

Project Finance Factsheet

Carioca Solarium (Solário Carioca) Rio de Janeiro, Brazil

TYPE

Photovoltaic (PV) Solar



SECTOR

Energy

OVERVIEW

The C40 Cities Finance Facility (CFF) has prepared the first stage of the Solário Carioca project. This project envisions the construction of a solar farm generating clean energy at the deactivated Santa Cruz landfill site in the west of the city. The CFF's support consisted of co-creating the technical detailing and the economic-financial study and determining a business and fundraising model for the successful implementation of the project.

The Santa Cruz Solar Farm will occupy an area of 28,593 m² in the upper part of the landfill and will have the capacity to generate 6 MWpDC/5MWAC of power. The electricity supply is estimated at 9,180 MWh/year, which would be enough to supply about five thousand homes. Following the implementation of the project in Santa Cruz, the municipality plans to increase the number of solar farms in the municipality and extend the use of solar energy to public transport fleets and rooftops of municipal public buildings. Additionally, the innovative project sets a good example of making efficient use of derelict land in an already densely urbanized municipality and land scarcity.

Implementing agency

- Planning Office of the Civil House (Escritório de Planejamento - EPL)
- Municipal companies Riolutz (public illumination) and Comlurb (waste management)

Timeline

**Nov
2020**

All studies will be complete and reach financial readiness by end November 2020.

----- Institutional and legal assessment

----- Gender analysis

**Dec
2020**

----- Finalising project documentation and preparing for the transition of municipal administrations

----- Technical assessment of the PV rooftops and the landfill installation

----- Finance options analysis

----- Capacity development measures

----- Communications

2021

Procurement timing

----- **Jan:** Presentation to the new city administration

----- **Feb:** Open tender process

----- **Jun:** Submission of bidding

----- **Jul–Oct:** Construction

----- **Nov:** Start of operation

Key Climate Impacts & Development Outcomes

For a 6 MWp solar PV System, this project will achieve:



Annual CO₂ emission reduction
(average 2021-2051): **2,461 tCO₂e**



Cumulative CO₂ emissions reduction
(for years 2021-2051): **73,851 tCO₂e**

- The current total installed capacity of PV systems in the city of Rio de Janeiro is 36.9 MW. The implementation of this project will lead to a 13% capacity increase totalling a 42.9 MW
- The project can provide a boost to solar power development in Brazil, which contributes only 1.7 % of Brazil's national electric energy supply in 2020
- The project will help the city to reduce its electricity bill costs and can redirect these savings to other climate projects

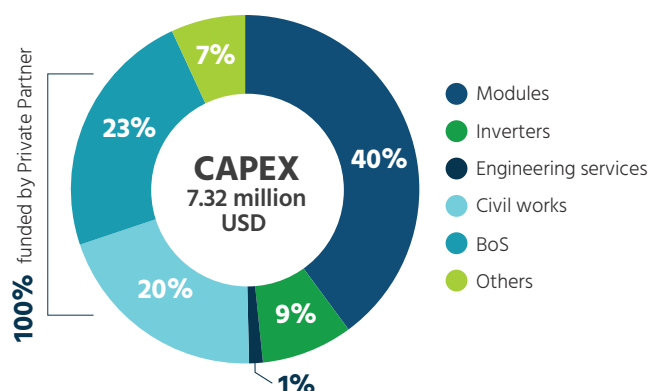


Procurement method

Private Public Partnership (PPP)- Build Operate Lease and Transfer (BOLT)

Investment & Proposed Initial Financing

The 6 MWp Solar Farm to be installed on the Santa Cruz landfill has the following projected expenses:



▶ **Total CAPEX:**
7.32 million USD

▶ **Annual OPEX:**
220,000 USD

Proposed Funding

- Private Capital from PPP partner

After a public call for a BOLT contract, the awarded private partner will construct and implement the power plant. The city will then pay for the use of the energy on a monthly basis. The energy produced by the power plant will then be compensated into the municipality electricity bill (net metering). At the end of the contract period of approx. 25 years, the assets will be returned to the municipality.

Readiness Issues

No readiness issues since the land in Santa Cruz is 100% owned by the municipality.

Legal

Municipal PPP Law 105/2009 and ANEEL's (Agência Nacional de Energia Elétrica) Resolution 482/2012 and its revisions.

CFF Support Summary

- Conduct a feasibility study for the project implementation
- Conduct legal and institutional studies
- Development of a business case for the projects covering payback period, cost-benefit analysis, and avoided costs analysis

- Analysis of potential future revenue streams (incl. a private sector engagement strategy) with the intention of upscaling the project
- Development of contractual frameworks including contract models for public-private partnership options and tender documents
- Development of a governance structure model for energy projects at the municipal level

For additional information contact: contact@c40cff.org