



## QUICK WIN PROJECT – RAJKOT RENEWABLE ENERGY DEPLOYMENT AT RMC'S AJI WATER TREATMENT PLANT

### About Rajkot

Rajkot, an industrial town famous for its foundry and machine tools industry, is the fourth largest city in the state of Gujarat. It is located on the banks of the Aji and Nyari rivers at the center of peninsular Saurashtra region, in the central plains of Gujarat state. It is the biggest city in terms of population in the Saurashtra-Kutch region, and is bustling with commercial activity.

### CapaCITIES Project

Cities account for approximately two-thirds of global energy use and over 70 percent of energy-related greenhouse gas (GHG) emissions that drive global climate change. In India, increased demand for energy, infrastructure and services is putting city systems under pressure. This will be accentuated further by growing risks caused by climate variability. Poor and vulnerable segments of the city populations will be affected most. Through the Capacity Building for Low Carbon and Climate Resilient City Development project (CapaCITIES), SDC's Global Programme Climate Change will support and accelerate the Government of India's efforts for sustainable urbanization.

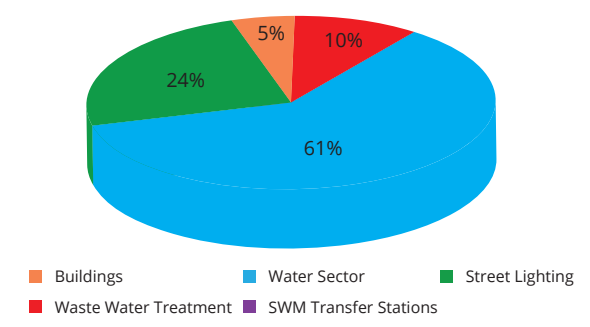
### Water Supply Sector Energy Consumption

Water supply services account for 61% of the total municipal electricity consumption (2015-16) at 38.36 million units per annum leading to 31 kilo-tCO<sub>2</sub>e GHG emissions. The most energy intensive of all municipal service sectors, there is a significant potential to minimize energy consumption in this sector through use of renewable energy.

### Solar PV at Aji Water Treatment Plant

The Aji water treatment plant consumes, on an average, approximately 100,000 units of electricity (kWh) every month (~ 3300 units per day, ~1.2 million

Share of Electricity Consumption in Municipal Buildings and Facilities (2015-16)



units per year, which is approximately 3% of total electricity consumption in water supply sector). The water treatment plant is connected to a 475kVA (~380kW) high tension line connection. The installation of a 145kWp grid connected Solar PV system, co-funded by RMC, can generate 580 units of electricity per day (211,700 Units electricity per year), which is equivalent to 18 percent of the total power consumption in the plant and has a potential to reduce 174 tons of CO<sub>2</sub> equivalent GHG emissions per year resulting from the avoided use of conventional energy. Plant has generated a total of 149,030 kWh electricity and reduced 119 tons of CO<sub>2</sub> equivalent GHG emissions since its installation (over a period of 9 months as of 11 April 2019).

462 poly-crystalline Photo Voltaic panels of 315Wp capacity each are installed over the storage tanks at a 21 degree panel tilt.

Plant performance is monitored in real time through an online software. The software displays data on power generation and yield of the plant on daily, hourly, weekly and yearly bases, GHG emissions avoided, yield to date and monetary saving as a result of the system.

The solar PV system will be operated and maintained by the contractor who set up the plant for a period of 10 years from installation. A bank guarantee has been



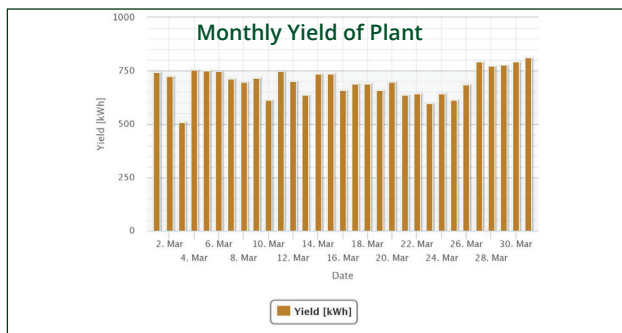
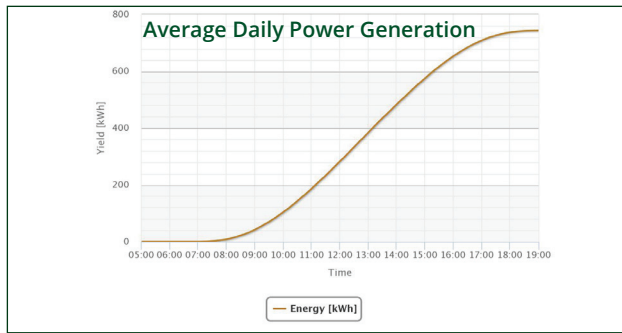
submitted by the contractor to RMC as a means to ensure continuous operation and maintenance of the system.

## Beneficiaries

Project beneficiaries include Rajkot Municipal Corporation and citizens of Rajkot.

## Potential for Replication

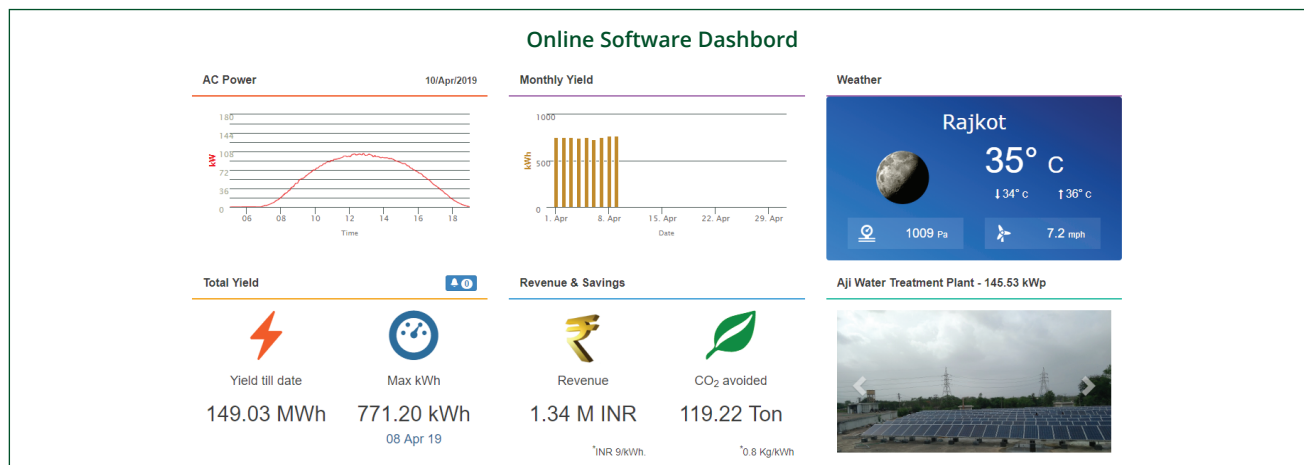
47 water and drainage pumping stations/ treatment plants are operational in the city, operated and maintained by RMC, which consume ~45million kWh electricity. RMC has already proposed a 250kWp grid connected solar PV at Raiyadhar wastewater treatment after successful implementation of this project and is commissioning a feasibility study to install solar PV systems on other water and drainage pumping stations/ treatment plants. A bankable project based on the RESCO model is also being developed with an aim to install solar PV systems on Ribda and Raiyadhar water treatment plants; and Gavridhar and Madhapar sewage treatment plants.



## Project Investment

This project is based on a co-financing model. The total cost of the project is close to INR 8.3 million. INR 4 million is financed by the CapaCITIES project (for 70kWp solar PV) and INR 4.3 million is financed by RMC through the 'SJMMSVY' scheme (for 75kWp solar PV).

CapaCITIES project investment: CHF 57'000



For more information, please contact:

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