



Nubian Suns (Egypt): Scale At Speed

In the last few years, IFC has prioritized an approach to creating bankable private sector infrastructure opportunities that we call “Scaling”—focusing not on single asset development, but on a holistic approach that creates a pipeline of infrastructure projects.

The essence of the Scaling approach is to develop a robust public-private partnership (PPP) model for a single deal and then replicate it. This spreads costs, enhances impact, and encourages programmatic, competitive tendering, with faster delivery and lower prices—genuinely creating new markets.

In some countries, this approach involved working with governments to design a process. In others, IFC has worked with investors and bankers, corralling views and facilitating dialogue. In each case, the ideas at the heart of Scaling—focusing on aggregation and investing upstream to achieve credibility downstream—were adapted to specific country circumstances. In all cases, the Scaling effort in process design and organization had a meaningful and long-lasting impact.

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Here we consider one of these experiences—Nubian Suns—in more detail. This case study accompanies four other case studies and an Executive Summary, and provides insights and key takeaways that are directly applicable to other countries.

Egypt's Nubian Suns solar program will supply cost-effective and eco-friendly renewable energy to over 350,000 residential customers through a private financing package for a solar photovoltaic facility. The plants are part of the larger Benban Solar Park, one of the largest solar installations in the world. IFC led the financing package with a consortium of Development Finance Institutions (DFIs) and international banks. The project was also a prime example of the World Bank Group's "Cascade" approach in action. This approach seeks to mobilize private sector financing and expertise for development projects, freeing up scarce public resources for other uses.





I The Project

Nubian Suns is an IFC-led initiative that financed 13 solar photovoltaic (PV) projects near the Egyptian city of Aswan, amounting to 752MWp/590MWac in power generation capacity. This initiative was implemented under Egypt's Feed-in Tariff program to promote renewable energy. The program is part of the larger 37km² Benban Solar Park, one of the largest solar installations in the world.

Egypt's Feed-in-Tariff program is a major initiative that leverages private sector capital and expertise to support the country's goal of generating 20 percent of its electricity from renewable resources by 2022. The Benban Solar Park, which will include 32 power plants in all, is an important part of the initiative. Egypt's decision to create the program was part of a series of economic reforms, supported by the World Bank Group, meant to both improve essential services and competitiveness while reining in deficits.

IFC's investment in the solar park is part of a global strategy to increase investments in renewable energy, helping countries reduce their reliance on fossil fuels. IFC successfully led a \$653M transaction (including syndicated loans) by adopting an innovative approach to pull together a consortium of 18 developers, organized into six sponsor groups, and 11 financial institutions to invest in Egypt's renewable energy sector for the first time. A key accomplishment in this was IFC's programmatic approach to financing. It consolidated multiple transactions into a streamlined process through standardization of financing and security documentation. The resulting transaction cost efficiencies improved returns, ensured faster turn-around and successfully met the aggressive timeline set by the Government of Egypt. The World Bank Group also assisted the Government of Egypt to establish an enabling regulatory environment by addressing barriers and enacting policy reforms that allowed private sector investment in the renewable energy sector, essentially creating a new market.

II Context: Making the Market

Some 90 percent of Egypt's power is fueled by indigenous and imported gas. Local gas reserves have dropped in recent years, increasing the need for expensive gas imports and affecting Egypt's fiscal position. Furthermore, following the Arab Spring, Egypt faced an influx of refugees, changing demographics and increasing unemployment in a stagnant economy. Between 2012 and 2014, the country also faced a power crisis with several electricity outages that contributed to unrest and increased pressure on the government to seek effective ways to meet electricity demand.

The return of political stability in early 2014 presented an opportunity to the country. Realizing the huge importance of a functioning energy sector—as generator of export revenues, as a magnet for foreign investment, as a foundation of a thriving economy and a content population—the new government approached the World Bank Group for support. It requested assistance in reforming the sector towards financial sustainability and in creating fast-track solutions to catalyze large-scale private investments to boost energy generation and diversification.

The World Bank, along with the International Monetary Fund, engaged and provided technical assistance on energy subsidies, energy pricing, corporate governance and private sector participation, recommending that the Government of Egypt adopt a strong private sector-led renewable energy policy, and assisting in the development of a legal framework in the form of a Renewables Law—ultimately mobilising private sector financing and expertise for development projects in order to free up scarce public resources for other uses.

Does the shoe fit?

Renewables policy can be designed through unsolicited proposals, a Feed-in Tariff (FiT) program or a competitive auction. Under a FiT scheme, the government sets an off-taker price and invites proposals. Bids are screened for financial, operational and development experience to select winners. By contrast, a competitive auction awards the bid to the lowest cost bidder. Both approaches have been widely used. The FiT approach is considered to be attractive to sponsors and banks. It is usually preferred as a mechanism to create a market and generate initial interest. A competitive auction typically generates lower prices, but may backfire if initiated too early.

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In parallel, a continuing steep decline in the price of solar panels had helped several countries adopt solar energy as a viable commercial alternative to fossil fuel-based generation. Elsewhere in the region, Jordan launched its renewable energy program successfully in 2015, starting out with a Feed-in-Tariff scheme and subsequently moving on to competitive auctions. In Jordan, IFC successfully designed and led the financing of ‘Seven Sisters,’ a group of solar PV projects. Egypt has the world’s best sunshine, but this resource had not been tapped other than through a few low-key public-sector initiatives.

In late 2014, Egypt launched its Feed-in-Tariff scheme with a tariff of 14.3 US\$ cents per kilowatt-hour (US¢/kWh) for solar PV projects of 20-50 MW. The Feed-in-Tariff approach was chosen to stimulate private sector participation in the sector after a hiatus of nearly 20 years. Initially, the program attracted an enthusiastic response from investors. By early 2016 more than 20 groups were preparing proposals, looking to conclude Power Purchase Agreements (PPAs) by an October deadline to declare financial close. Even though the draft contracts had bankability gaps, investors believed that those gaps could be bridged through negotiations.

III Transaction Evolution

Round 1 goes bust

Round 1 called for a build out of 2,500 MW across three territories: Benban (Aswan), Zaafarana (Gulf of Suez) and Minya, for a total of 55 projects. It was launched against the backdrop of a fragile short-term economic outlook and a tight 24-month deadline. However, two issues caused round 1 to stall and Development Finance Institutions to pull out of the process:

- The cost of solar PV projects continued to decrease significantly around the world, mainly due to lower equipment costs. Between late 2014 and late 2015, project costs fell steeply, with sustainable tariff levels reaching US\$6–7 US¢/kWh. Egypt's Round 1 tariff had been set in early 2014 at 14.3 US¢/kWh with the intention of allowing the program to move quickly, but these developments put into question the sustainability of such high levels.
- In addition, round 1 project documentation included provisions requiring the seat and venue of arbitration to be in Egypt. These provisions were not acceptable to international lenders, who preferred the comfort of an offshore and independent seat of arbitration. IFC and other Development Finance Institutions placed this requirement before Egypt's government, which refused to make this change.

Round 1 eventually stalled as sponsors and investors grew uncomfortable with the overall framework. Ultimately, only one project from Round 1 was realized at the Benban site, while other projects were rolled over to round 2.

Round 2 evolves as a bankable alternative

Both the arbitration clause and high tariff prompted the World Bank Group and the European Bank for Reconstruction and Development to engage the government in the development of project documentation that responded to investor needs and a new, more sustainable tariff.

- First, Development Finance Institutions requested the following changes in arbitration provisions: offshore seat and venue of proceedings; appointment of a third arbitrator by an independent party; and removal of any cap on arbitrator fees. Following negotiations, arbitration provisions were agreed. Since the Cairo Centre for Arbitration was deemed independent, it was agreed that the venue of arbitration would remain in

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Egypt, while the seat would be offshore (either Paris or Geneva). A fee cap remained in effect, but with flexibility to provide for an increase if an appropriate arbitrator could not be found.

- In addition, the round 2 tariff was also set at 8.4 US¢/kWh, much lower than the level for round 1 and closer to grid pricing of \$60–80/MWh. The tariff was 70 percent indexed to the U.S. Dollar and 30 percent unindexed, fixed at 8.8 Egyptian Pound (EGP) per USD, resulting in an effective equivalent levelized tariff of 7.1 US¢/kWh.

In addition, crucially, Egypt's macroeconomic climate improved significantly. By the time Round 2 got fully underway in early 2017, the government had implemented a series of structural reforms and support packages which restored investor confidence:

- Adoption of US\$12 billion IMF package in November 2016;
- Execution of energy sector reforms supported by US\$3 billion Development Policy Financing (DPF) from the World Bank and resulting budget support, together with further development policy loans by the African Development Bank and the French Development Agency;
- Establishment of a free float for the Egyptian currency, allowing for a sudden correction in the Egyptian pound's value, which fell almost overnight from the former peg at 8.8 EGP/USD to a more natural equilibrium around the 17.8–18.1 EGP/USD level;
- A 30 percent increase in fuel prices across the board;
- The Government issued Eurobond placements in January and May 2017, which were heavily oversubscribed, and which raised a further US\$7 billion, resetting Egypt's foreign exchange reserves to one of the highest levels ever recorded.

IFC then worked alongside the Egyptian government to develop a framework for Round 2, which differed from the previous round in two ways:

- **Number of sites:** Unlike Round 1 where developers could select between three solar park sites, the government now decided to focus all efforts on just one mega-site with all projects being moved to the Benban Solar Park.
- **Number of projects:** Round 1 started with 55 projects that eventually came down to about 33 in Round 2, of which 15–20 were to be jointly financed between IFC and the European Bank for Reconstruction and Development.

The new deadline to reach financial close was set for 29 October 2017, 12 months from the launch of the new round, an aggressive deadline.

IV Creativity Through Simplicity and Simplicity Through Aggregation

“Things should be made as simple as possible, but not any simpler.” —Albert Einstein

Typically, project finance transactions are complex, customized, heavily negotiated and resource-intensive and are therefore mainly large projects sponsored by sophisticated developers. However, through its ‘Seven Sisters’ Program in Jordan, IFC had rolled out a successful programmatic approach that had allowed project finance to be applied to smaller projects. The approach was predicated on a standard base of terms and conditions that was adhered to by sponsors and banks and that made it simpler to aggregate multiple projects.

This programmatic approach was tested on a larger scale in Egypt given that there were 18 developers, with 13 projects of 50MW each. The timeline to close was ten months, a challenging proposition that could not be negotiated (it would have required amending the Renewable Energy law). A traditional approach to financing a group of projects would be to sign individual term sheets, build a financial model for each project, assess energy data through consultants for individual sites and negotiate commercial, technical and financial details for every project. If IFC had followed the traditional approach, the IFC Egypt deal team would have had to contend with 13 different models, negotiate 13 times as many details and manage many document turn arounds.



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Instead, IFC adopted the programmatic approach:

Consolidating sponsor groups: The first step was to aggregate the many sponsors into groups. Following the departure of several high-profile sponsors in the transition from round 1 to round 2, and several projects changing hands, IFC re-engaged with those of its original sponsors who remained, and encouraged new entrants to join the program, helping several join forces with existing consortia to consolidate projects and gain economies of scale. Eventually IFC's 18 sponsors—a combination of local companies, investors and large conglomerates—settled down into six groups, mandating an initial eleven projects, later increased to thirteen.

Designing a common project structuring platform: Once the sponsor groups were defined, IFC set out to establish a common platform for project preparation and appraisal. This sought to exploit economies of scale and scope inherent in the processing of multiple projects at once, and in the simultaneous and coordinated execution of key structuring tasks applicable to all projects. It involved the following:

- **A common financial model:** All projects were based on the same financial model architecture developed by IFC, differing only in the inputs provided by the sponsors. This allowed for benchmarking of proforma financial performance and for the early identification of anomalies.
- **A common solar irradiation study:** The technical advisor to the lenders noticed discrepancies from different measuring stations despite the proximity of sites. A separate treatment of these inputs would have led to a high uncertainty factor which in turn could have reduced the baseline energy estimates and therefore the amount of debt that could be raised. Recognizing that the six sponsor groups collectively had access to different unique sets of overlapping high quality long term irradiation data each from its own proprietary ground stations, IFC encouraged collaboration and brokered an agreement whereby each of the six sponsor groups shared its site-specific data (or if it had none, shared the costs of the sponsors who did) with a commonly appointed independent technical advisor. By pooling their proprietary data which normally would be too sensitive to share, the Nubian Suns sponsors were able to improve the statistical quality of their analysis materially, thereby reducing uncertainty in the energy yields and strengthening the financial model.
- **Common advisors:** The lenders' legal advisors and environmental and social consultants were appointed by IFC, which also negotiated engagement fees on behalf of the clients who were unfamiliar with an international scope of work. This resulted in uniformity across projects and lowered transaction costs across the board.

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- **Common lender due diligence materials:** To facilitate lenders processing time and decision making, an Information Memorandum for the entire group of projects was broken down into seven detailed volumes, a common book featuring the program plus one book for each of the six sponsors detailing their individual projects and laid out in identical formats so that they could be quickly understood and compared. Due diligence materials and advisor reports were likewise standardized across projects for easy comparison.

Standardizing documents: One size fits all: The standardization of all financing terms and documentation is the most important feature of the approach. To achieve this, IFC enforced a “one size fits all” discipline on involved sponsors and lenders alike, while committing to treat all parties equitably, with no sponsor or lender getting something the others did not. This built a high degree of trust amongst sponsors and lenders, who agreed to much reduced influence on the documentation. In more detail:

- **Financing terms:** IFC took the lead in outlining a common master long-form term sheet based on the principle that terms should be equal across all projects, fair and balanced to both lender and borrower, without creating the need for heavy, time consuming and costly negotiations. Specific details relating to individual projects, such as project and sponsor names and their specific lender groups, therefore were minimal and inserted through a one-page annex.

Table 1: Applying the Programmatic Approach—Financing Documents

	DATE	ACTION
No tailoring for individual projects	May 2017	Programmatic term sheet agreed with developers and syndicate banks
	June 2017	Common financing documents shared with developers
	July 2017	Bilateral one-day meetings were held with each developer
	August 2017	Common financing documents agreed with developers and syndicate banks
Customization for project specific details	September 2017	Final customized financing documents agreed with developers and syndicate banks
	Sep/Oct 2017	Signing of financing documents
	October 2017	Financial close certification

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- **Documentation:** In parallel, the documentation process commenced based on a new IFC form of the Loan Market Association, which proved to be familiar and easier to explain to the wide range of sponsors and lenders participating in the program. Documentation efficiency was further improved by selecting a common account bank and an intercreditor and security agent in advance, so that the specific requirements of these parties could be incorporated from the start. First draft documents were prepared by IFC based on precedents and sent to sponsors at the end of June. Sponsors sent back comments in July, when IFC, legal counsel and sponsors met in marathon sessions to finalize the documentation, which was circulated to lenders at the beginning of August and signed in late September/early October. Thus, a single suite of programmatic finance documents was prepared, processed and approved by the sponsors and the various lenders' credit committees. Only at the last possible moment were the individual finance documents split out and the execution versions produced for each project, making minor adaptations where necessary.

Casting a wide net to mobilize private capital

IFC's approach to syndication differed materially from that of the arrangers for other projects in the Egypt Feed-in-Tariff program. Rather than selectively working with just a few lenders on a project by project basis, IFC chose to cast the net wide and to syndicate the entire Nubian Suns Program to attract as broad a lender group as possible. IFC's mobilization strategy was designed to attract the largest number of lenders back to the Egyptian market by providing the following:

- **A portfolio approach:** IFC focused on finding ways in which each of the lenders could underwrite tickets for the entire portfolio of projects. As not every lender in the program had the capacity to lend across every Sponsor group, priority was given to those Lenders who could lend across the Program as broadly and as flexibly as possible. In this regard, the Asian Infrastructure Investment Bank was an early partner committed to underwrite the senior tranches of each of the original 11 projects on an equal dollar for dollar basis with IFC. Two other banks were also instrumental in adopting the programmatic approach and ultimately lent to 9 projects each: CDC Group of the UK and the Arab Bank Group through its two constituent banks, Arab Bank (lending out of a branch in Bahrain) and Europe Arab Bank from the UK. These four banks provided the Program the substantial degree of flexibility that proved essential to being able to shift spare financing capacity from one project to another even at the last moment.
- **Optionality:** The strategy also gave lenders the option to spread their exposures across a basket of individual projects and sponsor groups. Lenders who could not commit to the entire portfolio and with more modest tickets were slotted in where needed, some more flexibly than others.
- **Redundancy:** As in Seven Sisters in Jordan a few years prior, this decision was taken deliberately to achieve as large a degree of redundancy as possible to remove execution risk. Typically, lenders were asked to seek approval for at least one or more sponsor than they intended to finance. Although more work for them, it gave the program the built-in redundancy necessary to cope with any last-minute surprises. Two weeks prior to signing one of these surprises materialized; one lender informed IFC that it was not able to fund two projects as planned, leaving a US\$36 million hole. Fortunately, the redundancy built into the program and quick reactions by IFC, CDC and Arab Bank, who were already committed, saved these two transactions from collapsing.



IV Lessons Learned

Coordination across multiple points of engagement is key. During the course of this engagement, the World Bank Group acted in a coordinated and sequenced manner. The World Bank provided more than \$3 billion in development policy loans tied to the execution of key reforms. IFC mobilized debt financing totaling \$653 million (\$225 million own account) and MIGA in full provided Political Risk Insurance for 12 projects equivalent to \$210 million. Throughout the engagement, World Bank Group institutions worked together with seamless communication and strong country and regional management support. This coordinated instance of the “Cascade” is a great example for other countries.

Scaling helps create markets: Nubian Suns was a large-scale effort that brought together a complex mix of sponsors and banks to meet an aggressive hard-stop deadline. It was undertaken in a country where there had been no private participation in nearly 20 years. The effort created a market with conditions that ultimately enticed many international investors and lenders to come back into Egypt. This was a pivotal moment for the country, which was in dire need of direct foreign investment.

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Although the upstream work that is necessary takes time and effort, it also has significant pay offs: IFC had to work hand in hand with the Egyptian government, the World Bank and private investors for close to three years. This involved providing upstream advice to create the required legislation, and providing advice on bankability that was critical to the success of downstream structuring and mobilization efforts.

Sustained government ownership and macroeconomic and sector reforms are critical: As with Seven Sisters in Jordan, Egypt faced a scenario of fiscal reform, diminishing thermal resources and macro-economic adjustment. Top officials were keen to see through the program and the Renewable Energy law provided a clear signal of commitment. Revisions to Round 2 both in lower, sustainable tariffs, and compromise on the arbitration clause following the failure of Round 1, also demonstrated willingness of the Egyptian government to implement its large scale renewable energy goals. The IMF macroeconomic reform program and the World Bank's Development Policy Financing (DPF) were also critical to recapturing the confidence of private investment in renewable energy.

Scaling and standardization can give entry to smaller sponsors: While Jordan had smaller project sizes of 10–20MW, Egypt's Feed-in-Tariff projects of 50MW each could stand on their own, or as a combined sponsor deal that could attract both small scale and large developers. Rather than focusing on a few large and experienced sponsors, IFC worked with 18 different developers, some developing their first solar PV project outside of their home country.



Creating Markets, Creating Opportunities

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