

Adoption of Rooftop Solar Panels

Overview

India faces a challenge of surging energy demand with growing urbanization. Electricity and heat generation have the largest share of CO2 emissions in India, with the residential sector being a significant contributor (IEA, 2022). With abundant sunlight, rooftop solar panels have the potential to facilitate a renewable energy system and mitigate GHG emissions.

A unit of solar energy mitigates
0.7kg
of CO2 emissions

The Low Carbon Lifestyles (LCL) programme by CSBC leverages behavioural science for sustainable lifestyle choices. Through a detailed literature review, diagnostic field work, and design ideation workshops, we identified behavioural pathways and interventions to improve the adoption of rooftop solar panels in urban India.

Rooftop solar accounts for
20GW
of solar power capacity

Behavioural science can be used to simplify the installation and maintenance process of solar rooftop adoption. Moreover, reframing costs and using flexible payment structures can reduce the upfront financial barriers. Social proof and community engagement can encourage solar energy adoption.

Behavioural Barriers

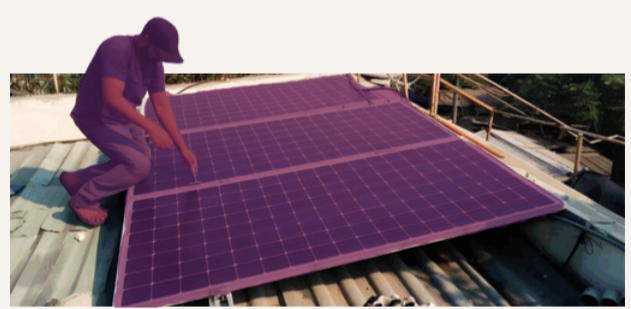
Target behaviour

Purchase and installation of rooftop solar panels

Target population

Urban households in middle- and high-income groups

- **Limited understanding of function and benefits:** there is a lack of understanding of how solar panels work during different seasonal changes as well as a limited understanding of the environmental and long-term cost benefits
- **High upfront costs:** the initial investment, installation costs, and challenges accessing financing options deters adoption
- **Uncertainty about maintenance and usage:** people share concerns about the need for regular repair and maintenance, as well as associated costs, and how performance may be affected by the environment
- **Negative experiences from peers:** people tend to trust information from friends or family about solar panels, even if it is outdated or inaccurate



Behavioural Pathways

BEHAVIOURAL PATHWAY

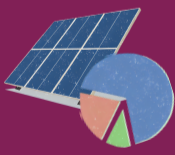
INTERVENTION IDEA



Streamline installation process

Simplify the processes for applying for subsidies, approvals, and net metering through helplines and portals to make steps clear and transparent

Introduce an app with features like an ROI calculator, vendor ratings, FAQs to support informed decision making and trust building



Reframe initial cost of solar panels

Presenting the cost of installation as a percentage of total house expenditure can highlight the financial benefits and make investment more appealing



Introduce flexible payment structures

Introduce pay-after-use model allowing households a trial period before payment to ease upfront cost barriers



Leverage social proof using influential homes

Install solar panels on prominent houses or buildings in the community to inspire adoption



Partner with RWAs to drive community interest

Collaborate with Resident Welfare Associations to educate residents, hold workshops and seminars, to build community interest for adoption



Position solar energy within a clean energy system

Target EV buyers or owners, positioning solar energy as a clean energy solution for EV charging and promoting the concept of a 'green' household