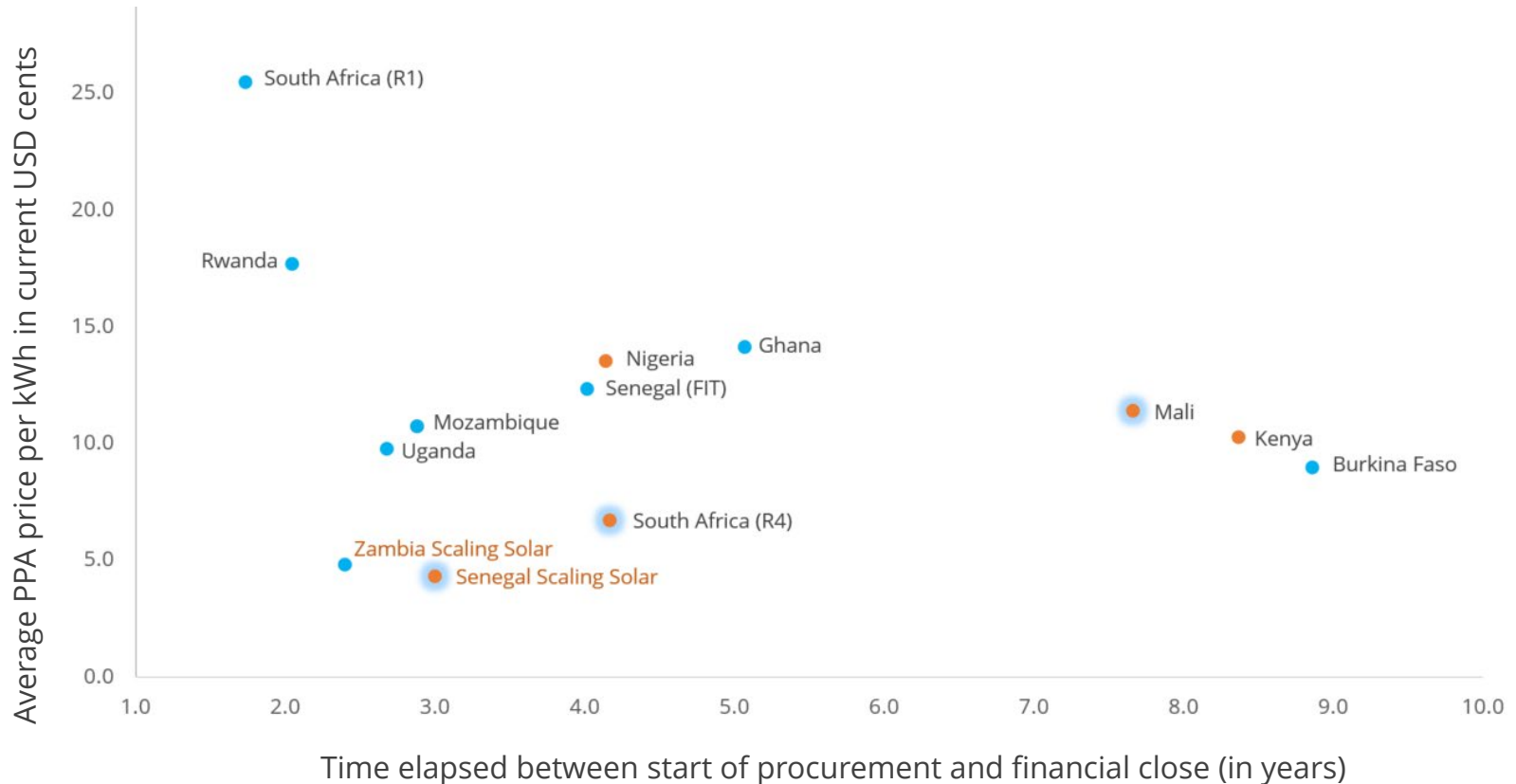
*Winning bids

Participating Developers Included:



Scaling Solar vs. Regional Benchmarks

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



● 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



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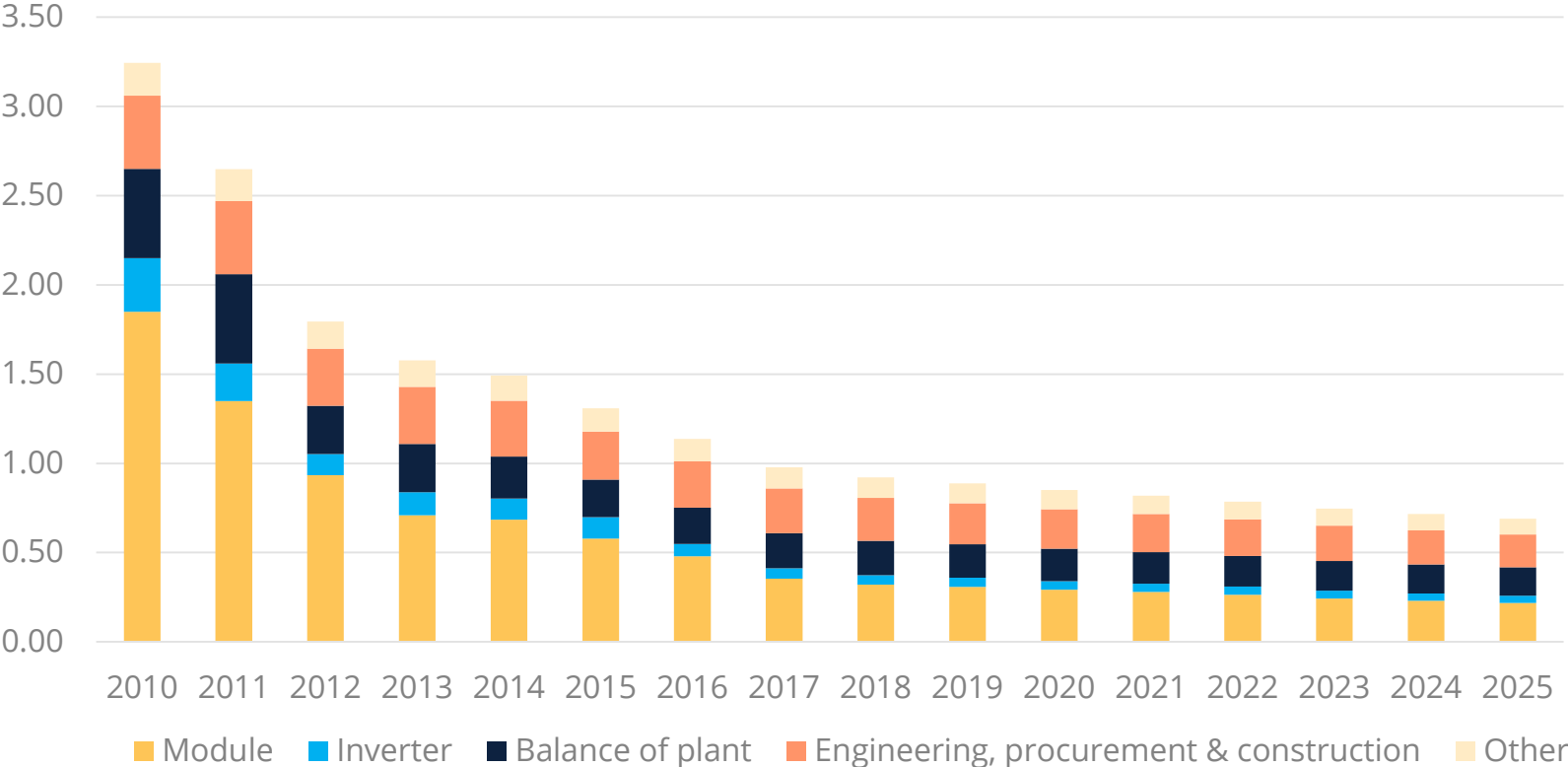
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ANNEX

Why Solar Is a Great Solution for IFC Markets

Cost: Price benchmark for fixed-axis, utility scale PV systems

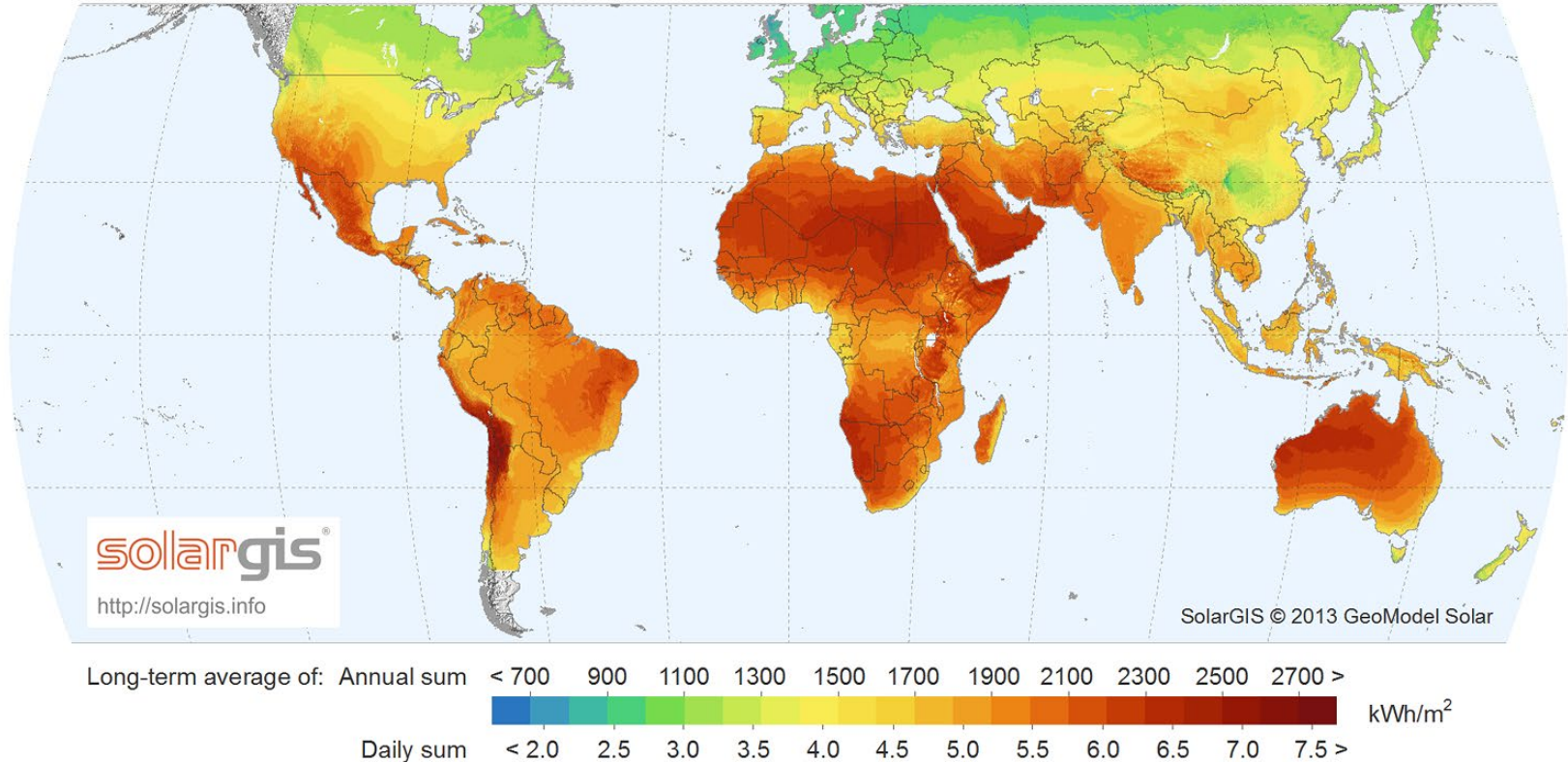
(2016 \$/W, DC)



Source: BNEF Global PV Market Outlook Q4, 2017

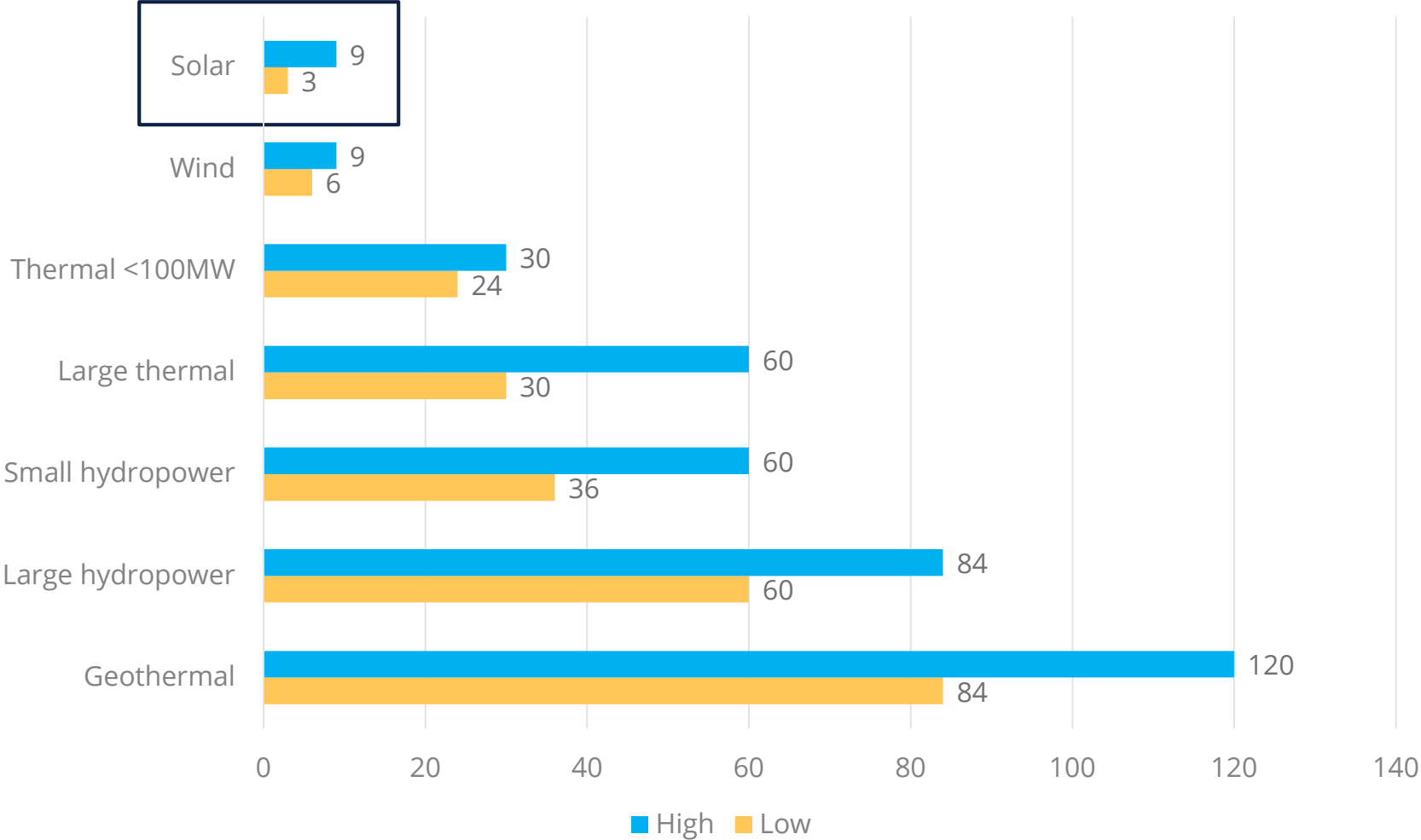
Why Solar Is a Great Solution for IFC Markets

Ubication: Favorable irradiation levels in many IFC Markets

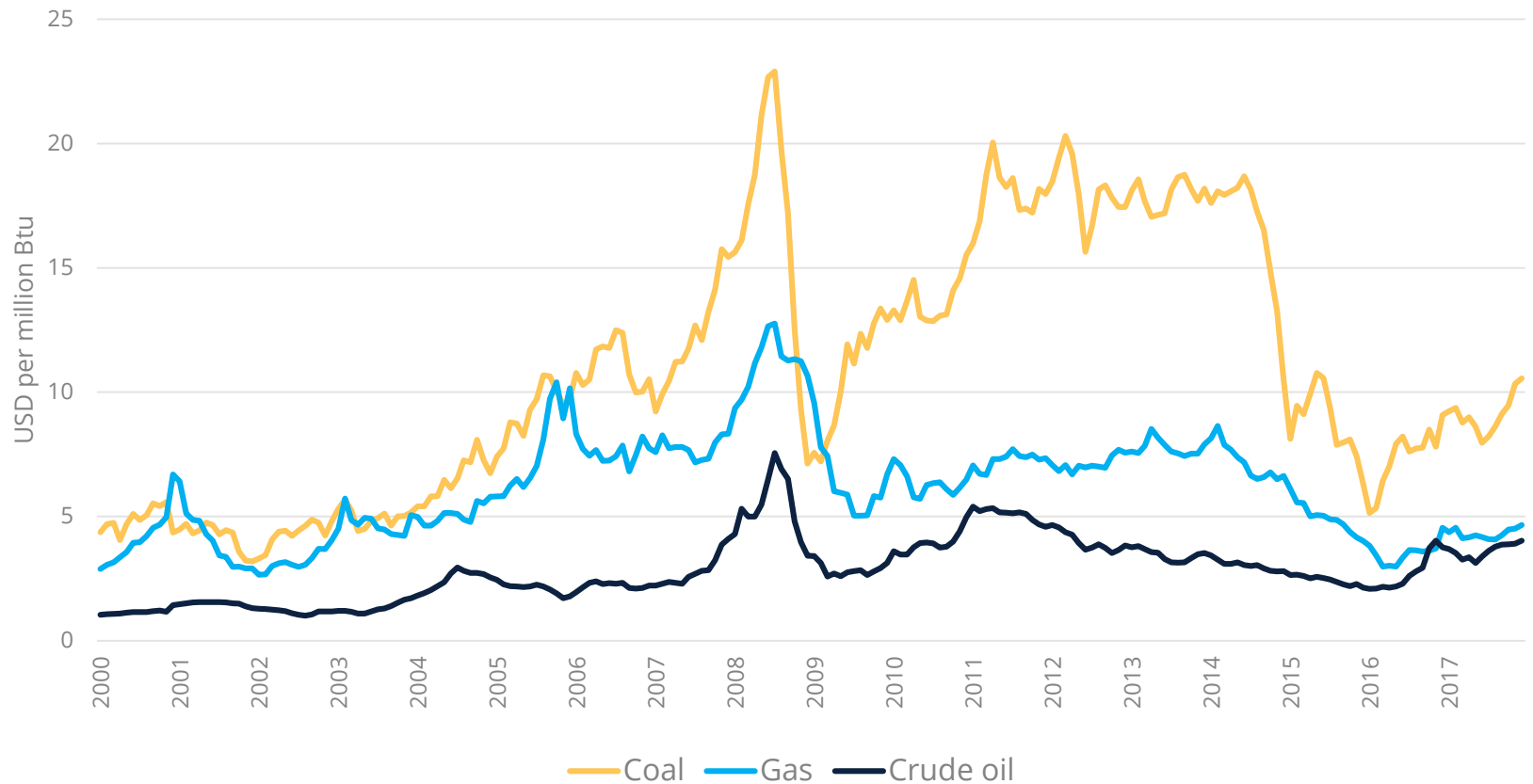


Typical Construction Periods for Energy Sources

(in months)



Global Average Fossil Fuel Prices since 2000



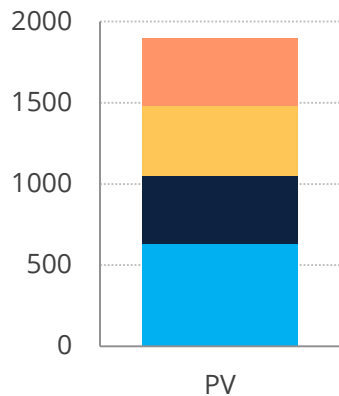
Source: World Bank Commodity Price Data

South Africa Case Study

Dramatic Tariff Reductions achieved through:

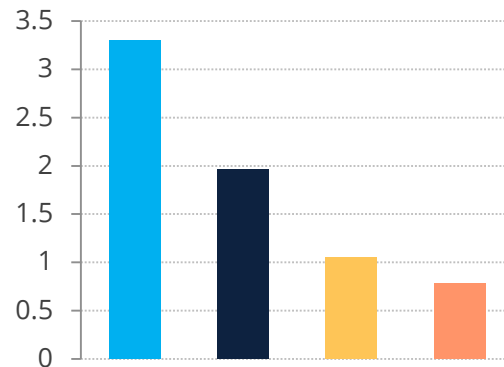


Capacity per round (MW)



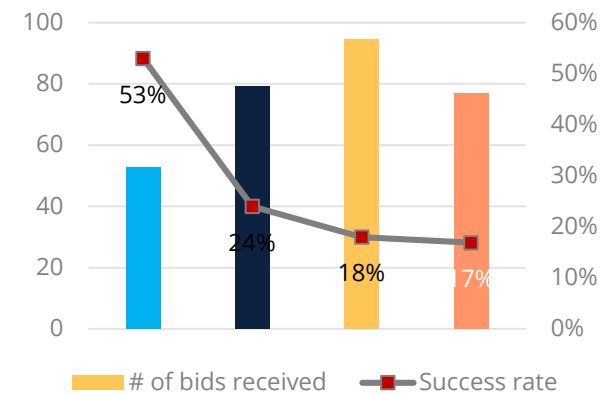
✓ +1,900 MW of solar PV power

Tariffs per round (ZAR/kWh)



✓ Tariff drop of -76% over 4 rounds

of bids received and success rate (includes wind)



✓ Surge in investor interest and increasing selectivity in bidders afforded

■ Round 1 ■ Round 2 ■ Round 3 ■ Round 4

Scaling Solar “Template” Documents

Engagement Letter & ToRs for specialized Consultants

- Government signs a Letter of Engagement with IFC’s Advisory Services
- A World Bank Group team is put in place
- Specialized consultants are hired based on existing Terms of References

Power Purchase Agreement & Government Support Agreement

- Documents designed as fair, balanced & bankable
- Prepared by World Bank Group with support of Linklaters & Norton Rose independent review

Pre-Qualification Document & Request for Proposals

- Tendering documents are ready and have been designed to attract top tier developers and investors

Letter of Interest and Indicative financing terms

- Letter of Interest and Indicative financing terms

It is critical for this set of documents to be utilized in their template forms to achieve scaled, competitive solar power within 2 years.

The World Bank Group is uniquely positioned to deliver



WORLD BANK GROUP

THE WORLD BANK | IFC | International Finance Corporation | MIGA | Multilateral Investment Guarantee Agency

The World Bank Group has a long track record working across power sectors, key stakeholders and unique challenges. IDA and IBRD support client country governments with financing and advice to extend access to electricity, expand least-cost generation, create sustainable regulation and leverage the private sector. IFC is experienced in developing bankable private power projects and has a substantial track record in both tendering and financing solar power plants. MIGA provides a range of political risk insurance products to attract private capital into emerging markets.

