



# Seven Sisters (Jordan): Amplifying the Voice of Developers

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 the case of one of these experiences—the Jordan Seven Sisters—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.

The Jordan Seven Sisters solar power plants are an example of an innovative approach through which IFC was able to engage in a cost-effective manner with small-scale developers. The approach gave these developers access to international project finance quickly and cheaply, by aggregating their projects into one financing programme, and by standardizing project documentation, based on a recently completed IFC upstream effort—the Taflah wind project—that established a template for renewables in Jordan, and gave IFC credibility to take the Seven Sisters initiative forward.

The initiative helped turn around a government led Renewable Energy programme that might otherwise have foundered; and through standardized documentation, and a successful track record, enabled the Government of Jordan to move from a Feed In Tariff model to successful competitive tenders.



# I The Project

Jordan's "Seven Sisters" are a group of seven solar photovoltaic (PV) projects totaling 102 MW<sub>dc</sub>/91MW<sub>ac</sub> of new capacity. The seven plants were part of the first round of a renewable energy program launched by the Government of Jordan in 2011. The project included 12 solar power plants, all of them relatively small, ranging in size from 10 to 50 MW<sub>ac</sub>, for a total capacity of 200MW<sub>ac</sub>.

To overcome the lack of scale for each individual project, IFC proposed a novel solution: aggregating the first seven of these 12 projects into a single financing program, with a simplified and standardized financing structure. This approach made the projects more attractive to investors and financiers alike and allowed the project developers to share costs and resources.

Seven Sisters involved the development, construction, operation and maintenance of five 10MW<sub>ac</sub>, one 20MW<sub>ac</sub>, and one 21MW<sub>ac</sub> solar PV plants. One project is located near Aqaba in the south of Jordan, five projects in the Ma'an Development Area in the south-central region and one project is located near Mafraq in the north. The projects belong to five different sponsors. All projects signed power-purchase agreements (PPAs) with Jordan's National Electric Power Company (NEPCO) in May 2014 and completed financing just five months later. IFC provided and mobilized more than \$200 million in financing to support construction of the projects, proving the bankability of Jordan's renewable energy program.

In September 2016, IFC extended its Seven Sisters financing program to support a 50<sub>ac</sub> MW solar PV IPP project (the eighth Sister) with a \$76 million financing package for the construction of a solar plant in northern Jordan that will supply power at US\$6.9 cents per kilowatt hour—far below the average cost of electricity in the country. In 2017, IFC was mandated on the ninth Sister, the Baynouna project, a 200 MW<sub>ac</sub> solar plant with a total investment of US\$290 million, for which IFC arranged a financing package of US\$188 million that closed in early 2018.



## II Context: Making the Market

### Means and motive

Jordan has a long track record of attracting private sector participation in the electricity sector and has demonstrated a commitment to reform. IFC had been supporting electricity market reforms in Jordan since 2008, financing the initial privatization of the government-owned generation and distribution assets and later participating in the acquisition of the privatized Central Electricity Generation Company (CEGCO) as an equity investor.

At the time of the Seven Sisters, close to all of Jordan's generation capacity was thermal and the sector was highly dependent on imported fuel. The country had benefited from Egyptian gas supply, which fed close to 80 percent of the country's power generation. At the same time, Jordan had strong renewable energy resources. Diversification of energy sources and greater reliance on local renewable energy were major priorities for the Jordanian government.

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### New approach

Jordan's government was an early promoter of renewable energy in the Middle East, and initially tried to apply a conventional tender model that it had successfully used for thermal energy IPPs. Under this model, the government first tendered the Al Khamsah project, a 30–40 MW wind farm, but cancelled it after only receiving one offer. This was followed by the 90 MW Fujeij wind project, which originally launched in 2010 but faced delays in the tender process and environmental and social issues.

In 2010, Jordan's Ministry of Energy and Mineral Resources (MEMR) changed its approach from a public tender model to a regulated direct proposal scheme. Under the new approach, the private sector took the lead on project development efforts, including site selection, feasibility evaluation and permitting. With the support of the World Bank Group, Jordan established this new procurement framework under the new Renewable Energy and Energy Efficiency Law of 2010.

The new legislation facilitated private sector investment in renewable energy Independent Power Producers (IPPs), allowing private developers to submit unsolicited proposals on self-selected sites. The law also enabled the parallel development of various projects in multiple locations and introduced incentives to encourage the development of local businesses. The key difference from previous attempts was the notion that developers could optimize sites, while still working within the constraints of the grid.

### 1.5 Billion reasons for urgent reform

However, despite the introduction of this legislation, projects were slow to materialize, and Jordan faced a looming power crisis driven by the rising cost of energy imports from Egypt. In 2011, disruption in Egyptian gas supply created more volatility and the energy import bill reached a high of 21 percent of Jordan's GDP in 2012. In 2013, NEPCO purchased electricity at \$176/MWh and sold it at a much lower rate of \$101/MWh, racking up a deficit of \$1.5 billion.

To tackle these problems, Jordan's government turned to diversification of its fuel supplies and sought to develop renewable energy sources. It also put in place a strategy together with the International Monetary Fund to make state power company NEPCO financially sustainable by 2017.

# III Transaction Evolution

## Tafilah: building a template

Jordan's Ministry of Energy and Mineral Resources first piloted the direct proposal scheme under the 2010 RE Law through the directly negotiated 117MW Tafilah wind farm project. This project originated in a proposal submitted by EP Global Energy, or EPGE, a small-scale developer which had unsuccessfully tried to bid for Al Khamsa, the previously canceled wind farm project. In June 2011, the Ministry of Energy and Mineral Resources granted rights to EPGE to develop the project with a 24-month deadline. IFC engaged early with EPGE, at a time when the developer only had a simple MOU with Jordan's Ministry of Energy and Mineral Resources, and set out on a prolonged effort to make the project a reality.

IFC helped structure the project agreements and assisted EPGE in negotiations with Ministry of Energy and Mineral Resources, leading to final pricing of 11–12 cents/kWh, which at the time compared well with the thermal pricing that underpinned the market. The sponsor group expanded when the infrastructure investment fund Inframed and Abu Dhabi-based Masdar joined EPGE and IFC provided \$70 million in direct financing and helped mobilize an additional \$150 million.

Tafilah was the first utility-scale private IPP wind project in the Middle East. The project was a major milestone in developing Jordan's renewable energy capacity and contributed to the creation of a market by offering project documentation templates for subsequent projects; testing the legal framework provided by the RE Law; building up institutional capacity; and developing a comprehensive regulatory and pricing framework, including indicative pricing schemes for various renewable energy technologies.

## Scaling the model

In parallel with the development of the Tafilah wind project, in June 2011, the government of Jordan launched the Renewable Energy Direct Proposal Program, a procurement process soliciting expressions of interest for the development of wind and solar projects through direct negotiation under the RE Law. This process was split in rounds, with a first round consisting of 12 solar PV projects. By 2012, the Government of Jordan had prequalified 34 developers and signed memoranda of understanding with shortlisted developers. After long negotiations, supported by IFC, in March 2014, these projects each successfully signed 20-year PPAs with NEPCO.

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### Scaling the model through the ‘Seven Sisters’

The small size of these solar projects—10–20 MW—presented several challenges. First, there were relatively high transaction costs associated with taking these forward as separate small project financings. It was also challenging for relatively small individual developers to attract competitive financing on a standalone basis, particularly in the absence of any strategic relationships with banks, or larger portfolios that would have been of interest to the usual project finance lenders.

To overcome this, IFC aggregated the first seven of these projects—“the Seven Sisters”—into a single financing program, with a simplified and standardized financing structure. This programmatic approach made the projects more attractive to investors and financiers and allowed the project developers to share costs and resources.



# IV Aggregation Through Standardization

The standardization approach had the following elements:

**One size fits all:** IFC's first step was to circulate a term sheet among developers outlining the common terms to be applied uniformly across all projects. IFC called on all developers to agree to a "one size fits all principle," which ruled out deviations from common terms and tailored solutions. No developer had reason to believe that it was not being offered the same terms as the others. On the financing documentation side, IFC sought to produce a standard and balanced set of financing and security documents to minimize the need for extensive negotiations. Once a common template financing document was issued, developers were given a single opportunity to submit comments.

**Lower transaction costs:** The intermediary role that IFC played in PPA negotiations between NEPCO and project developers allowed for the consistent treatment of risks, such as those related to archeological and force majeure events. It also permitted the inclusion of key conditions for financiers, ensuring bankability. In addition, bulk discounts were achieved through a common set of service providers—including lenders' counsel, technical and insurance advisors and sponsors' agents and account banks—with negotiated service fees that were allocated pro-rata across the projects.

**Standardization of documentation and creation of a common approach to project preparation:** The project documents were based on the Tafilah documents, with a few differences reflecting project nature, site, and risk allocation. Financing documents were only tailored to each individual project at the last possible moment, keeping with the integrity of the programmatic approach. Although Engineering, Procurement and Construction and Operations and Maintenance documentation were an exception to the standardization approach, cost efficiencies were possible in these areas too because of real-time benchmarking between different providers. In addition, the fact that most IFC projects were in the same site (Ma'an), enabled a common approach to land and permitting issues.

**Syndicating on a programmatic basis:** As the common lead arranger, IFC sought out banks and advisory firms to support the developers at competitive financing rates. IFC required syndicate banks to buy in to the programmatic financing approach at the outset. IFC maintained a common set of documents for all projects in a data room, and each developer presented their project to a group of potential lenders, with IFC having a say in the final allocation of lenders across projects. Parallel lenders included Finn Fund and the OPEC Fund for International Development and participants under the IFC loan agreement (B lenders) included Arab Bank, Europe Arab Bank and FMO.



## V Lessons Learned

**Investment in Upstream Project Development is often a key element for the success of a Scaling effort.** Although the success of the Round 1 transactions was driven by a scaling effort, the ground had already been prepared by the Tafilah project, in which the broad outline of a financeable project structure had been finalized, and could then be replicated and scaled.

**The sum of “scaled” projects is greater than the parts.** IFC strung together several small projects, which would not have obtained competitive financing on their own. IFC involvement transformed these projects into a standardized suite of seven bankable projects, allowing financing of smaller 10-20MW projects sponsored by relatively inexperienced developers in a relatively challenging jurisdiction where prior exposure to international lenders had been limited. In every way, Scaling worked.

**Successful scaling has long-term impacts:** The Seven Sisters added immediate additional generation capacity. But the program also stimulated the build out of ancillary infrastructure and follow on IPP investments—in Jordan and in other countries. Building on the success of Round 1, the government opted in its next round to tender four planned

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50 MW projects on a competitively bid tariff basis, rather than offering a pre-determined feed-in tariff. The government received a record number of proposals, which were also priced very competitively, between US\$6 and US\$7 cents/kWh. Additionally, the Seven Sisters approach was replicated on a larger scale in Egypt, where IFC helped aggregate 18 developers in charge of 13 projects of 50 MW each.

**Scaling opens up new opportunities:** Given the extensive build out, mostly concentrated in Ma'an and Aqaba, Jordan is now focused on grid improvements to be carried out as part of the 'Green Corridor' project. The Green Corridor project is a US\$160 million investment to enhance the capacity of the electricity transmission network in the south of the country. NEPCO is currently implementing the project, which is expected to add 1 GW of grid capacity by the end of 2019, enabling the wind and solar build out currently under development. Jordan has also embarked on an energy storage program.

**Scaling for small developers may not attract the big players.** The small developers involved in Seven Sisters saw IFC as a preferred partner due to its sector and country experience and its capacity to provide structuring support and to mobilize other lenders. This is less true of larger sponsors, who by strength of their equity, experience and relationships within the lender community, tend to prefer to negotiate terms at the table and are less amenable to the "one size fits all" approach.

**Scaling needs to adapt quickly as markets change.** As perceived program risks decrease, financing will get progressively more competitive, and the competitive approach more established and standardized. The Seven Sisters was the right product at the right time. However, staying ahead of the game and continuing to add value will require nimble adaptation to changed circumstances. Adapting the product to include storage, for example, or taking it across Jordan's border to other, more challenging, jurisdictions, represent two possible future directions.



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