



INDIA: BENGALURU PUBLIC STREET LIGHTING

Bengaluru is the information technology capital of India, often branded as the country's Silicon Valley. The city boasts 485,000 street lights but upgrading and maintaining the infrastructure has been a challenge. Fiscal constraints and lack of investment has led to outdated and inefficient street lighting – an essential public service. Poor operation and maintenance resulted in high energy consumption, poor lighting, non-functional meters, and high percentage of dysfunctional street lights.

To address these issues, the Bruhat Bengaluru Mahanagar Palika (BBMP) municipality sought the assistance of IFC to structure a public-private partnership (PPP), identify an Energy Savings Company (ESCO) to implement energy conservation measures (ECMs), and improve service delivery across the public street lighting system in the city. On November 30, 2017, BBMP engaged IFC to provide transaction advisory support to implement the project on a performance-based shared savings model.

After a competitive bidding process, the Consortium of Shapoorji Pallonji and Company Pvt. Limited, SMC Infrastructures Pvt. Ltd. and Samudra Electronic System Pvt. Ltd. (Consortium) won the bid to implement the project. The Consortium executed an Energy Performance Contract with BBMP on March 1, 2019 and subsequently incorporated Bangalore Streetlighting Private Limited Project SPV (ESCO) to implement the project.

This series provides an overview of public-private partnership stories in various infrastructure sectors, where IFC was the lead advisor.

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BACKGROUND

Street lighting accounts for 10%-20% of total electricity consumption in a typical city in India. Cities with outdated and inefficient systems often consume more electricity, further burdening their budgets. In Bengaluru, the poor state and operational deficiencies of public street lighting infrastructure have cost the city \$34.5 million in electricity charges per year and sparked safety concerns for its residents. To make the city's street lighting system more energy efficient and reduce energy consumption by 510 million units per year, BBMP partnered with a private sector firm to structure a PPP that will:

- ▶ Increase energy savings through replacement of conventional fixtures with LEDs, improving operational efficiency and maintenance of the street lighting system.
- ▶ Improve services through automation by establishing a control-center based remote operation, real-time monitoring and predictive repair, complaint management through a centralized call center, and adequate field crews to minimize down-time.
- ▶ Improve infrastructure through greenfield systems for new sites, correction of single drop points, reconductoring/underground cabling, and outreach arm replacement.
- ▶ Integrate smart-city technologies with the street lighting infrastructure by (a) installing 198 environment sensors across the wards of the city, and (b) developing a communication network to individually control LED lamps and operate 50,000 internet protocol (IP) cameras to transmit images to government agencies.

IFC'S ROLE

IFC assisted BBMP as the lead transaction advisor to structure and tender a PPP contract that enabled BBMP to select an ESCO to install, operate, and maintain an energy efficient street lighting system in Bengaluru. IFC's role included technical, legal, and analytical support, and focused on:

- ▶ Assessing potential energy savings possible post implementation of ECMs.
- ▶ Reviewing social, legal, and commercial issues related to the project under different contractual schemes and financial arrangements, and to design a risk allocation framework.
- ▶ Leading discussions with potential investors to gauge commercial viability of the project, investor interest, and enable optimal project structuring.
- ▶ Preparation of bid documents and assisting BBMP with the bid process and evaluation.
- ▶ Evaluating bidders' technical expertise.

TRANSACTION STRUCTURE

The project involves replacement of 485,000 street lights across Bengaluru with energy efficient LEDs and implementation of additional ECMs to achieve the project objectives. The PPP is implemented under a performance-based shared savings

framework, wherein the ESCO is responsible for mobilizing capital investments required for implementing ECMs which includes replacement of existing lights with LEDs, operation and maintenance (O&M) of the street lighting network for a period of 10 years after commissioning, and ensuring reduction in energy consumption by 85.5% as quoted by the Consortium. The project will be implemented in five phases over a period of 30 months and the estimated payout by BBMP to the ESCO and the electricity utility will be \$33 million per year for a fully functioning system.

Under the framework, ESCO would recover its investment (both upfront capital cost and the annual O&M expenses) through the revenue accruing from the project during the term of the contract. The revenue stream for the ESCO comprises:

- ▶ 80% share of the actual energy savings achieved during the term of the contract.
- ▶ Fixed O&M payment of \$7 per street light per year during the term of the contract.
- ▶ Reimbursable expenses towards rehabilitation and replacement of street lighting infrastructure.

BIDDING

A single stage bid process was adopted to identify the ESCO. BBMP commenced the competitive bid process on 11 January, 2018, and the tender received three bids from established private players. The bids were evaluated based on the qualification parameters set out in the Request for Proposal (RFP), and only two bidders met the criteria and qualified for the evaluation of their financial proposal. The Consortium that had quoted the highest guaranteed energy savings of 85.5% won the bid. The Energy Performance Contract was executed between BBMP and the Consortium on March 1, 2019.

EXPECTED POST-TENDER RESULTS

- ▶ Reduce energy consumption by 85.5% – the highest savings guaranteed to date of any project in India, making the project one of the world's largest municipal energy savings project for public street lighting
- ▶ Mobilize \$100 million in private investment
- ▶ Improve street light services for over 3.5 million people
- ▶ Enhance commercial activity and safety of residents, particularly women and children
- ▶ Reduce greenhouse gas emissions by 86,000 metric tons per year
- ▶ Integrate smart-city initiatives (environment sensors, remote LED luminaire level lighting control, and installation of 50,000 IP cameras)