## background

Small private healthcare facilities account for 62% of health infrastructure in India and are the first point of access for millions of Indians. They do not have reliable supply of electricity from the grid leading to greater usage of carbon-intensive diesel as a backup for critical equipment that need constant power. Indian states like Uttar Pradesh (UP) and Rajasthan (RJ) severely lag behind in quality of healthcare and health indicators (Maternal Mortality Rate >130/100,00 live births).

IDENTIFY PATHWAYS TO INCENTIVISE SMALL HEALTHCARE FACILITIES TO SWITCH TO SOLAR AS THE MAIN SOURCE OF ENERGY

**Mixed methods:** quantitative and qualitative survey of 8 private hospital administrators in UP and RJ, solar service provider (Hamara Grid) & desk research

## findings

- The average bed size was **42** and median was **50** (linked to government incentives) and average patient footfall **1800** per month.
- X-ray and freezers were the most common energy-intensive equipment followed by ICU and operation theatre machines.
- Given their urban/semi-urban location, the average daily power cut was
  1.5 hours but facilities had installed stabilisers to address voltage fluctuation.

## recommendations

methodology

 Taking an average of 10,000 kWh consumed by a 50-bed private facility per month based on our research, and an electrical load of 2 kW/bed, we estimate that a 100 kWp solar system can fully service the facility with a diesel

- Diesel was the primary back-up energy source. The median capital cost of a generator was **USD\$ 6000** (min \$3,400 and max \$11,000) and the median spend was **\$70**/month. During excessive power cuts due to political/ environmental factors, this multiplied **ten-fold**.
- 60% (5/8) facilities had some form of solar system installed but most did not have battery backup, used it to reduce their electricity bills by selling it back to the government grid, and used it primarily for lighting and heating, not for critical equipment.
- Facilities who sold solar back to the grid received a deduction \$34 to \$89
  per month.
- The median annual operating cost of energy (from the government grid) was \$13,150 (min \$3,700 and max \$69,000) including maintenance.
- **75% (6/8)** facilities financed solar systems themselves. Bank loans were availed for other purposes like vehicles (ambulances) and equipment.

\* 1 USD is taken at around INR 73.

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- backup for critical equipment.
- At \$1,000 per KW, this would cost around \$100,000 at zero interest rate assuming existing diesel backup (median cost of \$6,164).
- Assuming median cost of \$13,150 /year for energy from the grid, the investment will break even after 8 years.
- Since bank loans beyond \$70,000 are hard to obtain and come with high collateral requirements, credit guarantee and concessional debt schemes are critical. Existing plans by the government and World Bank on this front need more traction. SuBaH plan and progress should be published.
- Increase feed-in tariff for solar from existing \$0.05/kWh to incentivise surplus generation from health facilities and greening of the main grid.

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**Green Health Alliance**