



**SIFEM**

SWISS INVESTMENT FUND  
FOR EMERGING MARKETS



CASE STUDY RENEWABLE ENERGY

# MIRKALA SOLAR



2016

Investment year



\$ 10 m

SIFEM investment into Fund



India

# MIRKALA SOLAR

MEETING THE RAPIDLY INCREASING DEMAND FOR POWER IN A COST-EFFECTIVE, SUSTAINABLE AND RELIABLE WAY.

**Investment:** Mirkala Solar

**Region:** India

**Sector:** Renewable Energy

**Fund name:** Renewable Energy Asia Fund II (REAF II)

**Fund Manager:** Berkeley Energy

**SIFEM investment into Fund:** USD 10 million (2016)



In 2016, SIFEM invested USD 10 million in Renewable Energy Asia Fund II (REAF II), a private equity fund focused on investing in renewable energy products in South & Southeast Asia. REAF II invested in Mirkala Solar, now a 10 MW solar PV plant located in the western Indian state of Maharashtra. This solar project was an opportunity to turn a relatively harsh and almost barren landscape into a clean energy producing hub. Construction of the plant was completed in 2017, and in its first full year of operations, the plant performed slightly above expectations with 18.8 GWh of energy generated in 2018. A second phase of an additional 10 MW is in early planning stages.



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## THE LOCAL CONTEXT

The Mirkala Solar plant is located near Rajpimpri, a village with a population of 3,000 located in the Beed District (population 2.5 million) in the state of Maharashtra. One of the poorest districts of the state, 80% of Beed's population live in rural areas, the majority of whom live below the poverty line. The average annual income in the District is USD 789 (in comparison to the state average of USD 1,363), and the literacy rate is 77% (in comparison to the state average of 82%). In Rajpimpri, this drops to 68%.

It is a highly drought-prone region, with scant and unpredictable rainfall. This further contributes to unemployment, and shortages of food and water. The scarcity of natural resources and a low consumer base hinder further development in this District.





# RENEWABLE ENERGY

## INDIA'S RENEWABLE ENERGY TARGETS

The World Bank estimates that 200 million Indians lack access to electricity. Demand for electricity in India is set to double by 2040, propelled by an expanding population and rising incomes. With India's heavy reliance on coal, CO<sub>2</sub> emissions will also increase substantially.

India is working towards an ambitious target of 175 GW of renewable energy installation by 2022; 100 GW of this is intended to result from solar power projects. Eleven per cent of the total nation-wide targets are the responsibility of Maharashtra State. India has enormous potential for power generation from solar energy. Maharashtra State has 250-300 days of sunshine annually, with high available average radiation rates. Mirkala Solar contributes to reaching these bold targets for increased capacity of renewable energy across India.

## A RENEWABLE ENERGY STRATEGY

The Mirkala Solar plant is one of several renewable energy projects in the region jointly materialised by the project developer, Panama Renewable Energy Group (Panama), and the fund manager, Berkeley Energy. Prior to the development of Mirkala

Solar, two large wind projects were also completed, for a total of 152 operational MW. Mirkala Solar is located adjacent to one of these, Mirkala Wind. As a result, Mirkala Solar shares much of the physical infrastructure with the Mirkala Wind site, including access roads and the purpose-built grid substation at Rajpimpri. The two projects also jointly contribute to local community engagement activities.

## MIRKALA SOLAR'S CONTRIBUTION

Optimising the available land, Mirkala Solar uses seasonal tilt mounting structures, allowing three different angles to enhance the performance of the modules throughout the year. The plant directly contributes to the avoidance of 18,800 tons of CO<sub>2</sub> emissions each year.

As well as the installation of 35,660 solar panels for the first phase, the project included the construction of a 1.5-kilometre transmission line and a 33KV feeder bay at the substation in Rajpimpri. The energy produced will be channelled through the grid but sold directly to commercial and industrial consumers in Maharashtra, thus helping them reduce their carbon footprint and secure their electricity supply.



Mirkala Solar celebrating one year of successful operations.



Aerial view of Mirkala Solar site.

Mirkala Solar generates a positive impact not only by contributing to meet the rapidly increasing demand for power in Maharashtra, but also by doing so in a cost-effective, sustainable and reliable way.

## PROVIDING MORE THAN JUST ELECTRICITY

A renewable energy project directly contributes to increased availability of electricity, but it also has numerous indirect outcomes which deliver positive impacts to the wider community. For example, the access roads built for Mirkala Wind also improved the quality of life in the surrounding villages. The improved road conditions allowed for increased access to markets for the local farmers, as well as to a secondary school which would otherwise be too far away.

Direct employment opportunities are also generated for the local population during the construction of renewable energy projects. Approximately 100 jobs were supported during the construction process of Phase 1. Most of the workers were unskilled and hired locally. The services of a security contractor were employed for Mirkala Wind and are continued for Mirkala Solar. Local employees are hired from the surrounding villages and provided with training to support their tasks.

In addition, the additional energy capacity for the region contributes to indirect employment support. Reliable and sufficient power enhances growth in the region, provides stability which protects jobs, and broadens opportunities for improved livelihoods.

## TAKING ENVIRONMENTAL AND SOCIAL FACTORS INTO ACCOUNT

A solar plant provides renewable energy which brings positive, sustainable impacts. However, during the construction and operation of the plant, both environmental and social factors must be considered in order to minimise any negative impacts. Panama carried out an in-depth environmental and social impact assessment for Mirkala Solar as part of the first steps for the project. Due to its proximity to the Mirkala Wind site, Mirkala Solar could utilise synergies not only in terms of physical infrastructure, but also with respect to community and other stakeholder engagement activities. Panama worked with local leaders to inform the communities about the project activities, land acquisition activities, safety measures and grievance mechanism.

This also provided an open channel to receive community opinions and concerns. In addition, multiple community engagement



## ABOUT SIFEM

The Swiss Investment Fund for Emerging Markets (SIFEM) is the Swiss development finance institution. It is owned by the Swiss Government and is an integral part of the instruments of economic development cooperation. SIFEM is specialized in providing long-term financing through local funds and financial institutions to small and medium-sized enterprises and other fast-growing companies in developing and emerging countries, focusing on the priority countries of Switzerland's development cooperation. This helps to create and secure more and better jobs and reduce poverty while also contributing towards the integration of these countries into the global economic system.

## ABOUT OBVIAM

Obviam is an independent investment advisor specialised in long-term investments in emerging and frontier markets. Obviam advises public, institutional, and private clients, including the Swiss Investment Fund for Emerging Markets (SIFEM), the Development Finance Institution (DFI) of the Swiss Confederation. Obviam offers investors an opportunity to capture attractive returns and generate sustainable positive impact in emerging and frontier markets, via a proven and responsible investment approach.

Obviam has made reasonable efforts to ensure the accuracy of the data presented. A case study is made possible both through Obviam's first-hand experience and/or the information provided by Obviam's investment partners. The data in this case study is valid as per 2019.

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