

POWER FOR ALL FACT SHEET

Solarizing Rural Health Centres in India



50%

PHCS WITH ELECTRICITY
ACCESS CHALLENGES

4 year

A SOLAR SYSTEM FOR 100-
BED PHC BREAKS EVEN WITH
DIESEL GENERATORS

80%

COST SAVING FOR HEALTH
CENTRES BY REPLACING DIESEL
WITH SOLAR

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In rural India, Primary Health Centres (PHCs) and Sub Health Centres (SHCs) play a major role in providing last-mile medical services such as immunization, child deliveries and neonatal care, all of which cannot be delivered without regular electricity supply. There are approximately 25,000 PHCs and 155,000 SHCs in rural India as of 2020. Among them, 4.3% of the PHCs and 28.4% of the SHCs in India do not have access to electricity. Solarizing PHCs either can significantly improve last-mile access to quality healthcare service. This fact sheet summarizes the current energy access situation, impacts of solarization and barriers to higher uptake of solar systems of PHCs.

Electricity is a critical enabler for better primary healthcare. Without it, the quality of healthcare service is significantly compromised, despite the presence of healthcare infrastructure such as labor rooms and skilled staff.

- » Electricity is needed for deliveries, vaccine storage, emergency services, the supply of clean water, as well as retention of skilled staff. However, 4.3% of the PHCs and 28.4% of the SHCs in India do not have access to electricity as of 2019. (H1, p.174)
- » Despite growing electricity access rates, many rural PHCs and SHCs still struggle with unreliable supply. (H2, p.5)
- » Not only are the PHCs short of electricity supply, infrastructure is also lacking. As per an analysis in 2019, one-third of the PHCs in India do not have fully functional cold chain equipment, and 47% of them operate without newborn care equipment. (H2, p.4,18)
- » Having the required infrastructure does not necessarily translate into service provision. Of those that have cold chain equipment, half of them were either unelectrified or got irregular power supply. (H2, p.2)
- » Despite the availability of labor room and skilled staff, the PHCs without regular electricity conduct one-third less child deliveries in a month, compared to those with regular supply. (H2, p.5)
- » At least one-fifth of the PHC staff reported lack of electricity as a reason for not residing in the PHC quarters, along with other reasons such as poor condition of the residence, no water supply, etc. (H2, p.21)

The energy access challenge of healthcare services in India is unevenly distributed across states. Those that have back-up energy systems are more often the ones that already have electricity connections.

- » In the states with below national average health indicators, only 30–50% of their healthcare facilities have electricity, as compared to 60–100% in the states above average. (H2, p.5)
- » Electricity access of PHCs differs greatly between states, ranging from 77.7% in Jharkhand, to 100% in Andhra Pradesh, Kerala, and Madhya Pradesh. (H1, p.176)
- » Between DLHS-3 (2008–09) and DLHS-4 (2012–13), electricity back-up units were installed at a higher rate at PHCs that already have grid electricity than those that have irregular or no electricity supply. (H2, p.27)

The Chhattisgarh State has electrified 900 PHCs with solar. This initiative helped improve healthcare services for 80,000 patients per day and save up to 80% energy costs for the health centres.

- » In Chhattisgarh, 90% of health clinics experience power cuts during operational hours. The Chhattisgarh State Renewable Energy Development Agency (CREDA) and the State Health Department have collaborated to solarize all of its 900 PHCs and some district hospitals.³ (H3, p.1)
- » A typical PHC has a mean daily electricity requirement of around 45.8 kWh. A 5kWp solar system can meet 70% of its peak demand. (H2, p.27) CREDA deployed 2kWp solar systems to augment electricity supply at the PHCs.⁴
- » The solar electrification of 900 PHCs enables the provision of 24-hour healthcare service, benefitting about 80,000 patients per day.⁵
- » Staff training, 100% financing from the Chhattisgarh state National Health Mission (NHM), and long-term maintenance support from CREDA are key success factors of continuous operations of these solar systems.⁶
- » The solar systems have resulted in 80% reduction in energy costs compared to grid or back-up diesel. 89% of the PHCs with solar systems reported savings in energy expenditure, and a quarter of them depend exclusively on solar systems to enable round-the-clock functionality of cold chain equipment.⁷ (H3, p.37)

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By the Numbers:

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High capital cost and the inaccessibility of the solar market are challenges of replicating the success of Chhattisgarh State. There is an opportunity to tap into the corporate social responsibility (CSR) funds.

- » Although the initial cost of a solar system is more expensive than a diesel generator, analysis has shown that the unit cost of solar energy is 45% less than that of diesel, indicating cost-saving potential from investment in diesel displacement with solar.⁸ (H3, p.35)
- » Located several hours away from the nearest cities, rural health centres are often excluded from solar markets.⁹
- » Under India's CSR law, large companies are mandated to invest 2% of their earnings in CSR projects. This can be an opportunity to finance the upfront cost of solar systems for health centres.¹⁰

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- » Half of the PHCs in India either do not have or receive irregular electricity supply, hindering the ability of the PHCs to provide healthcare service, preserve medicines and vaccines and retain staff.
- » While the upfront cost of a solar system is high for most PHCs, displacing a diesel generator with a solar system can save 80% of the health centres' energy cost while bringing many benefits in improved healthcare services.

Sources:

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