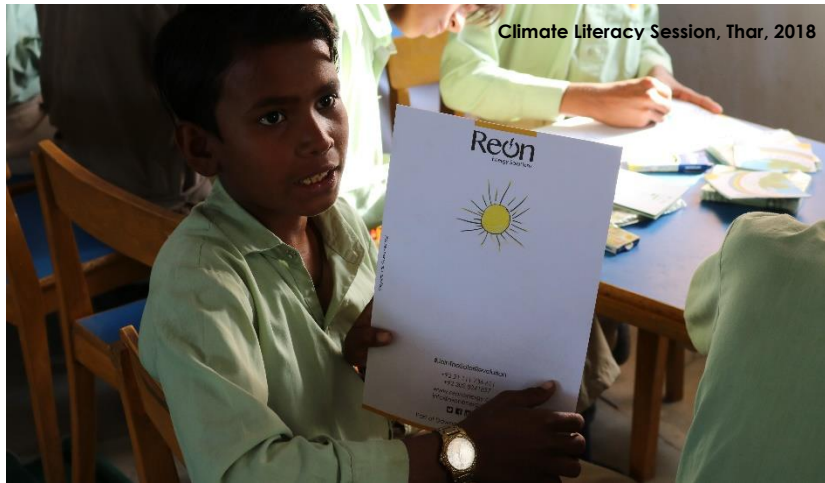


Case Study

# Access to Energy for Education

The Citizens Foundation Schools, Karachi and Dadu, Sindh, Pakistan



**The Citizens Foundation**

**(TCF) School**

**Location**

Karachi, Dadu

**Total Schools Electrified**

3

**Students Impacted**

1000

## Objective

Reon aims to enhance educational experience through energy. The Solar for Schools project targets community schools located in off-grid and poor-grid areas in accordance with the UN Sustainable Development Goal Number 7<sup>1</sup>.

## Background

The Citizens Foundation (TCF) provides primary and secondary level education on a low-cost model. The school operates a network of 1,567 school units mostly located in semi-urban and rural communities across Pakistan. Approximately 94% of the Foundation's expenditure is allocated to the Education program.

The community schools face high energy costs, significant load shedding hours (that could go up to 48 hours), and energy unavailability especially in the rural segments.

## Solution

Reon implemented a 3 kW Solar pilot project for TCF Dadabhoy campus situated in Malir, Karachi. The plant currently powers 15 fans, 13 lights, Television, and a Water Pump. Moreover, the design has been done so to store energy for night time use. The

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2. 30% enrollment increase was based on a qualitative and quantitative measure as calculated by The Citizens Foundation (TCF)

use of top-tier technology and equipment keeps the system running under all weather conditions. The technical details are illustrated in the table beneath:

Appliance	Load (W)	Qty	Total Load (W)	Operating hours per day on Solar (h/day)	Backup required (h/day)	Energy Required from Solar System (Wh)	Energy Required from batteries (Wh)
Fans	55	14	770	10	3	7,700	2,310
Fans (Guard room)	55	1	55	12	10	660	550
Lights	12	13	156	10	4	1,560	624
Lights for guard room	12	2	24	12	10	288	240
TV	100	1	100	2	1	200	100
<b>Total</b>			1,105			10,408	3,824

The pilot project was followed by two Solar Hybrid 15 KW installations at TCF Waleed Sheikh Campus, Dadu and TCF Taga, Dadu.

### Impact

The pilot project saw a jump in enrollment at the TCF Dadabhoy Campus by up to 30%<sup>2</sup>. Also, the non-attendance rate is lower and the school enrollment rate for children grades 9-11 is higher in the electrified areas compared to unelectrified areas.

The results for the pilot will be simulated for other school projects to understand the effect of electricity on grade progression, attendance, and enrollment.

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